Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

Port Hope Area Initiative Waste Management Project Annual Compliance Monitoring Report for 2024

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Revision 0

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NA – not applicable.

EXECUTIVE SUMMARY

This Annual Compliance Report for the 2024 calendar year has been prepared in accordance with Licence Condition 3.1 of the Port Hope Area Initiative (PHAI) licence and Canadian Nuclear Safety Commission (CNSC) Regulatory Document (REGDOC) 3.1.3, *Reporting Requirements for Waste Nuclear Substance Licensees, Class II Nuclear Facilities and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices*. This report is produced to demonstrate that Canadian Nuclear Laboratories (CNL) has successfully met the requirements of the *Nuclear Safety and Control Act*, associated regulations, the *Port Hope Area Initiative Waste Management Project Licence WNSL-W1-2310.00/2032* (PHAI licence), and associated *Port Hope Area Initiative Radioactive Waste Management Project Licence Conditions Handbook* (PHAI LCH).

Canadian Nuclear Laboratories acknowledges that its operations take place on ceded, unceded, and unsurrendered traditional territories of numerous First Nations. The Historic Waste Program Management Office and the PHAI projects are situated on the traditional and treaty lands of the Williams Treaties First Nations, specifically the Gunshot Treaty signed with the Mississauga First Nations of Alderville, Curve Lake, Hiawatha, and Scugog Island. At CNL, we recognize the unique history, spiritual beliefs, cultural practices, and languages of Indigenous Peoples 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 unrestricted document provides CNL compliance monitoring and performance information for the PHAI and is organized by CNSC's 14 Safety and Control Areas (SCAs). This report provides site-specific information to supplement information in the *Annual Compliance Monitoring Report for Canadian Nuclear Laboratories* for 2024, which provides programmatic updates and performance of the 14 SCAs and CNL's Public Information Program as applicable to all CNL sites.

Overall Performance Highlights

During the reporting period, CNL continued to manage the PHAI remediation activities in accordance with accepted procedures, as outlined in the PHAI LCH. The following is a list of overall performance highlights at PHAI for 2024:

- All licensed activities continued to be carried out safely and securely.
- No member 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.
- No releases to the environment exceeded any regulatory limit.

Engagement with Indigenous Communities and Organizations

Historically, the PHAI Public Information Program had included Indigenous communities and organizations as a target audience. In support of CNL's objective to advance reconciliation through meaningful actions and movement toward increased inclusion and participation, the PHAI Phase 2 and 3 Program for Engagement with Indigenous Communities and Organizations was implemented in tandem with the public information program and aligned with CNL company-wide Indigenous relations efforts. A total of 53 engagements with Indigenous communities and organizations took place in 2024, including meetings, site tours, and community visits.

Safety and Control Areas

The following is a summary of key 2024 initiatives and improvements at the PHAI which are further described in the relevant SCA sections of this report.

Safety and Control Area 1 - Management System

Canadian Nuclear Laboratories has a well-established management system that defines the requirements to ensure that applicable work is conducted in accordance with requirements and best practices. Internal audits and self-assessments were conducted as required. ISO 9001:2015 *Quality Management Systems – Requirements* certification was maintained. The management system was effectively implemented at the PHAI during the reporting period.

Safety and Control Area 2 - Human Performance Management

Canadian Nuclear Laboratories has a well-established Training Program. It is in place to enhance human performance through the development and implementation of processes that ensure workers are sufficient in numbers in all relevant job areas and have the necessary knowledge, skills, and tools in place to safely carry out their duties. The PHAI maintained a sufficient number of qualified workers to carry out the licensed activities safely. A range of mandatory and other job-specific training activities were carried out in the reporting period to ensure that all PHAI employees and contractors acquired mandated training (including refresher training) as appropriate for their duties to ensure safe operations while conducting work under the PHAI licence.

Safety and Control Area 3 - Operating Performance

Canadian Nuclear Laboratories has a well-established Conduct of Operations Program. Canadian Nuclear Laboratories completed all required reporting as outlined in Section 3.1 of the PHAI LCH. Eight events were reported to the CNSC in the reporting period, as outlined in the applicable SCAs.

Safety and Control Area 4 - Safety Analysis

Per the PHAI LCH, the safety analysis SCA is not applicable to the PHAI.

Safety and Control Area 5 - Physical Design

Canadian Nuclear Laboratories has a well-established Physical Design Program. Changes made to the physical facility, equipment, processes, procedures, or practices that could adversely affect the design basis are identified and assessed by key stakeholders through the Engineering Change Control Program. During the reporting period, nine Reduced Risk Engineering Changes and seven Item Equivalency Evaluations were initiated, with no activities assessed as a Category 1 or 2 change. Also, an effort was made to revitalize the PHAI detailed design description reports based on recommendations from an extent of condition assessment. Changes resulted in a new set of design basis documents that consolidate the eight previous documents into three.

Safety and Control Area 6 - Fitness for Service

Canadian Nuclear Laboratories has a well-established Fitness for Service Program. All equipment in the Port Hope and Port Granby Waste Water Treatment Plants was maintained in a ready-to-operate state except for the slurry drying system at Port Granby, which is scheduled for removal in 2025.

Safety and Control Area 7 - Radiation Protection

Canadian Nuclear Laboratories has a well-established Radiation Protection Program. As Low As Reasonably Achievable (ALARA) initiatives and activities continued to be at the forefront of the PHAI Radiation Protection Program. Radiation doses for workers remained ALARA, and estimated doses to the public remain low. There were no exceedances of regulatory limits or action levels in the Dose Monitoring Program. Doses to workers and the public were minimal. There were no reportable radiation protection events in the reporting period.

Safety and Control Area 8 - Conventional Health and Safety

Canadian Nuclear Laboratories has a well-established Conventional Health and Safety Program to manage non-radiological workplace safety hazards and to protect personnel and equipment. All licensed activities continued to be carried out safely and securely. Two hazardous occurrences resulting in one reportable occupational health and safety event occurred during the reporting period. The reported event resulted in six days of lost time, but the individual made a full recovery and the incident did not have any long-lasting adverse effects on the safety and security of persons or the environment.

Safety and Control Area 9 - Environmental Protection

Canadian Nuclear Laboratories has a well-established Environmental Protection Program that monitors radiological and hazardous substances to minimize risk to employees and the public. The effluent and environmental monitoring results are contained in and submitted to the CNSC in a separate report. There were no reportable environmental events in the reporting period.

Safety and Control Area 10 - Emergency Management and Fire Protection

Canadian Nuclear Laboratories has well-established Emergency Management and Fire Protection programs in place to reduce the risk of fires; assist emergency staff in responding to events; and assist in the protection of employees, the local community, and the environment. All required annual fire response drills were completed per program and regulatory requirements. There were eight reportable emergency events in the reporting period. With the exception of one event, the reported events did not have any adverse effect on the health, safety, and security of persons or the environment. One reported event resulted in six days of lost time, but the individual made a full recovery and the incident did not have any long-lasting adverse effects on the safety and security of persons or the environment.

Safety and Control Area 11 - Waste Management

Canadian Nuclear Laboratories has a well-established Waste Management Program. On-site management of waste occurred safely and without incident. Waste deliveries originating from various sites including Cameco, Waterfront Sites, Small-Scale Sites, Harbour and Centre Pier, and the Highland Drive landfill, and other waste sources such as on-site waste transfers, were made to the Port Hope Long-Term Waste Management Facility. Process residual waste was received at the Port Hope Long-Term Waste Management Facility from the Port Granby Waste Water Treatment Plant. There were no reportable waste management events in the reporting period.

The Waste Management Program was enhanced by preparing and implementing preliminary decommissioning plans for the Port Hope and Port Granby Long-Term Waste Management Facilities. These new plans are compliant with regulatory requirements and were submitted to the CNSC in 2024.

Safety and Control Area 12 - Security

Canadian Nuclear Laboratories has a well-established Security Program that is in place to implement and support the security requirements stipulated in the relevant regulations and the PHAI LCH. There was one reportable security event in the reporting period. The reported event did not have any adverse effect on the health, safety, and security of persons or the environment.

Safety and Control Area 13 - Safeguards and Non-Proliferation

Canadian Nuclear Laboratories has a well-established Nuclear Materials and Safeguards Management Program. The program undertakes all required measures to ensure implementation of safeguards in accordance with International Atomic Energy Agency commitments. Inventory changes were documented and reported to the CNSC as required. There were no reportable safeguards events in the reporting period.

Safety and Control Area 14 - Packaging and Transport

Canadian Nuclear Laboratories has a well-established Packaging and Transport Program. The Transportation of Dangerous Goods Program continued to operate the safe off-site transport and shipment of dangerous goods by conforming to all applicable laws and regulations, including company policies and procedures. Shipments of dangerous goods continued to be received from off-site vendors at the PHAI site (e.g., consumable chemicals, diesel fuel, and propane). There were no reportable transportation of dangerous goods events in the reporting period.

Public Information Program

Canadian Nuclear Laboratories has implemented a public information program since inception of the project. The program includes a public disclosure protocol regarding events and developments involving PHAI facilities or activities. Twelve public disclosures related to the PHAI were made in the reporting period. Stakeholder and public engagement continued in 2024 in accordance with the public information program, with a total of 20 presentations and 18 site tours of the PHAI sites.

Conclusion

Canadian Nuclear Laboratories is committed to achieving high standards of operational safety and security. The information and data presented in this report support the conclusion that safe and secure performance was achieved, while enhancements were implemented to further improve results.

ACKNOWLEDGEMENTS

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

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Land Acknowledgement

Canadian Nuclear Laboratories' Historic Waste Program Management Office and the Port Hope Area Initiative projects are situated on the traditional and treaty lands of the Williams Treaties First Nations, specifically the Gunshot Treaty signed with the Mississauga First Nations of Alderville, Curve Lake, Hiawatha, and Scugog Island.

These Mississauga Nations are also signatories to various 18th and 19th century treaties that covered lands in different parts of south-central Ontario. In 1923, the Mississauga First Nations and the Chippewa First Nations consisting of Rama, Beausoleil, and Georgina Island signed the Williams Treaties and together, over 90 years later in 2018 June, joined to ensure that their rights to and the relationship with these lands are respected through a renewed agreement with Canada and the Province of Ontario.

The area in which we are situated is also home to Indigenous Peoples from across the region and Canada. Canadian Nuclear Laboratories is grateful to have the opportunity to work on these traditionally and culturally significant lands and waterways.

Introduction

Canadian Nuclear Laboratories (CNL) is Canada's premier nuclear science and technology organization and a world leader in developing nuclear technology for peaceful and innovative applications. Using unique expertise, CNL is restoring and protecting the environment and advancing clean energy technology, and its medical breakthroughs continue to improve the health of people around the world.

Atomic Energy of Canada Limited (AECL), a federal Crown corporation, has contracted CNL to manage and operate its sites and facilities across the country. Canadian Nuclear Laboratories is also contracted to carry out AECL's mandate to enable nuclear science and technology and to protect the environment by fulfilling the Government of Canada's radioactive waste and decommissioning responsibilities. Through its Historic Waste Program Management Office (HWP MO), CNL is implementing the Port Hope Area Initiative (PHAI) on behalf of AECL.

The PHAI represents the federal government's response to the community-requested solution for the cleanup and local, long-term, safe management of historic low-level radioactive waste (LLRW) in the municipalities of Port Hope and Clarington, Ontario. The waste is the result of the refining practices of the former Crown corporation, Eldorado Nuclear Ltd., and its private sector predecessors. The original Eldorado refining operation and plant were established in the 1930s without consultation with Indigenous Peoples of the area.

An Agreement for the Cleanup and the Long-Term Safe Management of Low-level Radioactive Waste Situated in The Town of Port Hope, The Township of Hope and the Municipality of Clarington (Legal Agreement) [1], finalized in 2001 March between the Government of Canada and the two municipalities, launched the PHAI by defining the framework and setting out the responsibilities for the Port Hope Project (PHP) and the Port Granby Project (PGP). The Legal Agreement [1] is periodically amended as needed to support changing circumstances.

Licence Information and Reporting Period

Name: Canadian Nuclear Laboratories Ltd.

Port Hope Area Initiative Waste Management Project

Locations: Municipality of Port Hope, Municipality of Clarington, and Regional Municipality of Durham

This Annual Compliance Report is produced to comply with the following:

- Licence Condition 3.1 of the *Port Hope Area Initiative Waste Management Project Waste Nuclear Substance Licence* (WNSL-W1-2310.00/2032), hereafter referred to as the PHAI licence [2].
- The compliance verification criteria listed in the *PHAI Waste Management Project Licence Conditions Handbook* [3], hereafter referred to as the PHAI LCH [3].

- Section 4 of the Annual Compliance Report of Canadian Nuclear Safety Commission (CNSC) Regulatory Document (REGDOC) 3.1.3, *Reporting Requirements for Waste Nuclear Substance Licensees, Class II Nuclear Facilities and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices* [4].

Information included in this report is for the period of 2024 January 01 to 2024 December 31. This report provides site-specific information to supplement the information provided in the *Annual Compliance Monitoring Report for Canadian Nuclear Laboratories* (ACMR for CNL) [5], which provides corporate updates to the 14 Safety and Control Areas (SCAs) as they are applied across all CNL.

The intent of this report is to provide sufficient detail to demonstrate how PHAI programs are meeting the regulatory requirements of the *Nuclear Safety and Control Act* [6] and associated regulations and requirements as specified in the PHAI licence [2] and the PHAI LCH [3]. A separate report is provided for the environmental protection SCA [7], submitted to the CNSC under separate cover.

Changes to Organizational Structure

In the reporting period, CNSC staff were notified [8] of a change to the PHAI Site Licence Holder.

Facilities Included in this Report

Facilities included in this report are described as follows:

The Port Granby Long-Term Waste Management Site

- The Port Granby Long-Term Waste Management Facility (PG LTWMF) and the Port Granby Waste Water Treatment Plant (PG WWTP) are located on the Northern Site at 4780 Lakeshore Road, in the Municipality of Clarington (Figure 1). The facility is 580 m north of Lakeshore Road, immediately northwest of the remediated former Port Granby Waste Management Facility (PG WMF). The site is bounded by Elliott Road to the west, Nichols Road on the east and the Canadian National Railway to the north.
- The Southern Site is located at 4763 Lakeshore Road in the Municipality of Clarington, Ontario. The Southern Site consists of the remediated former PG WMF and occupies 18 ha in Lot 3, Broken Front Concession “A” in the Municipality of Clarington, Regional Municipality of Durham, and Province of Ontario. The property is bounded by Lake Ontario to the south, by farmland owned by the Government of Canada to the east and west, and by Lakeshore Road to the north.

Figure 1: Port Granby Engineered Containment System and Waste Water Treatment Plant

The Port Hope Long-Term Waste Management Site

The Port Hope Long-Term Waste Management Facility (PH LTWMF) and the Port Hope Waste Water Treatment Plant (PH WWTP) are located at 2376 Baulch Road, Port Hope, Ontario (Figure 2). The site is south of Highway 401 between Brand Road and Baulch Road.

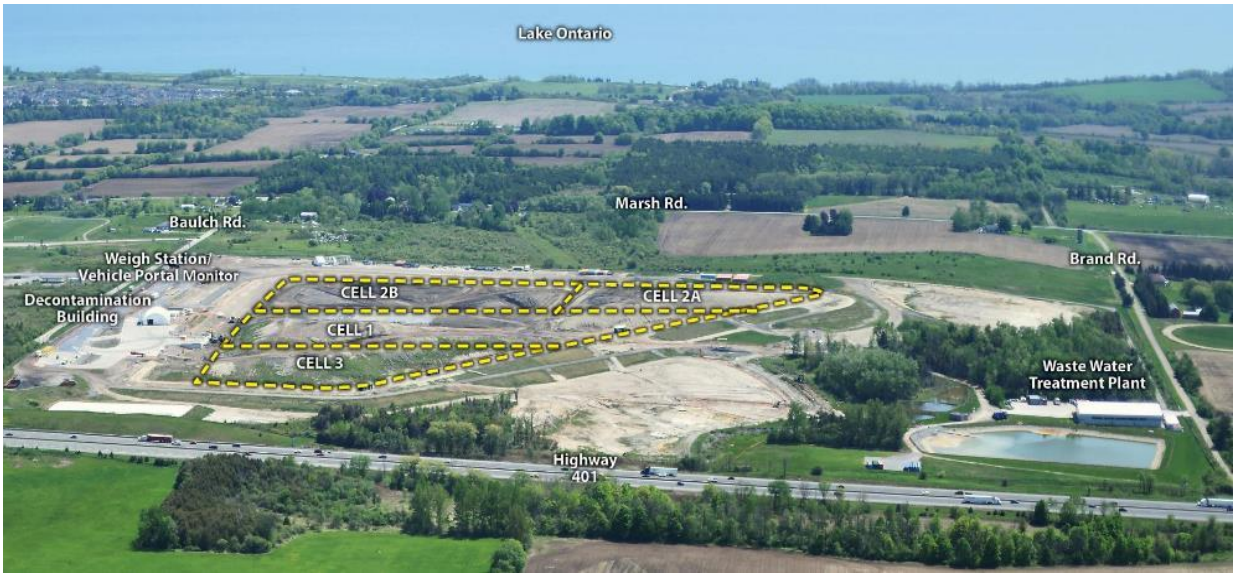

Figure 2: Port Hope Project Long-Term Waste Management Facility

Summary of Licensed Activities

The PHAI licence [2], authorizes CNL to possess, transfer, manage, and store nuclear substances, with some exceptions, which are required for, associated with, or arise from historic waste remediation operations in the Municipality of Port Hope, the Municipality of Clarington, and the Regional Municipality of Durham in the Province of Ontario.

The PHAI is defined by the Legal Agreement [1], which took effect on 2001 March 29, between the Government of Canada and the municipalities of Port Hope and Clarington for the management of LLRW as prescribed under the PHAI and the Port Hope Long-Term Low-Level Radioactive Waste Management Project. Three phases of the PHAI have been defined as Phase 1: Planning and Preparation; Phase 2: Construction, Remediation and Closure; and Phase 3: Long-Term Monitoring and Maintenance.

The PHAI includes two distinct and separate projects:

The Port Granby Long-Term Low-Level Radioactive Waste Management Project

The Port Granby Long-Term Low-Level Radioactive Waste Management Project (PGP) involved the relocation of approximately 450,000 m^3 of historic LLRW, located at a legacy waste management facility site on the shoreline of Lake Ontario in Southeast Clarington, to a new, engineered containment system at the PG LTWMF constructed approximately 700 m north of Lake Ontario.

The PGP is in Phase 3:

- Phase 1 (complete):
    - Securing regulatory approvals.
    - Management of waste at the PG WMF currently owned by the Government of Canada and operated by CNL on behalf of AECL, a federal Crown corporation; operation of this site was assumed from Cameco Corporation in 2012 March.
- Phase 2 (2011 to 2022) (completed in 2022):
    - Construction of the PG LTWMF.
    - Remediation of the PG WMF.
    - Transportation of LLRW from the PG WMF to the PG LTWMF for consolidation in a new engineered containment system.
- Phase 3 (2023 to 2120):
    - Activities related to the post-closure operations of the PG LTWMF associated with long-term maintenance and monitoring.

The Port Hope Long-Term Low-Level Radioactive Waste Management Project

The Port Hope Long-Term Low-Level Radioactive Waste Management Project (PHP) comprises the long-term management of the LLRW removed from the former Welcome Waste Management Facility (WWMF), the construction of a new Port Hope Long-Term Waste Management Facility (PH LTWMF), the remediation of LLRW and specified industrial waste at various sites within the Municipality of Port Hope, and the safe transportation of the waste to PH LTWMF for long-term storage.

The PHP will:

- Remediate sites containing historic LLRW and other specified industrial waste located in the Municipality of Port Hope. These sites are described in the Legal Agreement [1].
- Consolidate and manage this waste in the new PH LTWMF, developed on lands composed of and adjacent to the former WWMF. The contents of the former WWMF have been incorporated into the PH LTWMF.

The historic LLRW within the community currently exists within temporary storage and management facilities and miscellaneous remediation sites.

The PHP is in Phase 2:

- Phase 1 (complete):
    - Securing regulatory approvals.
    - The management of the waste in the WWMF, currently owned by the Government of Canada and operated by CNL on behalf of AECL, a federal Crown corporation.
- Phase 2 (2012 to 2030):
    - Development of a long-term waste management facility on and adjacent to the present site of the WWMF.
    - Incorporation of the current inventory of waste from the WWMF into the new PH LTWMF.
    - Remediation of sites within the Municipality of Port Hope that are contaminated with historic LLRW.
- Phase 3 (2031 to 2120):
    - Activities related to the post-closure operations of the PH LTWMF associated with long-term care and maintenance.

Summary of New Licensed Activities

No new licensed activities were added in 2024.

Site Development

There were no significant modifications to the PHAI facilities, processes, equipment, procedures, or programs.

Financial Guarantees

The CNSC was previously provided with a letter from the Honorable G. Rickford [9], advising that as an agent of His Majesty in Right of Canada, AECL's liabilities associated with the decommissioning of the PHAI facilities 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, per the communication issued on 2020 August 25 [10].

1. Management System

1.1 Management System Program

The PHAI adheres to CNL's Management System and Quality Functional Support Areas (FSAs). Refer to Section 1 of the ACMR for CNL for details [5].

The *Historic Waste Program Quality Plan* [11] supports the *Canadian Nuclear Laboratories Management System Manual* [12] and summarizes the processes and practices applicable to the PHAI licensed activities. These processes and practices comply with the quality management system defined in the CAN/CSA-ISO 9001:2015 [13].

The CNL management system aligns with CSA N286-12, *Management System Requirements for Nuclear Facilities* [14].

Contractors conducting work for the PHAI projects submit site-specific quality plans for CNL's review and approval to confirm compliance with the *Historic Waste Program Quality Plan* [11]. Contractor compliance with project-specific quality plans is examined as part of CNL's Compliance Program (Section 1.5).

Management System document revisions in 2024 specific to PHAI were submitted to CNSC staff [15] as shown in Table 1. For a list of management system document submissions applicable to multiple sites, refer to Section 1 of the ACMR for CNL [5].

Table 1: PHAI Management System Document Submissions in 2024

Document Title	Document Type	Correspondence No.
Historic Waste Program Quality Plan [11]	QAP	4500-CNNO-24-0010-L [15]

QAP – Quality Assurance Plan.

1.2 Audits, Inspections, and Self-Assessments

Per the requirements of the *Canadian Nuclear Laboratories Management System Manual* [12], both SCAs and facilities conduct various audits, inspections, and self-assessments to confirm 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.

1.2.1 Audits

Refer to Section 1.2 of the ACMR for CNL [5] for a list of all CNL-wide audits for the reporting period.

All actions resulting from audits, inspections, reviews, and self-assessments are managed and tracked through CNL's Improvement Action (ImpAct) system.

1.2.1.1 External Audits

The external audits conducted at PHAI in 2024 are summarized in Table 2.

Table 2: External Audits

Title	Type of Audit	No. of Non-Conformances Raised	No. of Actions Raised [a]	No. of Actions Completed
ISO 9001:2015 Recertification Audit Audit by: Intertek 2024 Jan 16-17 for Port Hope	ISO 9001:2015 Quality Management System Recertification Audit	0	1	0
ISO 14001:2015 Audit by: Intertek 2024 Jan 10	ISO 14001:2015 Environmental Management System	0	10	10

a The actions raised may also include opportunities for improvement.

1.2.1.2 Internal Quality Audits

There were no internal audits completed by the Quality Audits and Processes branch specific to PHAI in 2024.

1.2.2 Inspections

Canadian Nuclear Safety Commission Inspections

Canadian Nuclear Safety Commission inspections conducted at PHAI are listed in Table 3.

Table 3: Canadian Nuclear Safety Commission Inspections Conducted at PHAI in 2024

Inspection No. CNL-PHAI-WMP	Area Inspected	No. of NNCs	No. of NNCs Closed [a]
2024-01	PH WWTP and LTWMF and PG WWTP and LTWMF	3	3
2024-02	Small-Scale Sites	2	2
2024-03	Remediation Activities at PG LTWMF, PH LTWMF, Harbour and Centre Pier, and Highland Drive South Ravine	2	0
2024-04	Radiation Protection at PG WWTP, PG WMF, and PG LTWMF; PH WWTP and PH LTWMF; Harbour and Centre Pier; and Highland Drive Landfill	0	0
2024-05	Environmental Protection at PG WWTP, PG WMF, and PG LTWMF; PH WWTP and PH LTWMF; Harbour and Centre Pier; and Highland Drive Landfill	0	0

a Closed as of 2024 December 31.
NNC – Notice of Non-Compliance.

International Atomic Energy Agency Inspections

International Atomic Energy Agency inspections conducted at PHAI are listed in Table 4.

Table 4: International Atomic Energy Agency Inspections Conducted at PHAI in 2024

Site (Facility/Location Code)	Inspection						Total
	PIV	DIV	RII	IIV	UI	CA	
Port Hope LTWMF (CNWF)	1	1	0	0	0	0	**2**
Canada Location Outside Facility (CN-2)	0	0	0	0	0	0	**0**

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

Inspections by Other Regulatory Bodies

There were no inspections by other regulatory bodies at the PHAI in 2024.

1.2.3 Self-Assessments

In 2024, six self-assessments were conducted at PHAI covering various aspects of the management system, including both SCAs and various facilities as listed in Table 5.

Table 5: List of Self-Assessments

ImpAct Title	SCA
Conduct of Operations Monthly Publication Review of Operating Procedures and Surveillance Testing Nuclear Facility Field Observations – February	Operating performance
Historic Waste Program Management Office Quality Assurance Plan	Management system
Land Use Assessment (Decommissioning planning)	Waste management
Waste Surveillance of Port Hope Area Initiative	Waste management
Security compliance against the approved PHAI Security Plan	Security
Waste Surveillance of Cameco site (Port Hope)	Waste management

1.3 Problem Identification and Resolution

1.3.1 Trending of Events Related to Operational Activities

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

Formal event-based trend reports continue to be prepared on a monthly basis to predict any adverse trends and identify improvements. Trend ImpActs are listed in Table 6 along with ImpAct title and number of actions raised to address identified causal factors.

Table 6: Trend Improvement Actions Raised

ImpAct No.	ImpAct Title	No. of Actions Raised
HSSE-24-1649	HWP - HWP Contractor Deficiencies Regarding Radiation Protection Program	5
ERM-24-1887	HWP MO Contract laboratory issue	5

The use of a robust Problem Identification and Resolution Process continues to foster the internal reporting of lower significance level events (Level 4 and Level 3), thus affording the opportunity to implement continuous improvement initiatives.

Improvement Actions raised at the PHAI over the past five years are summarized by significance level[1] in Table 7. The increase in the number of ImpActs at PHAI since 2022 compared to previous years is attributed to an increased rigour for reporting Significance Level 3 and 4 events, which are considered minor problems. The increase is indicative of a positive reporting culture.

Table 7: Number of Improvement Actions Raised

Year	Level 0 [a]	Level 1	Level 2	Level 3	Level 4	Total
2020	3	0	0	5	81	89
2021	1	0	5	31	132	169 [bc]
2022	4	0	6	41	199	250[b]
2023	2	0	6	84	252	344 [b]
2024	4	0	4	58	290	356 [b]

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 made.
b Total does not include committee-based ImpActs.
c Total does not include an additional five ImpActs and one committee-based ImpAct raised for tracking initiatives that span PHAI projects.

1.4 Management Reviews

A PHAI Quality Assurance Program / Management System Review was completed for fiscal year 2023/2024 to evaluate the effectiveness of the management system, through inclusion within the CNL Management System Review. The review did not identify any site-specific actions. The

[1] 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.

2023 April to 2024 December Management Review concluded that the CNL's management system is suitable to meet the necessary requirements, aligned with the strategic direction, and effective at supporting CNL to achieve our objectives. The 2024/2025 review has been initiated.

1.5 Compliance Oversight

Activities performed by CNL and by PHAI consultants, contractors, and service providers are subject to CNL's Compliance Program. An integrated approach to oversight, where one oversight process is used to confirm the suitability, implementation, and effectiveness of processes applied to PHAI project activities. Compliance objectives for contractual obligations, licensing requirements, acts and regulations, environmental management and protection plans, compliance plans, and technical specifications are outlined in the *Historic Waste Program Management Office Field Oversight Activities* procedure [16].

During the reporting period, identified non-compliances and opportunities for improvement from CNL's compliance oversight activities continued to be dispositioned and implemented in accordance with program requirements.

2. Human Performance Management

The human performance management SCA covers activities that enable effective human performance through the development and implementation of processes to ensure the presence of a sufficient number of qualified workers to safely carry on the licensed activities in accordance with the *Nuclear Safety and Control Act* [6] and associated regulations.

The PHAI Human Performance Program aligns with CNSC REGDOC-2.2.2, *Personnel Training* [17].

2.1 Human Performance Program

The PHAI adheres to CNL's Performance Assurance FSA. Refer to Section 2 of the ACMR for CNL for details [5].

All PHAI employees receive mandatory human performance training. The CNL Human Performance and Training branch provides programs and support that help reduce human error and, as a result, the frequency and severity of unplanned events at CNL.

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

- Targeted wildlife safety initiatives were supported and rolled out as pre-job brief packages to provide field staff with awareness training on bear safety and coyote safety. These two safety initiatives were developed to address safety concerns raised by employees due to increased sightings of wildlife at work sites.
- Additional safety initiatives promoting safe excavation work practices, STOP / PAUSE Work / Focus on Four, and Harassment and Violence Free Workplace Prevention for managers and supervisors were held. These safety initiatives reinforce CNL's commitment to ensuring a safe work culture.

2.2 Training Program

The PHAI adheres to the Corporate Training and Development FSA. Refer to Section 2 of the ACMR for CNL for details [5]. The *PHAI Training Plan* [18] defines the training processes applied to the work performed at the PHAI and promotes safe and effective workplaces through the cooperation of management, employees, contractors, and visitors.

Contractors conducting work for the PHAI projects submit site-specific training plans for CNL's review and approval to confirm compliance with the *PHAI Training Plan* [18]. Contractor compliance with project-specific training plans is examined as part of CNL's Compliance Program (Section 1.5). Compliance with the plan ensures that all project staff (including CNL employees and contractors) are qualified to perform their duties effectively and safely, using established processes and standards.

The process to revise seven PHAI job-specific training plans to incorporate changes and align with revised or new requirements for Learning Management System (LMS) roles and certifications commenced in 2024 and will continue into 2025.

There were no revisions to the *PHAI Training Plan* [18] in the reporting period. For a list of Training Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

2.2.1 Required Training

The PHAI maintains a sufficient number of qualified workers to carry on the licensed activities safely and in accordance with the *Nuclear Safety and Control Act* [6] and associated regulations.

All workers assigned to the PHAI are required to attend a PHAI Awareness session to gain understanding of the project. Contractors are responsible to qualify staff to PHAI requirements as well as maintain their training. Records are inspected regularly by CNL staff during compliance oversight activities (Section 1.5) and audits.

The PHAI applies the Systematic Approach to Training for positions and roles identified on the *Application of the Systematic Approach to Training (SAT) at CNL* [19] controlled list. The SAT enlists the training analysis method – job/task analysis to identify training requirements to be documented in position/role-specific training plans. The following positions and roles at the PHAI are on the controlled list [19]:

- Group 1 - Health Physicist
- Radiation Protection Surveyor
- Design Authority
- Dangerous Goods Handler
- Dangerous Goods Shipper
- Certified Industrial Hygienist

All PHAI personnel, both employees and contractors, are adequately trained (including refresher training) to ensure safe operations and to conduct work under the PHAI licence [2]. Management verifies training compliance to ensure only employees who are qualified to perform a task are assigned the work. The CNL employee and manager/supervisor required training at PHAI is listed in Table 8. A list of federally or provincially legislated training courses that appear in PHAI position-specific training plans is provided in Table 9.

Table 8: Employee and Manager/Supervisor Required Training

Certification Title	% Complete in 2024
Employee Required Training	
CNL General Safety Orientation	100
Hazard Prevention Program	100
Human Performance Awareness - Fundamentals and Nuclear Safety Culture	99
Introduction to CNL's Management System	100
WHMIS - 2015	100
PHAI (Port Hope Area Initiative) Awareness	99
PHAI - Step Up to Safety	98
Emergency Procedure Awareness – 3-Year Recertification	100
Information Asset Protection (IAP) Training	100
Introducing the ImpAct Process at CNL	98
Security Awareness	100
Values and Ethics at CNL	96
Violence and Harassment Prevention	98
Fire Extinguisher	93
Fire Prevention Training (Remote Employees)	97
CyberSecurity (8 courses)	95
Indigenous Relations at CNL	98
Waste Management Awareness	97
Manager/Supervisor Required Training	
Continuous Behavioural Observation Program	90
Responsibility in Supervising Employees	64
Radiation Protection Required Training	
Group 4 Radiation Protection Training	99
Group 3 Radiation Protection Worker	96
Group 2 Radiation Protection Worker	100
Group 1 Health Physicist - HWP	100

WHMIS – Workplace Hazardous Materials Information System.

Table 9: Federally or Provincially Legislated Training

Role	Certification Title	% Complete in 2024
Aerial Platform Operator - Scissor Lift (Program Assigned)	Aerial Work Platform Practical - Scissor Lift	100
OSH - Aerial Platform Operator - Scissor Lift (Consolidated List)	Aerial Work Platform Practical - Scissor Lift	100
	Aerial Work Platform Theory	100
	Working at Heights Worker	80
Confined Space Awareness (Program Assigned)	Confined Space Awareness	33
Confined Space Entry (Program Assigned)	Confined Space Entry	55
Lift Truck Operator - Counter Balance (Program Assigned)	Lift Truck Practical - Counter Balance	100
OSH - Lift Truck Operator - Counter Balance (Consolidated List)	Lift Truck Operation Theory	100
	Lift Truck Practical - Counter Balance	100
Lift Truck Operator - Electric Pallet Jack (Program Assigned)	Lift Truck Practical - Electric Pallet Jack	80
OSH - Lift Truck Operator - Electric Pallet Jack (Consolidated List)	Lift Truck Operation Theory	100
	Lift Truck Practical - Electric Pallet Jack	80
Lift Truck Operator - Non-Electric Pallet Jack (Program Assigned)	Lift Truck Practical - Non-Electric Pallet Jack	100
OSH - Lift Truck Operator - Non-Electric Pallet Jack (Consolidated List)	Lift Truck Operation Theory	100
	Lift Truck Practical - Non-Electric Pallet Jack	100
Lock Out / Tag Out (LOTO) - DP&PHAI (Program Assigned)	Lock Out / Tag Out (LOTO) (DP&PHAI)	95
OSH - Working at Heights Worker (Consolidated List)	Working at Heights Worker	97
Working at Heights Worker (Program Assigned)	Working at Heights Worker	96
OSH - Asbestos - Advanced Asbestos Awareness (Consolidated List)	Advanced Asbestos Awareness	100

OSH – Occupational Safety and Health; DP – Douglas Point.

2.2.1.1 Analysis of Trends

Canadian Nuclear Laboratories has adopted a performance benchmark of 90% completion for required training. This completion rate represents the appropriate number of qualified staff needed to perform work at CNL sites. In 2024, PHAI achieved the CNL performance benchmark for all employee required training and the majority of all federally or provincially legislated training requirements identified on position-specific training plans.

The completion rate for CNL's Responsibility in Supervising Employees training for managers and supervisors at PHAI slightly improved in 2024; however, it is still below expectations. Attrition at this level of the CNL workforce continues to be a factor impacting performance.

The compliance-based roles identified in Table 9 include both "Consolidated List" and "Program Assigned" roles. Those labelled as "Consolidated List" were assigned only to PHAI employees with a position-specific training analysis and training plan identifying the compliance-based training as a requirement to perform their current job duties/tasks. The completion rate for the majority of all "Consolidated List" roles achieved CNL's performance benchmark, with the exception of the Occupational Safety and Health (OSH) - Aerial Platform Operator - Scissor Lift, Confined Space Awareness (Consolidated List) role. Assignment of work requiring aerial platform or confined space is being limited to staff who have already completed the training.

The roles labelled as "Program Assigned" roles were assigned to all PHAI employees with a prior completion record for the compliance-based training. This assignment was a compensatory measure taken as a corrective action [20] resulting from the lapses in the radiation protection (RP) training event, previously reported to CNSC staff [21], to ensure training requirements were being met while ongoing configuration of CNL's LMS continued. Canadian Nuclear Laboratories acknowledges that four of the "Program Assigned" roles were below the performance benchmark:

- Confined Space Awareness (Program Assigned)
- Confined Space Entry (Program Assigned)
- Lift Truck Operator - Electric Pallet Jack (Program Assigned)

As part of continual improvements, the removal of some "Program Assigned" roles may occur. Changes are made as training needs continue to be analyzed and re-evaluated based on job-specific tasks performed by each job position or role at PHAI.

The CNL LMS provides management with access to analytic tools to verify employee completion records and ensure employees are only performing work for which they are qualified. Additional actions have been taken to support management with verification of training records including the creation of job aids, increased LMS notifications leading up to and upon expiration of training to both employees and management, as well as establishing office hours for in-person assistance with the LMS.

2.2.2 Contractor Training

Before accessing the PHAI sites, contractors completed, at a minimum, the following training:

- PHAI Awareness
- PHAI - Step up to Safety
- Radiation Protection Group 4

- CNL Supplier Code of Conduct

Canadian Nuclear Laboratories maintained training records of all workers (including contractors) conducting work under the PHAI LCH [3] during the reporting period. Training records for all contractors are verified before work commencement and regularly through CNL compliance oversight activities (Section 1.5).

2.2.3 Training Evaluations Summary

During the reporting period, there were four documented observations of trainer evaluations and no post-training effectiveness observation and coaching evaluations. These evaluations are reviewed by Human Performance and Training personnel and discussed as part of curriculum review committee meetings. Training Program improvements are managed through applicable training change processes.

Employees are provided an opportunity to give feedback on all training courses completed using a course critique form. During the reporting period, 261 employee responses were collected using this form. Course critique forms are reviewed periodically to identify opportunities for improvement and changes are managed through the applicable training change processes.

Curriculum review committees (CRCs) serve as a method of evaluating training program health and overall effectiveness of a training program. In 2024, quarterly CRC meetings were held for the six SAT-listed positions and roles at the PHAI.

As noted in Section 2.2.2 of the ACMR for CNL [5], the evaluation of training programs (including post-training effectiveness, course critiques, and trainer evaluations) is a CNL SAT requirement that continues to have gaps across all SAT-based positions and roles, including those at the PHAI. The creation and use of a Training Evaluation Plan to ensure consistent evaluation of training is being piloted as an improvement initiative and has not yet led to an increase in the number of training evaluations being performed.

3. Operating Performance

The operating performance SCA covers the implementation and maintenance of a program for reporting information to the CNSC, including compliance monitoring, operational performance, event reporting, and various types of notifications. The PHAI's reporting program aligns with CNSC REGDOC-3.1.3, *Reporting Requirements for Waste Nuclear Substance Licensees, Class II Nuclear Facilities and Users of Prescribed Equipment, Nuclear Substances and Radiation Devices* [4].

3.1 Operating Program

Although not formally part of the PHAI LCH [3], the PHAI adheres to CNL's Conduct of Operations FSA. It is included in this report for information. Refer to Section 3.1 and Section 11.2 of the ACMR for CNL for details [5].

3.1.1 Environmental Remediation Operations

Environmental remediation operations involve the removal of the primary contaminants of potential concern which are indicative of historic LLRW (i.e., arsenic, uranium, radium-226, and thorium-230) and safely transporting the LLRW to the PH LTWMF.

The following subsections provide a summary of the PHAI's licensed remediation activities during the reporting period.

3.1.1.1 Port Granby Long-Term Waste Management Facility

Environmental remediation activities at the PG LTWMF are complete. The PGP Phase 3 activities conducted during the reporting period relate to maintenance and monitoring.

3.1.1.2 Port Granby Waste Water Treatment Plant

During the reporting period, the PG WWTP operations and maintenance activities were in Phase 3 of the PGP. The facility was operational for 75% of the time (190 days out of a possible 253 days). Process interruptions were related only to maintenance activities, intermittent disruptions to the electrical power grid, and low water levels in the equalization pond.

Water Collection and Treatment System

The waste water collection system consists of groundwater interceptors, a collection pond (East Storm Pond), and an equalization pond. Waste water from within the PG LTWMF (leachate, pump stations 05 and 06) and East Gorge drainage recovery system (i.e., pump station 03) is pumped to an equalization pond. The water then enters the plant, where it is treated using a two-stage process: membrane bioreactor pre-treatment (Stage 1), followed by reverse osmosis (Stage 2).

In Stage 1, membrane bioreactors are used to pre-filter the influent to remove fine solids and biological material to supply high quality feed to the reverse osmosis membranes.

In Stage 2, the treated water enters the reverse osmosis system where contaminants such as radium, uranium, and arsenic are removed. The water is forced under high pressure through a membrane. The contaminants are rejected by the membrane, and the treated water flows through to the pH adjustment tank. At this point, the treated water is discharged through a gravity drainpipe extending 120 m into Lake Ontario.

The rejected contaminants (i.e., reverse osmosis brine) are collected, then safely transported to the PH WWTP for further treatment. The total amount of reverse osmosis brine sent to the PH WWTP was 2,171 m^3. This is a decrease of 25% compared to the volume sent to the PH WWTP in 2023 (2,899 m^3).

Water Treatment and Monitoring

During the reporting period, influent and effluent samples were collected from the PG WWTP from fixed locations at weekly intervals. Grab samples were taken from a sample point on the pipeline feeding the treatment system and represented the treatment inflow. A total of 55,221 m^3 of influent was treated by the PG WWTP in 2024. This represents a decrease of approximately 7.6% in volume from 2023 recorded volumes. A total of 32,321 m^3 of final effluent was discharged to Lake Ontario. This represents an increase of 25% from recorded volumes in 2023. The decrease in influent is mainly due to lower groundwater flow from the south site of the property. Higher final effluent discharge was mainly due to clean out activities of the main equalization pond which required the pond to be emptied.

The PG WWTP was the sole source of effluent discharge from the former PG WMF in 2024. An automatic composite sampling unit collects samples at regular intervals before the water is discharged to Lake Ontario. Refer to the *Port Hope Area Initiative Waste Management Project Environmental Protection Annual Compliance Report for 2024* [7] for details.

3.1.1.3 Port Hope Long-Term Waste Management Facility

During the reporting period, the PH LTWMF was operating in Phase 2 of the PHP. Phase 2 project activities include construction of an engineered containment system and associated infrastructure and support facilities. During the reporting period, the activities and upgrades were as follows:

- Completed upgrades to on-site infrastructure to support high-peak waste receiving.
- Resumed the primary excavation of residual contaminated waste from the low-laying swamp area west of the engineered containment system, known as the “Forested Brush Area for Clearing.”
- Commenced remediation in the Forested Brush Area for Clearing.
- Completed tree removal to support remediation verification.
- Initiated the installation of a groundwater collection system in the Forested Brush Area for Clearing.

- Maintained the PH LTWMF in accordance with CNL established maintenance and operational procedures.
- Continued with the receipt and long-term storage of historic LLRW from various PHP remediation sites.
- Continued with placement of waste from PHP remediation sites into the PH LTWMF.
- Continued with monitoring of the design profile and shaping of Cells 1, 2, and 3.

3.1.1.4 Port Hope Waste Water Treatment Plant

During the reporting period, the PH WWTP was operating in Phase 2 of the PHP. The facility was operational for 90% of the time (i.e., 328 days out of 365 days). Process interruptions were related to maintenance activities, intermittent disruptions to the electrical power grid, and operational restrictions of the PH LTWMF.

Water Collection and Treatment System

The waste water collection system consists of surface water interceptor ditches, groundwater collection drains, a main collection pond, and three settling ponds. The water treatment systems include a former water treatment building and the PH WWTP, and twin 100 mm diameter discharge pipelines for routing of treated effluent to Lake Ontario.

The purpose of the former water treatment building was to capture groundwater and surface water that contacted impacted materials deposited at the historic WWMF. The system was designed to reduce arsenic, radium-226, and uranium concentrations and to discharge the treated water to Lake Ontario. The former water treatment building was not operated during the reporting period.

The PH WWTP uses the same collection ditches and collection pond as the former water treatment building and employs inclined plate clarifiers, sand filtration, reverse osmosis, mechanical vapor recompression evaporation, and slurry drying to treat the collected surface water and groundwater. The system uses these technologies to remove over 99% of the arsenic, uranium, and other heavy metals in the influent water.

Final effluent is held in a storage tank where it is monitored for conductivity and pH adjusted prior to release. A composite automatic water sampling unit collects samples at regular intervals before the water is discharged to Lake Ontario. The treated water is then discharged through a pipe extending 3 km underground to Lake Ontario via the same twin 100 mm diameter pipelines that were used by the former water treatment building.

Water Treatment and Monitoring

Influent and effluent samples were collected from the PH WWTP from fixed locations at weekly intervals during the reporting period. Grab samples were taken from a sample point on the pipeline feeding the treatment system and represented the treatment inflow.

A total of 276,000 m^3 of influent was collected by the PH WWTP in 2024; factors such as improved storm water management and fluctuating annual precipitation will affect the quantity of water requiring treatment. This represents a decrease of approximately 9% from 2023 recorded volumes. A total of 114,982 m^3 of final effluent was discharged to Lake Ontario. This represents a decrease of 13% from recorded volumes in 2023.

A composite automatic water sampling unit collects samples at regular intervals before the treated water is discharged to Lake Ontario. Refer to the *Port Hope Area Initiative Waste Management Project Environmental Protection Annual Compliance Report for 2024* [7] for details.

Operations of Residuals Management Systems

Regular operations of the residual management systems occurred in conjunction with normal water treatment activities during the reporting period. The residuals management equipment includes the clarifiers, evaporators, slurry dryers, and belt press systems. Both sludge and slurry processing streams continue to be optimized.

Residual Solids Treatment and Disposal

During the reporting period, the two solid waste streams operated as designed. As noted above, several key optimizations were made to improve the efficiency and throughput of these processes. The evaporators treat concentrate produced by the reverse osmosis systems and are designed to reduce the overall volume of this waste through the production of condensate. The condensate is combined with permeate generated from the reverse osmosis units and discharged to Lake Ontario. The evaporated concentrate (slurry) is fed to mechanical dryers for further dewatering. The dried slurry is transferred into bulk storage totes as a flowable solid. The totes are then transferred to the PH LTWMF for long-term management.

Dissolved solids in the influent liquid waste stream are chemically precipitated and collected as sludge in the clarifier vessels. These solids are stabilized using polymer compounds and held in batches before dewatering in the belt filter press. The filtration step removes excess water from the sludge before deposition into bulk storage totes which are then transferred to the PH LTWMF for long-term management. The decanted water is discharged back to the clarifiers or to the main collection pond for recirculating treatment.

A combined total of 797 tonnes of residual solid wastes were generated by the PH WWTP in 2024. This represents a decrease of approximately 19% from recorded 2023 production.

3.1.1.5 Major Sites

The PHAI sites where LLRW is previously known to have existed are classified as major sites. In addition, there are several known sites, which have been identified through earlier radiological investigations that are also included in this section.

Alexander Street Ravine

The Alexander Street Ravine site required remediation because Eldorado end-dumped radium refinery wastes into the natural ravine. The site consists of a wooded ravine with steep forested slopes. A wetland creek flows through the site to the Waterworks West site. It is bounded to the south by the Canadian Pacific rail embankment, to the north by forested lands, to the west by a golf course, and to the east by residential properties.

Due to various environmental constraints and in consideration of public feedback, special circumstances protocols have been followed for a large portion of the original Alexander Street Ravine site and the residential woodlot packages. Approximately 63% of the wooded area in Alexander Street Ravine was saved from clearcutting through the application of special circumstances protocols, focusing on areas of radiological impacts only.

The Special Circumstance Decision Package for the largest portion of the ravine property (privately owned) has been finalized and the property owner has approved the decision. A targeted remediation was performed on the municipality-owned parcels and adjacent residential lot. The remediation design identified approximately 2,150 m^3 of impacted soils for remediation. Remediation at the Alexander Street Ravine site began in 2024 June. As remediation progressed, more impacted material was identified, resulting in a final volume estimate of approximately 7,700 m^3. Approximately 1,500 m^3 remain for final remediation in early 2025. Restoration is expected to be completed by the fall of 2025.

Lions Park

The site consists of approximately 4,200 m^3 of LLRW. During 2024, the remaining 2,534 m^3 of LLRW was removed and transported to the PH LTWMF. Site restoration was completed in 2024. Project closeout is ongoing, and the site is scheduled to be returned to the property owner in 2025.

Port Hope Harbour and Centre Pier

The Port Hope Harbour consists of approximately 83,000 m^3 of LLRW and the Centre Pier consists of approximately 82,600 m^3, resulting in a total of 165,600 m^3 of LLRW. The Port Hope Harbour site is the most complex site of the PHAI. Contamination in the harbour exists as a sediment layer overlying the till and bedrock surface through the approach channel and turning basin. The sediment thickness varies, extending to as much as 4 m deep. The Centre Pier waste is comingled LLRW and industrial waste.

During the reporting period, bulk mechanical dredging was conducted, with 90% of cleaning passes completed by the end of 2024. The Portable Water Treatment System completed its intended uses and was decommissioned / removed from site.

Replacement and reinforcement of the harbour walls continued throughout 2024 with a focus on the Pier West wall and Turning Basin West wall. A large section of East Pier wall anchors was replaced. The excavation of Centre Pier is well underway, with approximately 85% of the

excavation and backfill scope completed. All discrete locations with industrial waste have been remediated and backfilled.

Waterworks West (West Beach)

The Waterworks West site required remediation because Eldorado in-filled a wetland on Port Hope's waterfront with radium refinery wastes. The site consists of a flat beachfront area set back approximately 30 m from Lake Ontario. The site is bounded to the east by the Port Hope Municipal Water Treatment Plant, to the north and west by Canadian National Railway property, and to the south by Lake Ontario beachfront.

The remediation design identified approximately 6,500 m^3 of impacted soils for remediation. Remediation at the Waterworks West site began in 2023 January and was completed in 2024 April. As the remediation progressed, more impacted material was identified, resulting in a remediated volume of 23,592 m^3.

Special circumstances are being applied for remaining impacted soils below the groundwater table, which would have required constant dewatering due to the influx of Lake Ontario. Remediation around Alexander Creek, running through the middle of the site, was delayed due to a change in policy at Fisheries and Oceans Canada that resulted in their rescinding the previous authorization to perform work around this creek and requiring a new permit to be obtained. Discussions with the Ministry of Natural Resources and Forestry, Fisheries and Oceans Canada, Curve Lake, and Hiawatha First Nations were held throughout 2023 and 2024 to develop a revised restoration plan for the site as required by the new Fisheries and Oceans Canada authorization. Restoration of the creek with the revised restoration plan is expected to be completed by the fall of 2025.

Highland Drive Area

The Highland Drive Landfill Area is composed of three separate and unique sites: Highland Drive Landfill Site, the Highland Drive South Ravine, and the Pine Street Consolidation Site. The original estimates of LLRW at the Highland Drive Landfill consist of approximately 51,900 m^3 of LLRW comingled with or overlain by municipal solid waste. This number was increased to approximately 74,000 m^3 based on updated output from predictive modelling software prior to the beginning of remediation.

The remediation work in the Highland Drive Landfill site is unique in that it involves the removal of LLRW in a former municipal solid waste landfill. A site-specific remedial verification approach was developed and accepted by CNSC staff. The contractor commenced waste haulage from the landfill area in 2023 January. All waste is expected to be removed from the site by 2025 March 31, and restoration will continue until the fall of 2025.

The Highland Drive South Ravine consists of 5,400 m^3 of LLRW in pond sediment and the north slope of the ravine. Design for the Highland Drive South Ravine was awarded in 2023 March, and remediation started in the winter of 2023. The permeable reactive barrier that forms a part

of this site's scope is expected to be completed in the summer of 2025, with final works occurring on site in late 2025.

The Pine Street Consolidation Site consisted of 47,000 m^3 of LLRW consolidated in a mound during the initial cleanup of Port Hope properties in the late 1970s to early 1980s. Remediation and restoration was completed in 2022. In 2022, the Highland Drive Landfill remediation contractor took care and control of the site and continues to maintain, monitor, and inspect the Pine Street Consolidation Site.

3.1.1.6 Property Remediation and Restoration

The PHAI property remediation and restoration involves the investigation of urban area (formerly Ward 1) properties and a selected number of rural area (formerly Ward 2) properties in Port Hope for the presence of the four signature contaminants of potential concern which are indicative of historic LLRW: arsenic, uranium, radium-226, and thorium-230. These properties consist primarily of privately owned (residential and business) and municipal properties, including road allowances.

Characterization, also known as the initial survey, is used to confirm the presence of LLRW on a given site and determines how the site is subsequently managed. Characterization field activities include interior radon gas detector deployment, and a preliminary above surface gamma survey followed by an intrusive subsurface investigation. The intrusive subsurface investigation involves borehole drilling, soil sampling, and possibly sampling of building or other types of material; gamma radiation measurements of boreholes and soil cores; and x-ray fluorescence measurements of soil boring samples for uranium and arsenic. Selected soil samples undergo independent, accredited analytical laboratory testing. Where historic LLRW is suspected to be present, further analysis for 17 secondary contaminants of potential concern is undertaken. If the presence of LLRW is confirmed, then the site proceeds to delineation followed by design, remediation, including the safe transportation of the waste to the PH LTWMF for storage, and restoration activities.

Properties continued to be evaluated for evidence of radon gas exceedances. Where exceedances were found to be a result of LLRW contamination on the property, mitigation systems were evaluated for installation.

Characterization of Properties with External Lots

Of the 5,236 properties with external lots, 95% have been characterized. Of the characterized exterior properties, 23% have been identified with LLRW. Of the exterior properties that have not been characterized, 33 sites are in progress and the remaining sites have access challenges including refusal from the property owner to participate or have not provided access to their property (such as railway lands).

Characterization of Properties with Interior Spaces

Of the 4,565 properties with interior spaces, 96% have been characterized. Of the characterized properties with interiors, 5% have been identified with LLRW or potential LLRW. Of the interiors that have not been characterized, 13 sites are in progress and the remaining are on hold due to property owner access challenges.

Characterization of Roads and Road Allowances

Of the 469 municipal road allowance sites, 79% have been characterized. Of the characterized road allowance sites, 39% have been identified with LLRW. Of the remaining road allowance sites that have not been characterized, characterization activities are in progress and expected to be completed in 2025.

Remediation and Restoration

Site remediation requires detailed planning prior to field execution to ensure compliance with the PHAI licence [2], federal and provincial regulatory requirements, municipal permits and requirements, technical codes and standards, and specific contractual obligations with property owners. Pre-construction planning is structured into a series of steps including pre-mobilization, mobilization, site preparation, excavation, remediation verification, back-filling, restoration, stakeholder property walk-down inspections, issue of Certificate of Substantial Performance, and warranty period. Some sites have added complexities such as a high water table or historical buildings with challenging structural integrity. Soil remediation activities can involve detailed geotechnical assessments, engineered shoring, precision excavations, specialized equipment, and detailed water management strategies. The range of restoration scopes are broad and can require the complete demolition of a home and/or occupant relocation. Construction planning is typically performed on a group of contiguous properties and roads to limit property owner disruptions.

3.1.1.7 Temporary Storage Sites

The Pine Street North Extension Temporary Storage Site consists of two asphalt storage pads and a Quonset storage building. The site remains in use for emergency and after-hours temporary storage of impacted soils, building debris contaminated with LLRW, roll-off storage bins containing residual amounts of impacted soils, and equipment used during off-site remedial activities.

During the reporting period, there were no major upgrades or developments to the site.

3.2 Reporting Requirements

The PHAI maintains a program for reporting information to the CNSC in accordance with the PHAI LCH [3] and REGDOC-3.1.3 [4]. The program includes compliance monitoring, operational performance reporting, event reporting, and various types of notifications. During the reporting period, CNL prepared and submitted the written reports required by the PHAI LCH [3].

The PHAI adheres to CNL's Compliance Program. For a list of reporting program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

3.2.1 Reportable Events to the Canadian Nuclear Safety Commission

During the reporting period, eight events occurred at the PHAI that were deemed reportable to the CNSC. Reportable events are listed in Table 10.

Table 10: Reportable Events to the Canadian Nuclear Safety Commission

ImpAct No.	ImpAct Title	SCA	Site
ERM-24-0122	PH LTWMF Emergency Medical Services Called for Personal Medical Event	Emergency management and fire protection	PH LTWMF
ERM-24-0311	HWP – PH WWTP – Chemical and Process Water Exposure to Worker	Conventional health and safety	PH WWTP
ERM-24-0640	HWP – PH LTWMF – Trespass Event	Security	PH LTWMF
ERM-24-1725	HWP – Port Hope Harbour Centre Pier (PH HCP) – Worker Lost Consciousness	Emergency management and fire protection	Harbour Centre Pier
ERM-24-2095	HWP – HDLF – Plastic Replica of Ordinance Device Uncovered at Highland Drive Landfill	Emergency management and fire protection	Highland Drive Landfill
ERM-24-3115	HWP - Task Order 2 – 34 Bramley St. Foundation Collapse	Emergency management and fire protection	Private Property
ERM-24-3577	HWP – PH LTWMF Precautionary Ambulance Call	Emergency management and fire protection	PH LTWMF
ERM-24-3811	HWP – TO2 Skid Steer Contacted Hydro Pole – No Injuries	Emergency management and fire protection	Private Property

3.2.2 Reportable Events to Other Regulators

During the reporting period:

- Two Hazardous Occurrence Investigation reports were made to Employment and Social Development Canada (refer to Section 8 for further details).
- Four events were reported to the Ontario Ministry of Environment, Conservation and Parks Spills Action Centre, and CNSC staff were proactively notified:
  - ERM-24-2042 – HWP – Harbour Centre Pier – Ministry of Environment, Conservation and Parks Reportable Spill Event – Oil Spill from Submerged Work Boat at the South End of Centre Pier

- ERM-24-2687 – HWP – Port Hope Harbour Centre Pier – Portable Water Treatment System Discharge Exceedance
- ERM-24-2927 – HWP – Harbour Centre Pier – Reportable Spill Event – Action Level Plume Leaving the Sediment Processing Area
- ERM-24-4073 – HWP MO – Harbour Centre Pier – Reportable Spill – Gasoline Leak from a boat in the Inner Harbour

- Ten submissions were made to Fisheries and Oceans Canada.

4. Safety Analysis

Per the PHAI licence [2], the safety analysis SCA is not applicable to the PHAI.

5. Physical Design

The physical design SCA relates to activities that affect the ability of systems, structures, and components to meet and maintain their design basis, given new information arising over time and taking changes in the external environment into account.

5.1 Design Program

The PHAI adheres to CNL's Design Authority and Design Engineering Program. The Design Engineering Program maintains and controls the design basis for all design activities, and it ensures that design is planned, executed, verified, and documented according to applicable codes, standards, regulations, designs, and customer requirements. Refer to Section 5.1 of the ACMR for CNL for details [5].

The PHAI employs the CNL suite of design planning, development, and review procedures to the design works produced internally, and the *Oversight of Engineering Agencies* procedure [22] to design works produced externally by others. External designs form the majority of designs related to the PHAI.

In 2022/2023, an extent of condition assessment was conducted on each of the detailed design description reports listed in the PHAI LCH [3]. Based on the results of the extent of condition assessments, a new set of design basis documents were developed to address identified discrepancies and consolidate eight documents into three. In accordance with the PHAI LCH [3], CNSC staff were notified [23] of the new design basis document in 2023 (*Port Hope Project Remediation Sites Design Basis* [24]). Canadian Nuclear Laboratories proposed that it replace some of the design documents listed in the PHAI LCH [3] as compliance verification criteria. In 2024, CNL received conditional approval for the three new design basis documents (*PHP Remediation Sites Design Basis* [24], *PH LTWMF Design Basis* [25], and *PG LTWMF Design Basis* [26]), with the condition being to satisfy some CNSC comments currently in process.

For a list of design program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

5.1.1 Changes to Design or Equipment

The Configuration Management FSA provides the framework to maintain and control the physical configuration of structures, systems, and components at CNL. Configuration Management applies to all design, operations, decommissioning, and maintenance activities at CNL sites. Configuration Management applies to all non-nuclear and nuclear documents, policies, programs, and procedures that contain information or instructions that could impact the following:

- Design (both regulatory and owner prescribed) and licensing basis.
- Any plant physical configuration.
- Any configuration item or information.

Configuration Management allows for maintaining and controlling the configuration of nuclear facilities within approved safety margins and regulatory requirements when changes or non-identical replacement parts are required. Configuration Management ensures that changes are assessed, approved, designed, implemented, commissioned, and placed into service within the safety envelope at all CNL sites in accordance with the design requirements.

During the reporting period, improvements were implemented to the change management program. Improvements are ongoing based on the results of an effectiveness review and on continual improvement. A root cause analysis was completed in 2023 to identify and correct previously identified programmatic issues. The root cause analysis identified five corrective actions and eight remedial actions to be taken by CNL. As of 2024 May 23, all actions were closed.

Design or equipment changes at PHAI were performed following CNL's Engineering Change Control Program, supplemented by *Historic Waste Program Management Office Application of Engineering Change Control and Oversight* [27]. During the reporting period, nine reduced risk engineering changes and seven item equivalency evaluations were initiated, with no activities assessed as a Category 1 or 2 change according to the engineering change control process.

6. Fitness for Service

The fitness for service SCA covers activities that affect the physical condition of structures, systems, and components to ensure that they remain effective over time. This includes programs that ensure all equipment is available to perform its intended function when called up to do so.

6.1 Fitness for Service Program

The PHAI adheres to CNL's Fitness for Service Program through its Maintenance and Work Management, Equipment Reliability, and Preventative Maintenance programs. Refer to Section 6.1 of the ACMR for CNL for details [5].

6.1.1 Planned Maintenance, Testing, and Inspections

The maintenance program for the PH and PG WWTPs follow the guidelines in CNL's company-wide *Fitness for Service Program* [28]. Company-wide requirements are used in conjunction with the computerized maintenance management system called PMXpert®, for which six additional procedures were developed and implemented for the PHAI. PMXpert facilitates scheduling of preventive maintenance work orders at various intervals to maintain equipment service as recommended by the original equipment manufacturers. Corrective maintenance work orders are used when equipment needs repair or replacement.

The maintenance departments at both the PH and PG WWTPs generate weekly key performance indicator reports as a means of tracking the performance of each respective maintenance program. Closed preventive maintenance work orders are measured against open preventive maintenance work orders to ensure that pre-determined benchmark percentages are maintained or exceeded. These reports are distributed to all PH and PG WWTP staff members and records are maintained.

Predictive maintenance is performed annually throughout the PG and PH WWTPs. This includes vibration analysis and infrared thermography of mechanical and electrical equipment by both a subcontracted agency and in-house subject matter experts. High voltage assets have predictive maintenance work orders and inspections performed annually by a subcontracted agency to ensure fitness for service. Reports are generated by all parties, and corrective maintenance work orders are generated based on the findings in the reports.

Oil samples are taken on regularly scheduled intervals from critical equipment, these samples are analyzed, and reports issued by the contracted agency. Corrective maintenance work orders are generated based on the reports and all records are maintained.

6.1.2 Equipment Fitness for Service and Equipment Performance

All equipment in the PH WWTP, whether in use or not, is maintained in a ready-to-operate state. All preventative maintenance work orders are completed as scheduled regardless of

operational status. There are no systems, structures or components that cannot be operated when called upon.

At the PG WWTP, residual solids processing has ceased and, per an agreement with the CNSC, has been moved to the PH WWTP. As a result, the solids processing equipment at the PG WWTP has been taken out of service and is no longer maintained in a ready-to-operate state, and decommissioning activities will commence in 2025.

6.1.3 Condition of Structures

The PH and PG WWTPs remain early in their lifecycle and, as such, show little to no sign of structural or superficial degradation.

7. Radiation Protection

The radiation protection (RP) SCA covers the implementation of the RP Program, in accordance with the *Radiation Protection Regulations* [29].

7.1 Radiation Protection Program

The PHAI adheres to CNL's RP Program. Refer to Section 7 of the ACMR for CNL for details [5]. The *Port Hope Area Initiative Radiation Protection Plan* (PHAI RP Plan) [30] defines the RP measures applicable to PHAI projects and is consistent with CNL's RP Program requirements [31]. The purpose of these RP measures is to ensure that the execution of PHAI projects complies with relevant regulations pursuant to the *Nuclear Safety and Control Act* [6]. The program addresses the radiation hazards associated with the PHAI and ensures that surface and airborne contamination, and radiation doses to employees and public are monitored and controlled.

Contractors conducting work for the PHAI projects submit site-specific RP plans for CNL's review and approval to confirm compliance with the PHAI RP Plan [30]. Contractor compliance with project-specific RP plans is examined as part of CNL's Compliance Program (Section 1.5).

In accordance with the PHAI LCH [3], CNSC staff were notified [32] of the revision to the PHAI RP Plan [30] implemented in the reporting period. For a list of RP Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5]. For a summary of any RP Program reviews, improvements, and revisions, refer to Section 7 of the ACMR for CNL [5].

7.1.1 As Low As Reasonably Achievable Initiatives and Activities

The CNL RP Program includes, as an integral part, an As Low As Reasonably Achievable (ALARA) Program. This ALARA Program is designed to ensure the provision of RP is optimized for activities involving sources of radiation exposure so that the magnitude of individual and collective doses and the likelihood of incurring exposures resulting from activities are kept ALARA and that economic and social factors are taken into account. The integrity of the ALARA Program is managed through routine monitoring and reviews of dose records to confirm that no adverse trends or exceedance have occurred.

As Low As Reasonably Achievable initiatives and activities are practiced in every facet of the PHAI activities and is specifically addressed through the implementation of the PHAI Environmental Protection Program's monthly and quarterly deployment of PHAI environmental radon monitors and thermoluminescent dosimeters.

In 2024 January, CNL initiated an effectiveness evaluation of the PHAI contractor RP programs to assess the extent to which the programs meet their intended objectives of protecting workers, members of the public, and the environment. Frequent workshops were held between CNL and the contractors to discuss the implementation of this process and address recommendations and comments. The PHAI contractor RP program effectiveness evaluation

initiative resulted in updates to 14 forms, and 14 standard operating procedures. All updated documents were provided to the PHAI contractors to implement changes. The implementation of these operational changes to the PHAI contractor RP program enhances both social and economic value by improving worker safety, regulatory compliance, and environmental stewardship.

By optimizing RP protocols, it is anticipated radiation exposure risks will be reduced, fostering a safer workplace that supports employee well-being and public trust. Economically, streamlined processes improve efficiency, minimize operational delays, and reduce costs associated with non-compliance, rework, and incident response.

7.1.2 Contamination Control

Internal radiation hazards exist in the form of loose radioactive material, known as contamination, which may enter the body by inhalation, ingestion, or absorption. As a result, routine monitoring across the project is completed to confirm that current activities have been executed while minimizing the spread of radioactive contamination.

Contamination events that occurred at the PHAI during the past five years are summarized in Table 11. During the reporting period, the PHAI experienced one contamination event involving personal clothing. There were no skin and radiological work clothing contamination events, and no workplace contamination events. No exceedances of CNSC regulatory dose limits or radiation dose action levels were observed as a result of the contamination event.

Table 11: Contamination Events

Year	Skin and Clothing Contamination				Workplace Contamination	
	Skin [a]	Personal Clothing [b]	Radiological Work Clothing [c]	Total	Surface [e]	Vehicle /Materials [f]
2020	0	1	1	2	4	0
2021	1	3	0	4	1	0
2022	0	1	0	1	0	0
2023	5	5	0	6 [d]	1	0
2024	0	1	0	1	0	0

a Contamination found is greater than 4 Bq/cm^2 beta-gamma or 0.1 Bq/cm^2 alpha.
b Contamination detected above background on personal clothing.
c Contamination detected is greater than 850 Bq/cm^2 beta-gamma or greater than 30 Bq/cm^2 alpha.
d Total number of skin and clothing contamination events (four events included both skin and personal clothing contamination).
e Fixed or loose contamination in excess of limits specified for the applicable radiological zone.
f Removable surface contamination detected above background.

In 2024, one contamination event occurred during planned routine work and regular operations. The involved a worker who failed to wear all required radiological work clothing in a Radiological Safety Zone 2, which resulted in a contamination spread onto their personal clothing (ImpAct: ERM-24-0775).

7.1.3 Dose Control

External radiation hazards exist in the form of gamma radiation.

During the reporting period, CNL conducted routine radiation dose rate surveys at the PG and PH WWTPs and LTWMFs. Canadian Nuclear Laboratories routinely reviewed the results of radiation dose rate surveys conducted at remediation sites by contractor staff. The dose rate surveys conducted in the reporting period demonstrate that dose rates are not exceeding the radiological safety zone limits, as defined in the PHAI RP Plan [30].

7.2 Dosimetry

Radiation dose refers to the energy deposited or absorbed in materials through which it passes. Accordingly, dosimetry is the measurement, calculation, and assessment of that radiation dose absorbed by the human body. This applies both internally, due to ingested, inhaled, or absorbed radioactive substances, or externally due to irradiation by sources of radiation. External radiation hazards exist in the form of gamma radiation.

Dosimetry results are compared to PHAI action levels and CNSC regulatory dose limits. Action levels are a specific dose of radiation that, if reached, may indicate a loss of control of part of the RP Program, and triggers a requirement for specific action to be taken. Action levels are site-specific parameters that are typically set near the upper bounds of normal operating performance and below regulatory dose limits. Regulatory dose limits are defined in the *Radiation Protection Regulations* [29].

All PHAI workers who have a reasonable probability of receiving an occupational effective dose in connection with a nuclear substance or nuclear facility in excess of 1 mSv per calendar year are designated as a Nuclear Energy Worker (NEW) [30].

7.2.1 Interpretation of Reported Dose Quantities

The PHAI uses the Chalk River Laboratories (CRL) Licensed Dosimetry Service Provider for external and internal dosimetry for CNL staff, contingent workers, and some subcontractors. The PHAI contractors responsible for operating various PHAI sites utilize a CNSC Licensed Dosimetry Service Provider for their staff and subcontractors.

Canadian Nuclear Laboratories site and facility staff and the PHAI contractors who work in, or frequently enter Controlled Areas are assigned CNSC licensed dosimeters to monitor for external deep and shallow dose radiation exposures. Canadian Nuclear Laboratories dosimetry operates on a quarterly monitoring period. All external dosimetry is read on a routine basis. Visitors and non-NEWs are typically provided with electronic personal dosimeters to monitor dose and to confirm trigger limits and dose control points identified within the PHAI RP Plan [30] are not exceeded.

The internal Dosimetry Program is primarily provided to the CNL operations and RP staff who work in close proximity with radiological hazards as assessed by the RP Program. The bioassay is tested for the presence of uranium through in vivo submissions. All results for uranium bioassay reported were well below CNL's bioassay recommendation level of minor, which demonstrates the effectiveness of ALARA work practices in minimizing radiation exposure and ensuring compliance with radiological safety principles.

The CNL Personnel Radon Exposure Program for PHAI sites monitors employees, contingent workers, and subcontractors and PHAI contractors due to the increased work required to support Phase 2 activities. Phase 2 workers were assigned track-etch type personal radon detectors, and doses were calculated and recorded if the monthly or quarterly average exceeded the trigger level of 150 Bq/m^3. Three exceedances of the trigger level were identified in the reporting period. A dose estimation was completed for each trigger level exceedance, which resulted in an individual maximum estimated dose of 0.08 mSv. The estimated doses from radon exposure are included in Table 12.

The PHAI continues to ensure that doses to workers are kept ALARA by strict compliance to its Dosimetry Program as stipulated in the PHAI RP Plan [30].

7.2.2 Radiation Doses to Personnel

The dose data in Table 12, Table 13, and Table 14 represent doses delivered at PHAI for all monitored persons, which includes employees (including those in temporary employment such as students), contractors, subcontractors, and visitors.

The maximum individual effective dose during the current five-year dosimetry period (2021 January 01 to 2025 December 31) is 1.48 mSv, received by a CNL contractor's employee.

In 2024, 477 non-NEWs had their effective dose assessed. The maximum dose received by a non-NEW in 2024 was 0.09 mSv.

Lens of the eye dosimetry was not required for any of the work performed at the PHAI sites in 2024 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.

Table 12: Distribution of Effective Dose for 2024

Monitored Person Type		Dose Range (mSv)							Total No. 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	110	136	0	0	0	0	0	246	0.34	0.04	0.07	9.89
	Contractor	1,303	87	0	0	0	0	0	1,390	0.40	0.01	0.10	8.59
	Visitor [c]	434	0	0	0	0	0	0	434	0	0	-	0
Non-NEW	Employee	2	0	0	0	0	0	0	2	0	0	-	0
	Contractor	9	1	0	0	0	0	0	10	0.09	0.01	0.09	0.09
	Visitor [d]	465	0	0	0	0	0	0	465	0	0	-	0
All Monitored Persons		2,323	224	0	0	0	0	0	2,547	0.40 [e]	0.01 [f]	0.08 [g]	18.57 [h]

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 or frequented often enough to warrant NEW status per PHAI RP Plan [30].
d Visitor dosages are measured by personal electronic dosimeters.
e Maximum individual dose (mSv) of all measured doses.
f Collective dose (person.mSv) divided by total number of persons that include the zero dose value, rounded to two decimal places.
g Collective dose (person.mSv) divided by total number of persons that exclude the zero dose value, rounded to two decimal places.
h Sum of all measured collective doses (person.mSv).
Ø No zero values.
- Not Applicable.

Table 13: Distribution of Equivalent Dose to the Skin for 2024

Monitored Person Type		Dose Range (mSv)							Total No. 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	111	133	2	0	0	0	0	246	0.59	0.04	0.08	10.49
	Contractor	1,309	80	1	0	0	0	0	1,390	0.64	0.01	0.11	8.81
	Visitor [c]	1	0	0	0	0	0	0	1	0	0	-	0
Non-NEW	Employee	2	0	0	0	0	0	0	2	0	0	-	0
	Contractor	9	1	0	0	0	0	0	10	0.09	0.01	0.09	0.09
	Visitor [d]	8	0	0	0	0	0	0	8	0	0	-	0
All Monitored Persons		1,440	214	3	0	0	0	0	1,657	0.64 [e]	0.01 [f]	0.09 [g]	19.39 [h]

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.
d Visitors on contractor sites are not monitored for their equivalent dose to the skin. Visitors issued a thermoluminescent dosimeter by CNL are monitored for their equivalent dose to the skin.
e Maximum individual dose (mSv) of all measured doses.
f Collective dose (person.mSv) divided by total number of persons that include the zero dose value, rounded to two decimal places.
g Collective dose (person.mSv) divided by total number of persons that exclude the zero dose value, rounded to two decimal places.
h Sum of all measured collective doses (person.mSv).
Ø No zero values.
- Not Applicable.

Table 14: Summary of Dose Components Received for 2024

Monitored Person Type		Effective Dose (mSv)					External Surface Dose (mSv)					Extremity Dose (mSv)				
		Total No. Persons	Max	Avg All [a]	Ø Avg [b]	Collective (p·mSv)	Total No. Persons	Max	Avg All [a]	Ø Avg [b]	Collective (p·mSv)	Total No. Persons	Max	Avg All [a]	Ø Avg [b]	Collective (p·mSv)
NEWs	Employee	246	0.34	0.04	0.07	9.89	246	0.59	0.04	0.08	10.49	1	1.36	1.36	1.36	1.36
	Contractor	1,390	0.40	0.01	0.10	8.59	1,390	0.64	0.01	0.11	8.81	13	1.38	0.47	0.47	6.11
	Visitor [c]	434	0	0	-	0	1	0	0	-	0	0	-	-	-	-
Non-NEWs	Employee	2	0	0	-	0	2	0	0	-	0	0	-	-	-	-
	Contractor	10	0.09	0.0	0.09	0.09	10	0.09	0.01	0.09	0.09	0	-	-	-	-
	Visitor	465	0	0	-	0	8	0	0	-	0	0	-	-	-	-
All Monitored Persons		2,547	0.40	0.01	0.08	18.57	1,657	0.64	0.01	0.09	19.39	14	1.38 [d]	0.53 [e]	0.53 [f]	7.47 [g]

Note: All quantities are measured in mSv unless otherwise noted.

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.

d Maximum extremity dose (mSv) of all measured doses.

e Collective extremity dose (person.mSv) divided by total number of persons that include the zero dose value, rounded to two decimal places.

f Collective extremity dose (person.mSv) divided by total number of persons that exclude the zero dose value, rounded to two decimal places.

g Sum of all measured extremity doses (person.mSv).

Ø No zero values.

- Not Applicable.

7.2.2.1 Discussion of Dose Data

All effective radiation doses were measured to be less than the assigned dose control point of 1 mSv for all individuals on the PGP and PHP and well below all action levels for the PHAI. No anomalies were observed in the data above.

7.2.2.2 Radiation Dose Changes or Trends

Figure 3 shows the maximum individual effective dose for the last five years. As the project continues, radiation doses for Phase 2 activities are expected to remain consistent with the previous calendar year. The 2024, the maximum individual effective dose to all workers (employees, contractors, and students) was 0.40 mSv. This result is expected given no significant change in the scope of work. The maximum individual dose for all worker categories remains far below the regulatory dose limit of 50 mSv per year [29].

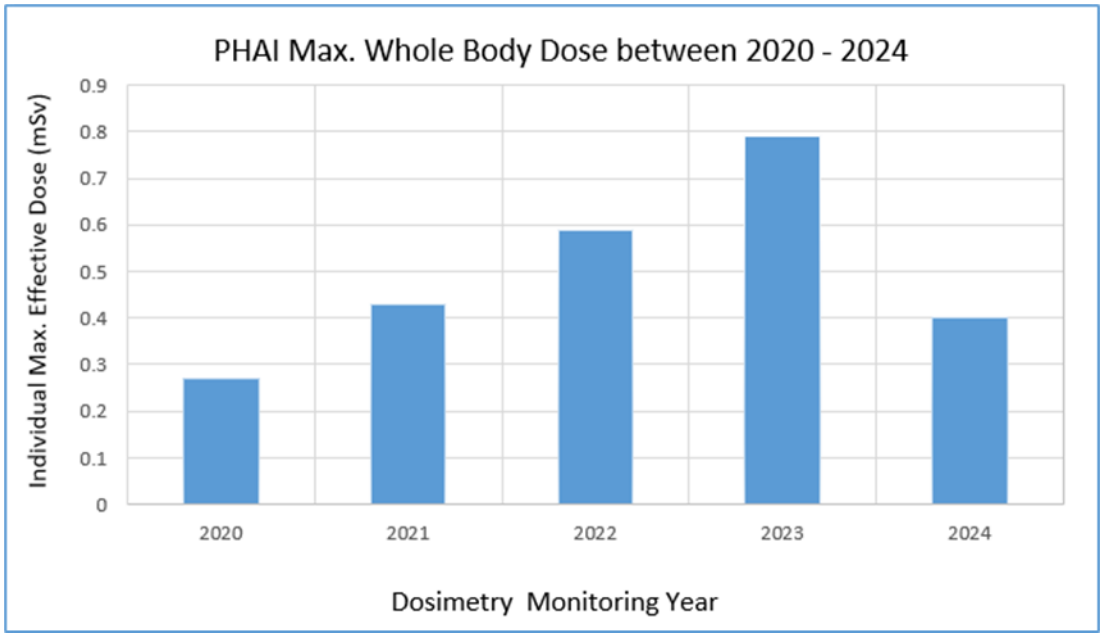

Figure 3: Maximum Individual Effective Dose (2020-2024)

7.2.3 Program Exceedances

There were no exceedances of action levels or regulatory dose limits in the Dose Monitoring Program for the 2024 calendar year.

7.2.4 Radiation Dose to Members of the Public

The total effective radiation dose limit to members of the public is specified in the *Radiation Protection Regulations* [29] as 1 mSv (1,000 µSv) per calendar year. It is a calculated value, in millisieverts, which takes into account the absorbed dose to all organs of the body, the type of the radiation, and the sensitivities of each organ to radiation.

Public dose specific to the locations around the PG LTWMF and PH LTWMF is calculated from the maximum radon and thermoluminescent dosimeter measurements taken along the facility fence lines, with a conservative occupancy period of 60 hours per year. As such, the provided public doses do not apply to any other area in Port Granby or Port Hope. Note that liquid effluent releases are not included in the calculation of public dose, as the effluent is not used for drinking.

Results from the 2024 monitoring program confirm a public dose less than 3% of the annual dose limit for members of the public. The public dose for a five-year period for the PGP and the PHP are provided in Table 15 and Table 16 respectively.

Table 15: Port Granby Project Radiation Dose to Members of the Public

Year	Annual Public Dose (mSv)	% Public Dose Limit (1 mSv)
2020	0.02	2.0
2021	0.04	4.1
2022	0.03	3.3
2023	0.01	1.0
2024	0.03	2.8

Note: Difference between annual public dose (mSv) and % public dose limit (1 mSv) is due to rounding.

In 2024, the dose to members of the public from the PGP is less than 3% of the applicable regulatory dose limit.

Table 16: Port Hope Project Radiation Dose to Members of the Public

Year	Annual Public Dose (mSv)	% Public Dose Limit (1 mSv)
2020	0.03	3.3
2021	0.02	2.3
2022	0.03	2.8
2023	0.02	2.0
2024	0.03	3.0

Note: Difference between annual public dose (mSv) and % public dose limit (1 mSv) is due to rounding.

In 2024, the dose to members of the public from the PHP is less than or equal to 3% of the applicable regulatory dose limit.

8. Conventional Health and Safety

The conventional health and safety SCA covers the implementation of a program to manage the non-radiological workplace safety hazards and to protect personnel and equipment.

8.1 Conventional Health and Safety Program

The PHAI adheres to the CNL Occupational Safety and Health (OSH) FSA. Refer to Section 8 of the ACMR for CNL for details [5]. The *Port Hope Area Initiative Occupational Safety and Health Plan* (PHAI OSH Plan) [33] has been developed to define the OSH Program applicable to PHAI projects and is consistent with CNL's corporate OSH Program.

Contractors conducting work for the PHAI projects submit site-specific health and safety plans for CNL's review and approval to confirm compliance with the PHAI OSH Plan [33]. Contractor compliance with project-specific health and safety plans is examined as part of CNL's Compliance Program (Section 1.5).

There were no revisions to the PHAI OSH Plan [33] in the reporting period. For a list of Conventional Health and Safety Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5]. For a summary of any Conventional Health and Safety Program reviews, improvements, and revisions, refer to Section 8 of the ACMR for CNL [5].

The HWP MO's OSH Program priorities for 2024 consisted of the following:

- Completed safe excavation training through the Ontario industry leader on the topic: the Ontario Regional Common Ground Alliance.
- Reviewed and scheduled Canada Labour Code based Site Safety and Health Committee (SSHC) training for all SSHC members.
- Completed the first draft of the PHAI Industrial Hygiene Program to better reflect the dynamics of CNL-controlled and contractor-controlled site dynamics.
- Improved OSH field observation and compliance oversight tracking processes for better monitoring and trend analysis.
- Completed detailed contractor OSH Program assessments and field compliance verifications for the WSP Canada Inc. PH LTWMF and engineering change control coal gas projects.
- Developed a comprehensive CNL OSH Program assessment process for CNL led operations at the PH WWTP and PG WWTP.
- Completed industrial hygiene assessments for asbestos and air quality for environmental staff workplaces.
- Completed audiometric and spirometry testing campaign for applicable CNL staff.

- Improved and enhanced CNL Step-up-to-Safety training for CNL contractors' onboarding efforts.
- Supported CNL-wide effort related to review and improvement of contractor management programs focused on independent construction sites.
- Rolled out CNL STOP/PAUSE initiative within the Environmental and Construction Monitoring teams.
- Supported the HWP SSHC to become more visible and engaged with HWP personnel through active participation and support of SSHC workplace campaigns.
- Worked with RP and Industrial Hygiene to adopt respirator equipment for HWP's Interior Remediation team.
- Launched HWP-specific Good Catch Program.
- Delivered a contractor safety forum involving CNL and contractor staff that was very well attended and regarded.
- Completed formal health and safety program assessments across PHAI contractor- and CNL-led work sites.
- Improved and updated the HWP's safety-related performance indicators and metrics.
- Placed significant focus on heat stress management across the PHAI through CNL-led hazard notifications, in-field monitoring of hazards, and supporting the contractors' programs, thereby ensuring no heat stress related incidents this summer.
- Improved asbestos hazard awareness for CNL staff across CNL owned properties.
- Completed proactive safety pause involving CNL and contractors in December.
- Completed seasonal campaign messaging around mental health; cold stress; fitness for duty; and slips, trips, and falls.
- Custom made safety posters created and launched by HWP OSH utilizing PHAI-specific worker and project images and phrasing.
- Completed quarterly contractor safety forums with positive response.

8.1.1 Site Safety and Health Committee

The HWP SSHC provides a forum for CNL and its employees to work together to ensure a safe and healthy working environment is provided and maintained for its employees. The HWP SSHC is dedicated to the oversight, promotion, and improvement of the health and safety of all employees of the HWP and engages both employees and management in the development of solutions on health and safety concerns in the workplace. The HWP SSHC is composed of 9 to 15 members, including two co-chairpersons and a recording secretary. One of the co-chairpersons represents employees, and the other represents management. Members (and their alternates) are selected from the employee base. At least half of the HWP SSHC members

are employees who do not exercise managerial functions. During the reporting period, the HWP SSHC had nine regularly scheduled meetings and one special meeting.

2024 was another productive year for the CNL HWP HHSC. Four new members were welcomed, bringing the total to 12. In May, the SSHC arranged three days of training on workplace investigations, inspections, and the duties of federal committees. The SSHC took part in two incident investigations in January and September. In February, the SSHC held a special meeting to discuss an incident involving a worker being splashed with chemical-mixed process water. The SSHC collaborated with the training and OHS departments to introduce three new pieces of first aid equipment at CNL's office buildings and WWTPs, including a tourniquet, a LifeVac, and improved cardiopulmonary resuscitation masks. The SSHC continued to share employee awareness campaigns with seasonal safety tips and best work practices.

8.1.2 Inspections

Workplace inspections are completed to systematically observe practices and conditions pertaining to all work activities and locations. This process encompasses recording the observations, classifying the hazard level, developing remedial actions, and following up on actions. Inspection findings are shared as appropriate.

The HWP SSHC schedules inspections throughout the year and must ensure that all parts of the workplace are inspected at least once annually. A minimum of one HWP SSHC member completes each inspection in conjunction with the responsible manager, or designate, for the work area.

During the reporting period:

- The SSHC conducted 14 inspections.
- Historic Waste Program health and safety oversight staff and HWP Construction oversight staff completed 6,165 field inspections and walk downs. The majority (86%) of the observations were positive compliance. The remaining opportunities for improvement were documented, tracked, and communicated to project teams for follow-up. The majority of all the non-compliance observations (98%) were immediately corrected. The remaining observations were minor and have since been resolved or continue as items for periodic review.

8.1.3 Hazardous Occurrence Investigation Reports and Lost-Time Injuries

Under the *Canada Occupational Health and Safety Regulations* [34], there are different types of hazardous occurrences:

- **Minor injury**: an employment injury or an occupational disease for which medical treatment is provided and excludes a disabling injury.
- **Disabling injury**: an employment injury or an occupational disease that results in either time loss or modified duties. Disabling injuries can be either temporary (e.g., sprained

wrist), or permanent (e.g., severed limb), depending on whether or not the employee is expected to make a full recovery.

- **Loss of consciousness**: caused by an electric shock or a toxic or oxygen-deficient atmosphere.
- **Rescue, revival, or other emergency procedures:** any incident that requires emergency procedures to be implemented, such as a hazardous substance spill, bomb threat or violence prevention procedure.

Annual reports are provided to the Minister Employment and Social Development Canada as required by regulation.

During the reporting period, there were two hazardous occurrences (disabling injuries) at the PHAI reported to Employment and Social Development Canada. On 2024 January 29, while a worker was working on an acid injection system, the worker's face was splashed by an acid solution, injuring their face and eye. The event resulted in a lost time injury with six lost days. The worker has made a full recovery.

On 2024 September 03, a worker was performing a waste water offload from the box of a vacuum truck into the south collection pond at the PH WWTP. After opening the discharge valve to start draining the box, the operator stepped off the spill tray onto an uneven ground below, rolled their ankle (right), and fell. This event resulted in modified duties.

A five-year summary of injury rate data is provided in Table 17.

Table 17: Summary of Injury Rate Data

	2020	2021	2022	2023	2024
CNL PHAI Employees					
Person Hours Worked	421,875	408,630	407,956	502,175	652,548
Lost-Time Injuries	0	2	0	0	1
Working Days Lost	0	12	0	0	6
Frequency [a]	0	1.03	0	0	0.31
Severity [b]	0	6.17	0	0	1.84
PHAI Contractors [c]					
Lost Time Injuries	0	0	1	1	0
Working Days Lost	0	0	46	1	0

a Frequency rate equals number of lost-time injuries × 200,000 h of exposure divided by person hours worked (based on 100 full-time workers).

b Severity rate equals number of working days lost × 200,000 h 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.

In response to an increase in the number of injuries to CNL employees in 2024, CNL conducted a safety pause. Refer to Section 8.1.3 of the *CNL ACMR for 2024* [5] for details. Lost-time injuries incurred during the reporting period are summarized in Table 18. Refer to Section 3.2 for a summary of all reportable events.

Table 18: Summary of Lost Time Injuries in 2024

ImpAct ID	Date	Event Description	Site
ERM-24-0311	2024 January 29	While a worker was working on an acid injection system, the worker's face was splashed by an acid solution, injuring their face and eye. The worker has made a full recovery. The event resulted in a lost injury time with six lost days.	PH WWTP

9. Environmental Protection

The environmental protection SCA covers programs that monitor and control all releases of nuclear and hazardous substances into the environment, as well as their effects on the environment as a result of licensed activities.

The release of hazardous substances is regulated by the CNSC; Environment and Climate Change Canada; and the Ontario Ministry of Environment, Conservation and Parks through various acts and regulations.

The PHAI's Environmental Protection Program aligns with CNSC REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* [35].

9.1 Environmental Protection Program

The PHAI adheres to CNL's Environmental Protection Program. Refer to Section 9 of the ACMR for CNL for details [5]. The following documents define the methods and protocols followed in performing the environmental monitoring specific to the PHAI:

- *Environmental and Biophysical Monitoring Plan, Port Granby Project* [36]
- *Port Hope Project Environmental Protection Plan* [37]
- *Environmental and Biophysical Monitoring Plan, Port Hope Project* [38]
- *Port Hope Project Dust Management and Requirements Plan* [39]

Contractors conducting work for the PHAI projects submit site-specific environmental protection plans for CNL's review and approval to confirm compliance with applicable CNL environmental management and protection plans. Contractor compliance with project-specific environmental protection plans is examined as part of CNL's Compliance Program (Section 1.5).

In accordance with the PHAI LCH [3], CNSC staff were notified [40] [41] of the revisions to the PHP Dust Management and Requirements Plan [39] and *PGP Environmental and Biophysical Monitoring Plan* [36] implemented in the reporting period. For a list of Environmental Protection Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5]. For a summary of any Environmental Protection Program reviews, improvements, and revisions, refer to Section 9 of the ACMR for CNL [5].

9.2 Effluent and Environmental Monitoring

The effluent and environmental monitoring results are contained in a separate report, the *Port Hope Area Initiative Waste Management Project Environmental Protection Annual Compliance Report for 2024* [7], which is submitted separately to the CNSC.

10. Emergency Management and Fire Protection

The emergency management and fire protection SCA covers emergency plans and emergency preparedness programs that exist for emergencies and for non-routine conditions.

10.1 Emergency Preparedness Program

The PHAI adheres to CNL's Emergency Preparedness FSA. Refer to Section 10.1 of the ACMR for CNL for details [5]. The *Port Hope Area Initiative Emergency Plan* (PHAI Emergency Plan) [42] describes the planning and operational requirements for the response to an emergency directly or indirectly affecting the PHAI. The PHAI Emergency Plan is consistent with CNL's corporate Emergency Preparedness Program, which ensures that all components of emergency preparedness and response are effectively maintained. Contractors conducting work for the PHAI projects submit emergency preparedness plans to CNL for review and approval to confirm compliance with the PHAI Emergency Plan [42]. Contractor compliance with project-specific emergency preparedness plans is examined as part of CNL's Compliance Program (Section 1.5).

In accordance with the PHAI LCH [3], CNSC staff were notified [43] of the revision to the PHAI Emergency Plan [42] implemented in the reporting period. For a list of Emergency Preparedness Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

10.1.1 Drills and Exercises

During the reporting period, the comprehensive PHAI five-year drill and exercise plan continued to be implemented. This plan outlines the drills that are to be conducted, along with an approximate timeline for those drills. All drills were completed per regulatory and programmatic requirements.

10.1.2 Training

In the reporting period, the following training related to emergency management was conducted:

- Emergency steward and officer-in-charge training for staff at all PHAI facilities.
- Officer-in-charge training for HWP personnel.
- Coordinated sessions with Port Hope Police Service to train staff on dealing with conflict and potentially hostile situations.

10.1.3 External Collaborations

During the reporting period, there was repeated engagement with Clarington, Durham, Port Hope, and Northumberland Region first responders. Awareness training on DIPHOTERINE® was provided to Northumberland Paramedics.

> *"DIPHOTERINE® solution is an emergency rinsing solution for splashes of chemical products. Its rapid use in case of contact between the skin or eye and a chemical*

product is intended to quickly eliminate the residual chemical product on the skin or in the eye. This makes it possible to limit the extent of the burns and lesions caused. DIPHOTERINE® facilitates secondary treatment of the burn injuries by restricting the extent and severity of the lesions." [44]

Port Granby Long-Term Waste Management Facility

A successful full-scale exercise was conducted in coordination with Clarington Emergency and Fire Services.

Port Hope Project

Port Hope personnel increased communication and coordination with Port Hope Fire and Emergency Services and Port Hope Police Service on complex emergency responses.

10.1.4 Unplanned Emergency Events

In the reporting period, there were no PHAI incidents that required activation of the CRL Emergency Operations Centre. There were eight unplanned emergency events reported to the CNSC:

- On 2024 January 11, emergency medical services responded to a site call at the PH LTWMF and attended to a worker who was performing office work and reported to a co-worker that they were feeling sick and unwell and were observed to be losing consciousness. The illness was not related to work activities.
- On 2024 January 29, emergency medical services responded to a site call at the PH WWTP to attend a worker who was working on an acid injection system. The worker's face was splashed by an acid solution, injuring their face and eye. The worker was transferred to a hospital for medical aid.
- On 2024 February 21, the Northumberland Detachment of the Ontario Provincial Police responded to the PH LTWMF due to an unknown individual spotted trespassing along the eastern fence line. The individual fled and was not located.
- On 2024 May 15, emergency medical services responded to a site call at the Port Hope Harbour Centre Pier and attended a subcontractor's worker who fainted and momentarily lost consciousness in the subcontractor's trailer. The worker was evaluated by emergency medical services and deemed fit to return to regular duties. The medical event was not work related.
- On 2024 June 20, the Port Hope Police Service responded to a site call at the Highland Drive Landfill site to assist with the observation of what appeared to be a hand grenade in the excavated municipal solid waste. The grenade was ultimately concluded to be a plastic replica.
- On 2024 September 16, a portion of the foundation of an addition to a private home collapsed into the adjacent excavation radiological protection zone 3. Local emergency

services were contacted. No excavation work was underway at the time of the event. The addition of the home was not occupied at the time of the event.

- On 2024 October 25, emergency medical services responded to a site call at the PH LTWMF and attended a worker feeling generally unwell in relation to a pre-existing medical condition.
- On 2024 November 13, a skid steer contacted a hydro pole with electrical service. The pole leaned over the adjacent street and power was lost in the neighbouring work site. Police services controlled the scene until the utility provider installed a new pole and reinstated power.

The reported events did not have any adverse effect on the health, safety, and security of persons or the environment. Refer to Section 3.2 for a summary of all reportable events.

10.2 Fire Protection Program

The PHAI adheres to CNL's Fire Protection FSA. Refer to Section 10.2 of the ACMR for CNL for details [5]. The *Port Hope Area Initiative Fire Protection Plan* [45] includes a combination of site level fire plans; fire notification and protection systems; inspections and training on hazard identification, control, and emergency response; and fire extinguisher training.

In accordance with the PHAI LCH [3], CNSC staff were notified [46] of the revision to the *Port Hope Area Initiative Fire Protection Plan* [45] implemented in the reporting period. For a list of Fire Protection Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

10.2.1 Fire Response Drills

During the reporting period, all required annual fire response drills were completed

10.2.2 External Collaborations

During the reporting period, tours were conducted with Clarington Emergency and Fire Services and Port Hope Fire and Emergency Services. A successful full-scale exercise was conducted in coordination with Clarington Emergency and Fire Services.

10.2.3 Third Party Audits and Inspections

There was no need for a third-party review because no facility modifications were proposed with the potential to negatively impact fire protection.

10.2.4 Fire Hazard Analysis

During the reporting period, there were no fire hazards analyses completed for the PHAI.

11. Waste Management

The waste management SCA covers internal waste-related programs that form part of a facility's operations up to the point where the waste is removed from the facility to a separate waste management facility. This also covers the planning for decommissioning.

Canadian Nuclear Laboratories has a well-established Waste Management Program. Waste deliveries originating from various PHAI sites including Cameco, waterfront sites, small-scale sites, the harbour sediment, the Highland Drive landfill, and other waste sources such as on-site waste transfers, were made to the PH LTWMF. Processed residual waste was received at the PH LTWMF from the PG WWTP.

11.1 Waste Management Program

The PHAI adheres to CNL's Waste Management FSA. Refer to Section 11.1 of the ACMR for CNL for details [5].

The Waste Management Program aligns with the following:

- CNSC REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste* [47].
- CSA N292.0, *General Principles for the Management of Radioactive Waste and Irradiated Fuel* [48].
- CSA N292.3, *Management of Low- and Intermediate-Level Radioactive Waste* [49].

In accordance with the company-wide program, the PHAI follows general waste management plans, as well as project-specific documentation to ensure that waste activities are performed in a safe and environmentally responsible manner which meets or exceeds applicable regulations and standards and minimizes current and future environmental impacts and liabilities.

The PHAI general waste management plans are as follows:

- *Port Granby Waste Management Plan* [50].
- *Management of Historic Artefact Recovery Program* [51].
- *Port Hope Project – Management of Historic LLRW* [52].
- *PHAI Cameco Decommissioning Waste Management Plan* [53].

There were no revisions to the *Port Hope Long-Term Waste Management Facility Waste Acceptance Criteria* [54] in the reporting period. For a list of Waste Management Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

As part of routine Waste Management Program surveillance process, the PHAI project waste management practices and documentation were assessed to verify that they align with the CNL

waste management process and governing requirements. The results of the assessment have been documented, and follow-up actions have been initiated through CNL's ImpAct system.

During the reporting period, the *Port Granby Long-Term Waste Management Facility Preliminary Safety Case* [55] was submitted to [56] and accepted by CNSC staff [57]. The PH LTWMF Preliminary Safety Case is in draft and committed for submission in 2025. Refer to Section 11.2 for information on the preliminary decommissioning plans for the PG LTWMF and PH LTWMF.

11.1.1 Port Granby Long-Term Waste Management Facility Operations

Four major types of process wastes were historically placed at the PG WMF: limed raffinate, calcium fluoride, ammonium nitrate, and magnesium fluoride. Of note, all the PG WMF waste types and affected on-site soils have been transferred to the PG LTWMF for long-term management as part of the PGP.

11.1.1.1 Waste Inventory

The PG LTWMF engineered containment system contains an inventory of 1,315,059 metric tonnes, and an estimated total activity of 1.60E+14 Bq, as summarized in Table 19. The activity stems from the uranium and uranium progeny found in the waste. No new waste was placed in the PG LTWMF during the 2024 calendar year.

Table 19: Stored Waste Inventory in Port Granby Long-Term Waste Management Facility

Waste Type	Source	Total Estimated Quantity (metric tonnes)	Total Estimated Radioactivity (Bq) [Calculated]	Primary Radionuclides
Radioactive	Historic Waste from PG WMF, Marginally Contaminated Soils and Mix of LLRW and Marginally Contaminated Soils	1,314,446	1.60E+14	Uranium and Uranium Progeny
Radioactive	Process residuals from WWTP (LLRW)	613	1.13E+10	Uranium and Uranium Progeny
Radioactive	Total Waste Placed at the PG LTWMF	1,315,059	1.60E+14	Uranium and Uranium Progeny

Note: The PG LTWMF is capped and closed. The quantity of waste stored remains unchanged from 2024.

11.1.1.2 Waste Transfers

As part of the routine water treatment process, residuals and associated materials that are removed from the water effluent are either transferred to the PH WWTP for further processing or packaged and sent to the PH LTWMF facility for long-term management. Waste material sent

from the PG WWTP is trending down. Material sent during the reporting period is summarized in Table 20.

Table 20: Waste Transfers from the Port Granby Waste Water Treatment Plant

Waste Type	Waste Description	Weight/Volume	Total Estimated Radioactivity (Bq) [Calculated]	Primary Radionuclides	Destination
Radioactive	Reverse Osmosis Concentrate	2,171 tonnes	1.72E+06	Uranium and Uranium Progeny	PH WWTP
Radioactive	Process Residuals – Solids from the PG WWTP and PG site demobilisation waste.	33 tonnes	2.57E+08	Uranium and Uranium Progeny	PH LTMWF
Hazardous Waste	PH WWTP - Alkaline Wastes - Other Metals	20 L	0	N/A	GFL Environmental
Hazardous Waste	PG WWTP - Organic Laboratory Chemicals	20 L	0	N/A	GFL Environmental
Hazardous Waste	PG WWTP - Aliphatic Solvents	90 L	0	N/A	GFL Environmental
Hazardous Waste	PG WWTP - Waste Oils & Lubricants	205 L	0	N/A	GFL Environmental
Hazardous Waste	PG LTWMF - Other Specified Inorganics	400 L	0	N/A	GFL Environmental

N/A – not applicable.

11.1.2 Port Hope Long-Term Waste Management Facility Operations

The PH LTWMF has a capacity of approximately 2 million m^3 composed of LLRW and non-radioactive industrial waste (including contingencies and daily clean soil cover materials).

The engineered containment system at the PH LTWMF has been designed to isolate the historic LLRW that is received from the remediation sites by securely encasing it on the top, bottom, and sides with thick, multiple layers of natural and specially manufactured materials. These layers form components of the cover and baseliner that, independently, are robust enough to prevent contaminants from entering the environment.

Systems are being installed within and around the engineered containment system that will monitor it for hundreds of years. Inspections and monitoring of the collection system for contaminated water (leachate) will confirm the effectiveness of the cover system. Sensors in

both the cover and the baseliner will monitor performance, while groundwater quality will be monitored through ongoing testing of specially designed wells surrounding the base.

The waste is generated in accordance with the remediation project plans and is transported from the remediation sites and the PG WWTP to the PH LTWMF via tandem or triaxle dump trucks. Other non-radiological waste such as clean construction debris, hazardous waste (e.g., fuel spill product, residual chemicals), and general and lunchroom garbage is diverted away from the PH LTWMF and is delivered to off-site facilities for management, recycling, and/or disposal. The waste deemed acceptable for receipt at the PH LTWMF [54] is received and placed in the engineered containment system in accordance with standard operating procedures.

11.1.2.1 Waste Inventory

The PH LTWMF engineered containment system contains an inventory of 2,259,148 metric tonnes, and an estimated total activity of 2.85E+14 Bq, as summarized in Table 21.

Table 21: Stored Waste Inventory in Port Hope Long-Term Waste Management Facility

Waste Type	Source	Total Estimated Quantity (metric tonnes)	Total Estimated Radioactivity (Bq) [Calculated] [a]	Primary Radionuclides
Radioactive	PH WWTP [b]	6,051	9.39E+10	Uranium and Uranium Progeny
Radioactive	PH LTWMF – On-Site Waste Placement (Welcome Site, Pond Expansion, Forested Area, Other on-site stockpiles)	896,597	1.71E+14	Uranium and Uranium Progeny
Radioactive	Cameco Waste	56,770	4.33E+13	Uranium and Uranium Progeny
Radioactive	Small-Scale Sites (Package 1, 2, 3, 3.1, 3.2, 4, 5, 5.1, Task Order 2, Task Order 3, Interiors, Characterisation)	180,931	3.14E+11	Uranium and Uranium Progeny
Radioactive	Temporary Storage Sites (Centre Pier, Pine St Extension, Sewage Treatment Plant, Storage Cell)	78,721	2.34E+11	Uranium and Uranium Progeny
Radioactive	Harbour Centre Pier	340,323	6.30E+13	Uranium and Uranium Progeny
Radioactive	Highland Drive Landfill	331,636	3.85E+12	Uranium and Uranium Progeny
Radioactive	Highland Drive South Ravine	6,886	2.69E+10	Uranium and Uranium Progeny
Radioactive	Pine Street Extension	77,930	6.81E+11	Uranium and Uranium Progeny

Waste Type	Source	Total Estimated Quantity (metric tonnes)	Total Estimated Radioactivity (Bq) [Calculated] [a]	Primary Radionuclides
Radioactive	Waterfront Sites (Viaducts, Waterworks East, Waterworks West, Strachan St, Mill St., Alexander Ravine)	218,606	6.97E+11	Uranium and Uranium Progeny
Radioactive	Construction Monitoring Program	10,234	1.77E+10	Uranium and Uranium Progeny
Radioactive	Port Granby LTWMF	1,853	1.16E+10	Uranium and Uranium Progeny
Radioactive	Hydrovac Waste [c]	1,266 trucks	N/A	Uranium and Uranium Progeny
Industrial Waste	Chemetron Lagoon	1,904	0	Industrial Waste
Industrial Waste	Lion's Park Site	35,411	1.29E+12	Industrial Waste with minor Uranium/Uranium Progeny
Industrial Waste	Coal Gasification Plant	15,295	1.20E+10	Industrial Waste with minor Uranium/Uranium Progeny
Total Waste Placed at the PH LTWMF		**2,259,148**	**2.85E+14**	**Uranium and Uranium Progeny**

a Total activity data up to 2024 December 31.

b Includes inventory contribution from off-site waste water (including hydrovacs), Port Granby reverse osmosis concentrate/brine.

c The hydrovac trucks are not weighed due to physical limitations (the trucks are too tall to fit under the portal monitor on the scale). This number represents the number of trucks accepted at the PH LTWMF. The radioactivity is not calculated but is minimal given the limitation imposed on the hydrovacs to only transport exempt waste (per the Transportation of Dangerous Goods Act). Furthermore, the waste is of liquid consistency and drains to the WWTP for processing and is accounted under the PH WWTP.

11.1.2.2 Waste Transfers

Waste material transferred from the PH WWTP, PH LTWMF, and PHAI project sites during the reporting period are summarized in Table 22.

Table 22: Waste Transfers from the Port Hope Area Initiative Sites

Waste Type	Origin Facility	Waste Description	Quantity	Total Estimated Radioactivity (Bq) [Calculated]	Primary Radionuclides	Destination
Hazardous Waste	Coal Gasification Project	Waste Oil and Lubricants	40 L	0	N/A	GFL Environmental
Hazardous Waste	Highland Drive Project	Waste Oil and Lubricants	615 L	0	N/A	GFL Environmental
Hazardous Waste	PH WWTP	Inorganic Laboratory Chemical	205 L	0	N/A	GFL Environmental
Hazardous Waste	PH WWTP	Organic Laboratory Chemical	20 L	0	N/A	GFL Environmental
Hazardous Waste	PH WWTP	Other Polymeric Wastes	500 L	0	N/A	GFL Environmental
Hazardous Waste	PH WWTP	Polymeric Resins	1,000 L	0	N/A	GFL Environmental
Hazardous Waste	PH WWTP	Waste Oils and Lubricants	615 L	0	N/A	GFL Environmental
Hazardous Waste	Chemetron Lagoon	Oil Skimmings and Sludges	166,255 L	0	N/A	Aevitas
Hazardous Waste	Chemetron Lagoon	Oil Skimmings and Sludges	2,000 L	0	N/A	GFL Environmental
Hazardous Waste	Chemetron Lagoon	PCBs	754,481 kg	0	N/A	TUQ4
Hazardous Waste	Chemetron Lagoon	PCBs	45,330 kg	0	N/A	Aevitas

N/A – not applicable; PCBs – polychlorinated biphenyls; TUQ4 – The Urban Quarry concept driven by the four sustainability principles.

11.2 Decommissioning Plan

The CNSC defines decommissioning as the administrative and technical actions taken to allow the removal of some or all regulatory controls from a facility, location, or site where nuclear substances are managed, used, possessed, or stored.

The PHAI adheres to CNL's Cleanup FSA. Refer to Section 11.2 in the ACMR for CNL for details [5]. The PHAI follows the requirements set out in the *Cleanup Function Program Description Document* [58].

The Waste Decommissioning Planning Program aligns with the following:

- CNSC REGDOC-2.11.2, *Decommissioning* [59].
- CSA N294, *Decommissioning of Facilities Containing Nuclear Substances* [60].

For a list of decommissioning program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

11.2.1 Preliminary Decommissioning Planning

Published preliminary decommissioning plans for the PHAI are listed in Table 23.

Table 23: Summary of Preliminary Decommissioning Plans

Site	Document Status	Document Reference	Submission Date	Additional Information
PGP	Revision 0.1	*Port Granby Project – Preliminary Decommissioning Plan* [61]	2024 November 06	Accepted.
PHP	Revision 0.1	*Port Hope Preliminary Decommissioning Plan* [62]	2024 October 31	Pending CNSC staff review and acceptance.

12. Security

The security SCA covers the programs required to implement and support the security requirements stipulated in the regulations, in the PHAI licence [2], in orders, or in expectations for the facility or activity, as applicable.

12.1 Security Program

The PHAI adheres to CNL's Security FSA. Refer to Section 12 of the ACMR for CNL for details [5]. The *Port Hope Area Initiative Security Plan* (PHAI Security Plan) [63] establishes the security arrangements that are required for PHAI project sites. It addresses the responsibilities, linkages with local law enforcement, functions, and elements of the security plan such as training, drills, exercises, and various physical security components. The purpose of the PHAI Security Plan [63] is to ensure the physical protection of the PHAI assets and safeguarding of the public and personnel. The PHAI Security Plan [63] is based on applicable legislation, regulations, and the PHAI licence [2] and is consistent with CNL's corporate security policies and programs.

Contractors conducting work as part of the PHAI projects submit security plans to CNL for review and approval to confirm compliance with the PHAI Security Plan [63]. Contractor compliance with project-specific security plans is examined as part of CNL's Compliance Program (Section 1.5).

In accordance with the PHAI LCH [3], CNSC staff were notified [64] of the revision to the PHAI Security Plan [63] implemented in the reporting period. For a list of Security Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

12.1.1 Security Events

In the reporting period, one security event was reported to the CNSC:

- On 2024 February 21, an unknown individual was observed trespassing along the eastern fence line within the PH LTWMF. When spotted, the individual fled to the north towards the site perimeter and Highway 401. The individual was not located. No damage, tampering, or theft was observed to have occurred on the site.

The reported event did not have any adverse effect on the health, safety, and security of persons or the environment. Refer to Section 3.2 for a summary of all reportable events.

13. Safeguards and Non-Proliferation

The safeguards and non-proliferation SCA covers the programs and activities required for the successful implementation of the obligations arising from the Canada and International Atomic Energy Agency (IAEA) safeguards agreements as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons* [65].

The PHAI's Safeguards Program aligns with CNSC REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy* [66].

13.1 Safeguards Program

The PHAI adheres to CNL's Nuclear Materials and Safeguards Management FSA. Refer to Section 13 of the ACMR for CNL for details [5].

There are no Safeguards Program documents specific to the PHAI. For a list of Safeguards Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

13.1.1 International Atomic Energy Agency Activities

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

14. Packaging and Transport

The packaging and transport SCA includes programs that cover the safe packaging and transport of nuclear substances to and from the licensed facility.

14.1 Packaging and Transport Program

The PHAI adheres to CNL's Transportation of Dangerous Goods (TDG) FSA, which includes the requirements of the packaging and transport SCA. Refer to Section 14 of the ACMR for CNL for details [5].

The *Port Hope Area Initiative Transportation of Dangerous Goods Plan* (PHAI TDG Plan) [67] applies to any activities involving TDG to, or from CNL sites. The TDG Program provides an operational framework for the safe off-site transport of dangerous goods by conforming to all applicable laws and regulations, as well as CNL policies and procedures. Contractors conducting work for the PHAI projects submit site-specific TDG plans for CNL's review and approval to confirm compliance with the PHAI TDG Plan [67]. Contractor compliance with project-specific health and safety plans is examined as part of CNL's Compliance Program (Section 1.5).

There were no revisions to the PHAI TDG Plan [67] in the reporting period. For a list of Packaging and Transport Program document notifications applicable to multiple CNL licences, refer to Section 1 of the ACMR for CNL [5].

14.1.1 Shipments

During the reporting period, shipments of dangerous goods were conducted from the PHAI sites to off-site facilities, and shipments of dangerous goods were received from off-site vendors (e.g., consumable chemicals, diesel fuel, and propane).

Ongoing oversight (Section 1.5) of contractors is performed to ensure adherence to the project specific work plan. Recommended incremental improvements to the means and methods to meet the TDG requirements are provided when deemed necessary.

In the reporting period, there were no events related to the TDG Program reported to the CNSC. Refer to Section 3.2 for a summary of all reportable events.

14.1.2 Annual Report of Radiation Detections in Packaging and Transport

There were no shipments at the PHAI in 2024 that met the annual reporting criteria outlined in Paragraph 3 of the *Packaging and Transport of Nuclear Substances Regulations*, 2015 [68].

15. Other Matters of Regulatory Interest

15.1 Public Information Program

The primary goal of the Public Information Program, as it relates to the licensed activities, is to ensure that information related to the health, safety, and security of persons and the environment, and other issues associated with the lifecycle of nuclear facilities are effectively communicated to the public. As a component, where the public has indicated an interest in knowing, the program shall include a commitment to and protocol for ongoing, timely communication of information related to the licensed facility during the licence period.

The PHAI adheres to the corporate Public Information Program. Refer to Section 15 of the ACMR for CNL for details [5].

The *Port Hope Area Initiative (PHAI) Phase 2 and 3 Public Information Program* [69] sets out the protocol for ongoing, timely and accurate public communication about the activities of the PHAI for both the Phase 2 activities of the PHP and the Phase 3 long-term monitoring and maintenance of the PGP. The document is guided by CNSC regulatory document REGDOC-3.2.1 *Public Information and Disclosure* [70] and is reviewed and updated as necessary to ensure it continues to provide appropriate direction. The public information program supports the CNL overall mission to lead the cleanup and long-term storage and monitoring of historic LLRW in Port Hope and Port Granby in an environmentally responsible and cost-effective manner.

There were no revisions to the *PHAI Phase 2 and Phase 3 Public Information Program* [69] in the reporting period.

15.1.1 Outreach and Stakeholder Engagement

The objectives of the PHAI public information program are supported in part by general approaches, products, and activities conducted for each of the PHP and PGP on request, as needed or ongoing, as appropriate.

A list of project-related stakeholder and public engagement activities undertaken in 2024 is included in Table 24.

Table 24: Public Engagement Activities

Date	Location	Activity
2024-01-29	Port Hope	GM meeting with Municipality of Port Hope new Chief Administrative Officer
2024-02-13	Port Hope	Port Hope & District Chamber of Commerce monthly update
2024-02-26	Port Hope	Municipality of Port Hope Business Forum
2024-03-05	Virtual	Port Granby Municipal Project Coordination Meeting
2024-03-06	Port Hope	Port Hope & District Chamber of Commerce Annual General Meeting
2024-03-18	Port Hope	Neighbourhood Meeting: Highland Drive South Ravine
2024-03-22	Port Hope	Save Our Trees group: meeting on Port Hope Project
2024-03-26	Port Hope	Australian Nuclear Science and Technology Organisation: PHAI presentation/tour
2024-04-03	Peterborough	Central Lakes Association of Realtors presentation – Peterborough
2024-04-03	Virtual	Harcourt Neighbourhood - Property information session
2024-04-04	Virtual	Property Information Session - King-Shuter neighbourhood
2024-04-10	Port Hope	Peterborough Realtor Group presentation/tour
2024-04-11	Port Hope	Port Hope & District Chamber of Commerce breakfast with the Mayor
2024-04-11	Port Hope	Sustainable Cobourg meeting about student activity
2024-04-15	Port Hope	Neighbours Meeting: Lions Park Restoration hosted by Municipality of Port Hope
2024-04-16	Port Hope	Quarterly Update Municipality of Port Hope Council
2024-04-16	Port Hope	Municipality of Port Hope Council presentation: Port Hope Harbour
2024-04-22	Virtual	Cobourg Collegiate Institute science class Zoom meeting (Earth Day)
2024-04-23	Belleville	Central Lakes Association of Realtors presentation – Belleville
2024-04-30	Virtual	Port Granby Municipal Project Coordination Meeting
2024-05-01	Cobourg	United Way Campaign Kick-Off Breakfast
2024-05-02	Port Hope	Nuclear Regulation Group: UK Environment Agency workshop
2024-05-02	Port Hope	Municipality of Port Hope Youth Wellness Hub announcement event
2024-05-11	Cobourg	PHAI Sponsored Hack-a-Thon event with Sustainable Cobourg at Venture 13
2024-05-16	Port Hope	Port Hope Police Service community BBQ event
2024-05-27	Port Hope	Central Lakes Association of Realtors: Port Hope sites tour
2024-05-27	Port Hope	Dorset Street Coalition Meeting re: property remediation
2024-05-28	Port Hope	Centre Pier group discussion
2024-06-06	Port Hope	Regional Municipality of Durham: Port Granby site tour
2024-06-10	Port Hope	Port Hope & District Chamber of Commerce: PHP sites tour
2024-06-11	Port Hope	Australia Nuclear Science and Technology Organisation PHP sites tour
2024-06-25	Virtual	Port Granby Municipal Project Coordination Meeting
2024-06-26	Port Hope	Cameco Health & Industrial Safety Team visit and site tour
2024-07-11	Port Hope	Northumberland First Responders Meeting re: Emergency Preparedness
2024-07-29	Port Hope	Philip Lawrence, MP: PHAI Presentation
2024-08-06	Port Hope	Port Hope Property Owner Meeting with Comms/Project Managers re: Lions Park

2024-08-06	Port Hope	Municipality of Port Hope Council - PHAI CC change training
2024-08-08	Port Hope	Port Hope Property Owner Meeting with Comms/Project Managers re: Lions Park
2024-08-10	Port Hope	Port Hope & District Chamber of Commerce 150th Anniversary Celebration
2024-09-05	Port Hope	Municipality of Port Hope Connections 2024 employee event
2024-09-08	Port Hope	Run Salmon Run Festival
2024-09-09	Port Hope	Municipality of Port Hope Council PHAI Industrial Site tour
2024-09-10	Port Hope	OPG PHAI presentation and tour
2024-09-13	Port Hope	Port Hope Fall Fair
2024-09-13	Port Hope	Durham Nuclear Health Committee Meeting PHAI update
2024-09-24	Port Hope	Municipality of Port Hope Council Presentation: Quarterly update
2024-10-04	Port Hope	PHAI update with Blake Fitzpatrick
2024-10-07	Port Hope	Dorset/Augusta residents meeting at Town Hall: PHAI and Municipality of Port Hope
2024-10-17	Port Hope	Construction Safety Council Meeting and PHP site visits
2024-10-18	Port Hope	Chamber of Commerce Event: Federal, Provincial and Municipal representatives
2024-10-26	Port Hope	Critical Mass: Resilient Blooms Art Walkdown: PHAI sponsorship
2024-10-29	Port Hope	Township of Ignace council / Municipality of Port Hope Council PHAI sites tour
2024-10-30	Port Hope	PHAI In the Fall: community event and sites tours
2024-11-01	Port Hope	Chamber Business Excellence Awards Ceremony
2024-11-11	Port Hope	Port Hope Royal Canadian Legion Remembrance Day Service: CNL Sponsor
2024-11-18	Mississauga	Brownies Awards Ceremony: PHAI Nomination
2024-11-21	Port Hope	IAEA DISPONET delegate presentation/tour: PHAI sites
2024-11-21	Port Hope	Loyalist College Nuclear Industry Day: PHAI booth
2024-11-26	Port Hope	Highland Drive South Ravine Neighbourhood information session and tour
2024-11-27	Port Hope	Coffee Chat with HWP General Manager – public
2024-12-04	Port Hope	Coffee Chat with HWP General Manager – public
2024-12-16	Port Hope	AECL President HSSE PHAI Overview Presentation
2024-12-17	Virtual	Port Granby Municipal Project Coordination Meeting

GM – General Manager; MP – member of Parliament; CC – Cleanup Criteria; OPG – Ontario Power Generation; HSSE – health, safety, security, and environment.

15.1.2 Public Disclosures

Canadian Nuclear Laboratories is committed to providing open and transparent public disclosure, guided by the *PHAI Phase 2 and Phase 3 Public Information Program* [69], in alignment with CNSC regulatory document REGDOC-3.2.1 *Public Information and Disclosure* [70] about unplanned project activities and non-routine events. All public disclosures were posted on PHAI.ca.

A list of the 12 public disclosures for the reporting period is included in Table 25.

Table 25: Public Disclosures

Date	Subject
2025-02-09	Port Hope Harbour Washroom Trailer Sewage Leak
2025-04-02	Port Hope Lions Park: Perimeter Fencing Blown Over in High Wind
2025-06-06	Cylinder with unknown contents identified on Centre Pier
2025-06-21	Port Hope Harbour: Submerged workboat spills oil
2025 07-10	Port Hope Lions Park: Stormwater flows onto site
2025-07-12	Port Hope Harbour: Gasoline leak due to faulty fitting
2025-07-29	Port Hope Lions Park: Severe storm washes sediment onto neighbouring properties
2025-08-12	Port Hope Harbour: Effluent Discharge Shows Exceedance
2025-09-06	Port Hope Centre Pier: Dry Cement Spillage
2025-09-17	Private Property Remediation: Structural Issue on Private Property
2025-11-19	Private Property Remediation: Equipment Strikes Hydro Pole
2025-12-10	Port Hope Harbour: Submerged workboat spills gasoline

15.1.3 Public Engagement

Canadian Nuclear Laboratories shares information on the PHP and PGP with the host communities through a variety of approaches.

The PGP reached an important milestone by moving into Phase 3 activities in 2022, marking the completion of the environmental remediation of the site and moving into long-term monitoring and management. Phase 3 focuses on the monitoring and maintenance of the PG LTWMF so the need for public engagement and overall public interest has reduced considerably. While ongoing communication still takes place to keep the Port Granby community informed, less public engagement can naturally be expected moving forward. Canadian Nuclear Laboratories remains available to respond to and communicate regarding any emergency situations and to address any questions or concerns from stakeholders and the public.

15.1.3.1 CNL Project Information Office

The Port Hope office is open Monday to Friday 8:30 a.m. to 4:30 p.m. to provide information and respond to inquiries. Telephone access is available outside of business hours, with CNL staff on call for prompt response to calls of an urgent nature or next business day follow-up for non-urgent calls.

15.1.3.2 Online Communications

Through digital media such as website and social media channels (e.g., PHAI.ca, Facebook, X, Instagram, and LinkedIn), CNL provides information on the PHP and PGP including descriptions of current and upcoming work; environmental monitoring reports; project newsletters; and

information on CNSC licences, public disclosures, and the Complaint Resolution Program and the Property Value Protection Program.

15.1.3.3 Social Media

Staff responds to questions or comments posted by members of the public on PHAI social media accounts and monitors dialogue of relevance to the PHAI on other social media accounts. Timely corrections to inaccurate information about the PHAI and responses as appropriate are posted.

In 2024, the PHAI social media plan encouraged public interaction with CNL Port Hope online proactively and reactively answering questions about PHAI activities. It also continued to provide opportunities to inform the public and Port Hope residents about project activities and shared updates.

Canadian Nuclear Laboratories Port Hope's online presence continued to drive engagement adding 100 additional followers in 2024 and increasing Facebook page visits by 14,000 (61%). The social media audience for the PHAI is primarily located in Port Hope, with the Greater Toronto Area providing the next largest audience. Compared to other businesses in the industry, CNL typically publishes more posts and in 2024 that was more than double the industry average.

15.1.3.4 Website

In 2024, communications materials including fact sheets, newsletters, and the PHAI website itself (PHAI.ca) continued to be in alignment with the CNL brand.

A link on the home page of PHAI.ca continues to provide direct access to information on the CNL application to the CNSC to amend the PHAI licence with a change to the PHAI Cleanup Criteria for arsenic. The website also includes a dedicated page with links to documentation, additional resources, and information on how to participate in the process. Canadian Nuclear Laboratories revised and updated a full complement of materials including a presentation, fact sheets, and information video.

15.1.3.5 Presentations and Site Tours

Presentations and site tours facilitate understanding and appreciation for the complexity and importance of PHAI projects. They also provide information on current and planned project activities and programs. Presentations and tours illustrate the scope of project planning and implementation including environmental protection, compliance with occupational health and safety requirements, and conformance with environmental assessment and licensing obligations and practices.

This outreach helps strengthen connections with science, education, and industry communities; promote and support science, technology, engineering, and math education; and share information with other groups or communities undertaking similar initiatives.

In 2024, CNL staff provided presentations and tours for members of the local business and real estate communities, members of the public, and the local, national, and international nuclear industry and environmental remediation audiences.

15.1.3.6 Host Community Communications

Canadian Nuclear Laboratories staff liaises regularly with elected officials and staff of the host municipalities. As part of an agreed-upon framework for dialogue to keep municipalities abreast of PHAI plans and progress, CNL provides regular project and communications updates to municipal councils, committees, and staff through a variety of media, as well as topical presentations upon request.

Canadian Nuclear Laboratories provided regular updates to the Port Hope community through quarterly meetings of the Agreement Monitoring Group, regular council presentations, newsletters, advertising, and resident notifications.

In Port Granby, CNL staff provided an annual project update to the Durham Nuclear Health Committee. Canadian Nuclear Laboratories staff also provided a Port Granby site tour for the Municipality of Durham in 2024 June.

In 2024 July, CNL staff provided a PHP update to Philip Lawrence - MP, Northumberland-Peterborough South.

15.1.3.7 Community Notifications

Community notifications provide information about near-term PHAI-related activity and/or notable changes to schedule or nature of work to residents and businesses and others located near planned work. They may also serve as advance notification of longer-term project plans or disclosure of unplanned project events.

In 2024, CNL issued several notifications about upcoming work and short-term road closures; each is posted on PHAI.ca and circulated on social media. Canadian Nuclear Laboratories also produced and hand-delivered notices to neighbours of the project sites.

As a direct result of the closure of the local newspaper, CNL continued its efforts to hand deliver notifications where appropriate. This is an example of how the communications efforts adapt as needed.

15.1.3.8 Special Events

Participation in external events provides a broader public with information about PHAI activities and health and safety measures in place to protect people and the environment. It is also an opportunity for CNL staff to act as project ambassadors and broaden awareness and understanding of the projects.

In 2024, CNL participated once again in the annual Run, Salmon, Run Festival and returned to the Port Hope Fall Fair.

15.1.3.9 Public Information Sessions

Canadian Nuclear Laboratories holds public information sessions to share updates and details on PHAI work and related monitoring, mitigation, and health and safety measures in place to protect people and the environment.

These sessions, open to anyone who wishes to participate, allow CNL to provide updates on planned or changed project activity and programs, discuss neighborhood-specific issues related to PHAI work, and receive feedback from public.

Sessions include opportunity for two-way dialogue through question-and-answer periods with CNL and contractors subject matter experts and are open to members of the public, stakeholders, and the media.

In 2024 October, CNL hosted a community information session called PHAI in the Fall providing project updates with dedicated information booths, PHAI site tours, activities for children, games, and an opportunity to speak directly with PHAI project specialists and contractors.

In 2024 March and November, CNL hosted information sessions on the Highland Drive South Ravine project. Feedback from the March meeting was incorporated into CNL's restoration design for the creek on the site. An update on the ravine project and site tour was provided in November.

15.1.3.10 Neighbourhood Information Sessions

Prior to the start of work at a public project site, a public meeting is held to provide an overview of the process, timelines, and any anticipated mitigation measures to be implemented. Canadian Nuclear Laboratories and contractor staff are available to answer questions and address any concerns. In 2024, CNL held sessions for residents in the vicinity of Harcourt Street, King Street, and Shuter Street.

These meetings provided an opportunity for residents to get specific and detailed information about planned work and possible impacts. The King Street meeting in particular provided answers about loss of trees and about resident parking.

15.1.3.11 Contractor Communications Training and Collaboration

Canadian Nuclear Laboratories is the lead for all communications with property owners and the public. Canadian Nuclear Laboratories communications staff work closely with prime contractors at all project sites, including private properties, to clearly define expectations, maintain consistency, align departments, and ensure adherence to approved CNL communication processes.

In 2024, as part of the new General Manager's strategy regarding CNL's contracting partners working on the PHAI, there was more connection between CNL contractors and the Port Hope community. The Port Hope Area Initiative Communications Team worked closely with contractor representatives on a community event (PHAI in the Fall) and community programs (CNL Shops Downtown) helping CNL contractors establish an identity with residents.

15.1.3.12 Dedicated Signage

Port Hope Area Initiative trucks, equipment, and project sites are marked with CNL signage to provide information on work being conducted, detailed health and safety information and requirements, and clear direction on location of LTWMFs to facilitate project traffic and first responder access. All PHAI signage includes contact information for questions or concerns.

15.1.3.13 Internal Communications

Internal communications are shared regularly to ensure that CNL employees are fully apprised of CNL business and PHAI project activities on an ongoing basis.

15.1.3.14 Port Hope Business Community Liaison

Canadian Nuclear Laboratories is a member of the Port Hope and District Chamber of Commerce and provides a monthly update on project progress, communications, and PHP-related economic opportunities to the Board of Directors. Communications staff works directly with Chamber of Commerce staff to develop additional opportunities for members including PHP site tours and events targeted at current and potential project contractors.

To provide access to CNL supply chain opportunities, the PHAI website includes links to a contractor portal, supply chain registration, and vendor portal to connect potential or current suppliers with information on procurement opportunities for goods, services, equipment, decommissioning, and construction.

Information on specific events including the CNL industry day and career fair are circulated to the Chamber of Commerce and any individuals or groups who have expressed interest in career or business opportunities and CNL contracting processes.

Canadian Nuclear Laboratories supported the Port Hope and District Chamber of Commerce in 2024 November by attending their Business Excellence Awards event and recognizing their 150th anniversary.

In addition, CNL provided focused support to the new regional realtors' association that was amalgamated from four separate organizations into the Central Lakes Association of Realtors in 2024. Canadian Nuclear Laboratories provided multiple presentations on the PHAI for the association’s members in different regions and offering bus tours of the PHAI project sites.

15.1.3.15 Health and Emergency Services

Canadian Nuclear Laboratories plans are in place to ensure internal and external events are properly managed and risks to people and the environment are minimized. In addition to documentation and plans maintained by CNL, communications and regular interface are clearly established between and aligned among CNL, the municipalities, the provinces, and the federal government.

In 2024, CNL communications staff facilitated a meeting between PHAI Health, Safety, Security, Quality, and Environment staff with representatives of local health and emergency services

agencies to provide an update on project activities and respond to questions and/or concerns around the project.

It was announced that Haliburton, Kawartha, Pine Ridge District Health Unit, and Peterborough Public Health would merge at the end of 2024 and form the Haliburton Kawartha Northumberland Peterborough Health Unit. Canadian Nuclear Laboratories had ongoing discussion with Haliburton, Kawartha, and Pine Ridge District Health Unit in 2024 regarding the application to amend the PHAI Cleanup Criteria.

15.1.3.16 Newsletters

Port Hope Area Initiative project newsletters update the community on the status of the projects, upcoming work, and changes to planned work or programs. Newsletters are distributed to every household in the respective municipality and to an extensive list of federal, provincial, regional, and municipal stakeholders; newsletters are also available online at PHAI.ca.

The PHP newsletter was distributed in 2024 February and 2024 July by mail to approximately 8,000 homes, businesses, and farms in the Municipality of Port Hope and by email to approximately 400 contacts and available online at PHAI.ca. The winter 2024 newsletter introduced the new general manager Scott Cameron and provided an update on project progress for major sites and private properties. The summer 2024 newsletter focused on private property cleanup providing an overview of the process, answering frequently asked questions, and giving updates about special circumstances options and the proposed change to the PHAI Cleanup Criteria for arsenic.

A list of the two newsletters for the reporting period is included in Table 26.

Table 26: Newsletters

Date	Bulletin
2024-02-08	Winter 2024 Port Hope Area Initiative Newsletter
2024-07-31	Summer 2024 Port Hope Area Initiative Newsletter

A retrospective booklet for the PGP was created and published in 2024. The book, documenting the history of the project, highlights key milestones, challenges, and successes that defined the cleanup and remediation efforts at the Port Granby site. The booklet features timelines, photographs, reflections from those involved, and insights into the positive impacts the project has had on the region. This commemorative booklet serves as a valuable resource for future generations to understand the collective effort required to restore and protect Port Granby's natural landscape. This was distributed to stakeholders including the Municipality of Clarington, stakeholder groups, and past and present staff and contractors who worked on the project.

15.1.3.17 Media Relations

When required, CNL briefs the media and informs the community and broader audiences about imminent project activities, project achievements, and changes to schedule, nature of work, or PHAI programs while reinforcing CNL as primary source of accurate, timely information.

Canadian Nuclear Laboratories monitors the amount and nature of media coverage related to the PHAI generally or to any specific project activity, the type of media involved (e.g., television, print, social media) and the support or concern that has been expressed with relation to the project or activity.

Local, provincial, national, international, and social media coverage of issues related to the PHAI is monitored and analyzed, enabling CNL to understand trends, respond to media coverage when necessary, and identify effective ways to work with the media.

A list of media coverage of the PHAI is included in Table 27.

Table 27: Media Coverage

Date	Article	Title of Publication
2024-06-20	Grenade found near schools in Port Hope, Ont., determined to be replica: Police	Global News.ca
2024-06-20	Grenade found near schools in Port Hope, Ont., determined to be replica: Police	Global News / msn.com
2024-06-20	Military Enroute To Port Hope To Destroy Grenade Found In The Area	Kawartha 411.ca
2024-06-20	Police Using Drone at Jack Burger Sports Complex	Today's Northumberland on X (Twitter)
2024-06-20	DND Has Removed Grenade	Today's Northumberland on X (Twitter)
2024-07-02	PHAI Public Attitude Survey Reveals Cleanup Not Top Concern for Residents	Today's Northumberland
2024-10-02	Port Hope Council Decision Regarding PHAI Cleanup Criterion for Arsenic	Today's Northumberland

DND – Department of National Defense.

Media Releases

During 2024, CNL issued two media releases related to the PHAI. The first, in January, announced the appointment of Scott Cameron as the new General Manager for the PHAI. The second, in June, provided an overview of the results of the 2024 Public Attitude Survey completed for the PHP.

15.1.3.18 Monitoring Public Opinion

Monitoring of public opinion is ongoing to gauge understanding, perceptions, concerns, and opinions about the PHAI and project-related impacts as well as stakeholder support for and awareness of the PHAI.

Canadian Nuclear Laboratories staff responds promptly and effectively to media coverage and social media posts when necessary. There was particular interest in the work being completed at the Highland Drive Landfill with an unusual find that received regional coverage. The Port Hope Public Attitude Survey also received media coverage.

In addition, CNL communications staff answered questions about the impact of PHAI work on tree loss, the application of special circumstances, and timing of cleanup on privately owned properties.

Public Attitude Survey

Canadian Nuclear Laboratories has conducted Public Attitude Surveys in Port Hope and in the Port Granby area since 2011 to gain insight into the views of the community and how effectively CNL is communicating with residents about project activities and progress.

A Public Attitude Survey was completed for the PHP in 2024 February. Results were published in 2024 June, with a summary posted on PHAI.ca and the full document available on request. Highlights of the results were mentioned in the summer Port Hope newsletter with a link to PHAI.ca for more information.

The survey confirmed that a majority of residents (98%) – are satisfied living in the Port Hope community. Eighty percent of respondents indicated knowledge about the PHAI and 83% reported ongoing confidence in CNL's ability to safely manage the waste at the PH LTWMF.

A Public Attitude Survey for residents in Port Hope is scheduled to be completed next in 2026. This survey will focus on the PHP.

15.1.4 Education/Science and Technology Communities

Presentations, site tours, and program-specific information and demonstrations are provided on request to students at the elementary, high school, college, and university level. Canadian Nuclear Laboratories also participates on program advisory committees to provide industry perspective on the development of new programs and courses.

National and international education institutions, industry, and professional groups also participate in PHAI presentations and site tours and CNL continues to develop outreach activities related to science, technology, engineering, and math education.

In 2024, the CNL quarterly magazine for elementary students, *Kids CONTACT,* continued distribution to Port Hope community and the PHAI was included as a regular feature with a story on RP monitoring and cleaning up arsenic in Port Hope.

In 2024, CNL staff provided a presentation to the science class at Cobourg Collegiate Institute and sponsored the Sustainable Cobourg Environmental event for students hosted in May. Canadian Nuclear Laboratories staff also presented a Nuclear 101 workshop for the Port Hope Girl Guides in 2024 May.

At the college level, CNL staff participates in the advisory committee for the Fleming College

Waste Management program to provide industry insight into program planning. In the fall, RP staff attended the Loyalist College Industry Day showcasing potential career pathways for graduates of the program.

A list of school events for the PHAI is included in Table 28.

Table 28: School Tours/Presentations

Date	Location	School
2025-02-07	Hamilton	McMaster University
2025-04-22	Cobourg	Cobourg Collegiate Institute
2025-08-08	Port Hope	Loyalist College
2025-11-03	Port Hope	Durham College
2025-11-13	Oshawa	Ontario Tech University

In the science and technology community, CNL participated in environmental remediation industry events both nationally and internationally, providing a PHAI overview and sites tour for representatives of the Nuclear Regulatory Group UK Environmental Agency, Ontario Power Generation Health and Industrial Safety Team, and the Australia Nuclear Science and Technology Organization. Canadian Nuclear Laboratories staff also provided presentations to the IAEA International Technical meeting for the International Low Level Waste Disposal Network (DISPONET) in Canada, as well as serving as a technical tour site for delegates of the IAEA (DISPONET) conference and the Township of Ignace, a future nuclear host community.

15.1.5 Ongoing Projects

Specific engagement programs and communications initiatives may be implemented with targeted engagement to inform, educate, and discuss specific topics with the public, property owners, and stakeholders.

A dedicated strategy is developed, and a variety of approaches may be used to provide information, and encourage and facilitate feedback, including distribution of information, advertising, information sessions, focus groups, and feedback forms.

Of particular importance is the PGP, which provides a great example to interested parties of a completed environmental project where an engineered containment system has been capped and closed.

The PGP was a finalist for a prestigious 2024 Brownie Award in the sustainable remediation category. This recognition celebrates CNL’s ongoing commitment to sustainability as part of the PHAI projects. The Brownie Awards is self-described as recognizing the builders, innovators, and visionaries who are dedicated to the rehabilitation of brownfield sites that were once contaminated, under-utilized, and undeveloped into productive residential and commercial projects that contribute to the growth of healthy communities across Canada. The PGP was selected as a finalist for its innovative approach to cleaning up this once-contaminated area and demonstratable outcomes for the site as a nature reserve.

15.1.5.1 Port Hope Private Property Communications

As part of the PHAI, CNL is conducting a Property Radiological Survey on approximately 6,000 properties in urban Port Hope and a small number in rural Port Hope to confirm which properties require cleanup of historic waste.

In accordance with the *PHAI Communications Plan Small-Scale Sites* [71], CNL staff continued to implement several approaches to ensure ongoing communications and outreach with property owners through all stages of the survey and, for those properties with waste, throughout the remediation and restoration of the property.

In 2024, residents were introduced to Scott Cameron, the new general manager of the PHAI, who shared his plan to focus on private property cleanup now that major sites work is proceeding toward completion. The communications strategy supporting this plan focused on sharing information about the proposed amendment to the PHAI Cleanup Criteria and addressing questions about scheduling. The CNL Communications and Stakeholder Relations team was proactive in reaching out to the community and specific residents to offer information and confirm their ongoing touchpoint for PHAI updates.

In response to feedback about communications on the cleanup of private properties, CNL has prioritized open engagement with residents and stakeholders, leading to significant program adjustments that respond to community input and to new considerations and challenges in terms of project planning and execution. These changes include offering more choice to residents about remediation approaches and focusing on minimizing disruption rather than accelerating timelines.

15.1.5.2 Individual Property Owner Communications

All property owners included in the survey receive a consent and scheduling package outlining the process and requesting written confirmation of their participation. Once a signed consent is received, individual phone calls are made to schedule survey appointments.

For properties identified as having waste, CNL contacts the owner to provide test results and a design overview booklet: an overview of next steps and what to expect during the process. Design meetings are held with owners to review the design package for the property and make any changes; details are finalized, and the Remediation and Restoration Agreement is signed.

Before work begins on private properties, a property owner information session is held to review upcoming work and details on what owners and adjacent neighbours can expect throughout the remediation and restoration process.

From the start of testing through to restoration and closeout of each property, communications staff remain available by phone, email, and in person to help property owners navigate the process and to respond to any inquiries and concerns.

In 2024 CNL staff had 11,095 interactions with property owners. A summary of private property owner interactions is provided in Table 29.

Table 29: Private Property Owner Interactions for 2024

Type of Interaction	Number
Phone Calls	3,340
Written Communications	6,467
Property Owner Meetings	556
Site Visits	732

15.1.5.3 Private Property Information Sessions

In advance of work on private properties, a virtual meeting is held for owners of all properties to be remediated in a neighbourhood. Canadian Nuclear Laboratories staff and the assigned contractor outline plans for each property including site preparations, mitigation plans, and day-to-day coordination including parking, mail delivery, garbage pickup, etc.

15.1.5.4 Communications Field Staff

Communications Field Liaison Officers regularly attend property sites to address emerging issues. Their primary role is to mitigate any escalating situations resulting from property owner concerns with project activities.

The field staff ensures delivery of consistent messaging when explaining property plans, changes and delays and carefully record and address any concerns. Where required, the officers will identify and support the implementation of accommodation measures for those with extenuating circumstances.

15.1.5.5 Decline-to-Participate Letters

In an ongoing effort to encourage participation in the property survey, CNL undertakes a comprehensive process to connect with Port Hope property owners who have not provided consent to participate in or continue the Property Radiological Survey. The aim is to confirm whether they wish to be included in the survey. If no response is received after multiple attempts to engage a property owner, CNL issues a decline to participate letter indicating the recipient has 30 days to confirm whether they wish to participate in or decline the PHAI cleanup.

15.1.5.6 Port Hope Property Information Access

At the written request of a property owner, CNL provides a radiological status letter confirming any available results of any radiological investigation and remediation activities on the property to date.

When a property is listed for sale and the owner provides the radiological status letter to prospective buyers, CNL staff is available (with written permission from the owner) to speak with prospective buyers and answer questions related to the information in the letter.

15.1.5.7 Application to Amend PHAI Licence: Change to PHAI Cleanup Criteria (Amendment application)

In 2024 CNL continued to inform internal and external audiences about the proposed licence amendment for the arsenic cleanup criterion. Canadian Nuclear Laboratories also continued to collect public feedback. A list of amendment application activities is provided in Table 30.

Table 30: Amendment Application Communications for 2024

Date	Location	Event
Stakeholders/Public		
2024-01-29	Port Hope	PHAI GM meeting with Municipality of Port Hope's new CEO
2024-03-22	Port Hope	Save Our Trees group meeting
2024-04-16	Port Hope	Update to Council for Municipality of Port Hope
2024-05-27	Port Hope	Dorset Street Coalition Residents Meeting
2024-07-30	Port Hope	Port Hope Project Newsletter
2024-08-06	Port Hope	PHAI Cleanup Criteria Training for Municipality of Port Hope Council
2024-09-13	Port Hope	PHAI Information booth at Port Hope Fall Fair
2024-09-24	Port Hope	Update to Council for Municipality of Port Hope
2024-10-02	Port Hope	PHAI Cleanup Criteria Special Presentation to Council for Municipality of Port Hope
2024-10-07	Port Hope	Dorset Street Coalition Residents Meeting with Municipality of Port Hope
2024-10-30	Port Hope	PHAI in the Fall Public Information Event
Employees		
2024-10-03	Port Hope	All Staff Email from GM regarding Municipality of Port Hope Council support for the PHAI Cleanup Criteria Amendment
Communications Products and Website		
2024-06-24	PHAI.ca	PHAI Cleanup Criteria: Proposed Change update video
2024-11-25	PHAI.ca	Update: Support from Municipal Council

GM – General Manager; CEO = Chief Executive Officer.

Discussion and feedback were recorded and applied, where applicable, to further refine messaging, address common questions, and maintain open dialogue about support and concerns throughout the engagement process.

- Canadian Nuclear Laboratories created a detailed video in 2024 June that outlined the history and process for the request to amend the PHAI Cleanup Criteria. This video addressed the questions and feedback that CNL received from local residents and stakeholders.
- The Council for the Municipality of Port Hope, at a special meeting held on 2024

October 02, voted unanimously in favour of supporting the proposed change to the PHAI Cleanup Criteria. The decision marks a step forward in the criteria change process, reflecting the council's commitment to preserving trees and minimizing project impacts in the community.

15.2 Indigenous Relations

In alignment with the *Truth and Reconciliation Commission Call to Action No. 92, Business and Reconciliation* [72], CNL prioritizes the recognition of Indigenous rights and interests through ongoing learning about their values and interests. Ongoing engagement includes regular meetings and project site tours with Indigenous communities and organizations and the opportunity for review and feedback on project information, materials, and engagement planning to ensure their worldviews and concerns are shared and understood. Indigenous knowledge systems are integrated into CNL project planning and activities.

Canadian Nuclear Laboratories Indigenous Relations continues to evolve and expand; in 2024 March, a Senior Indigenous Engagement Advisor joined the Port Hope Indigenous Relations staff to work directly with communities on ongoing engagement. At the first quarterly all-staff meeting for HWP, the new advisor was introduced to the staff and provided an overview and update on HWP Indigenous Relations and promoted upcoming corporate training opportunities.

In 2024 January, CNL welcomed a new Director of Indigenous Relations to oversee engagement with Indigenous communities and organizations at all project sites. Canadian Nuclear Laboratories Indigenous Relations staff meets with the director on a weekly basis to provide project updates, identify potential issues, and plan enhancements to internal engagement.

Historic Waste Program Indigenous Relations staff also participate in bi-monthly meetings with CNL Diversity, Equity, and Inclusion staff to share information and resources throughout the year.

15.2.1 Identified Indigenous Communities and Organizations

From the start of Phase 1 planning of the PHAI projects, the Mississauga communities of the Williams Treaties First Nations have been involved in the PHAI, participating in the environmental assessment consultation process in the early 2000s, which included more than 40 engagements with Indigenous communities and organizations over the course of eight years.

Once the PHAI moved into Phase 2 in 2012, the Mississauga communities requested and began receiving ongoing project updates. Canadian Nuclear Laboratories has also shared PHAI updates with other communities and organizations potentially having interest in the project based on their proximity and interest in other projects in the area local to PHAI activities.

Engagement continues to evolve both in the frequency and level of participant involvement.

A list of communities and organizations is provided in Table 31.

Table 31: Indigenous Communities and Organizations

Indigenous Communities (by representative organization) or organizations	Identification Rationale
Alderville First Nation	Community with Treaty Rights
Curve Lake First Nation	Community with Treaty Rights
Hiawatha First Nation	Community with Treaty Rights
Mississaugas of Scugog Island First Nation	Community with Treaty Rights
Beausoleil First Nation	Community with Treaty Rights
Chippewas of Georgina Island First Nation	Community with Treaty Rights
Chippewas of Rama First Nation	Community with Treaty Rights
Mohawks of the Bay of Quinte	Community with interests
Anishinabek Nation	Organization with interests
Métis Nation of Ontario	Organization with interests

Detailed information is provided below for each Indigenous community and organization that engages with CNL on the PHAI. Background information on each community, noted in italics, has been adapted from each community's website and other public sources.

15.2.2 Williams Treaties First Nations

The Williams Treaties First Nations are represented by the Chippewa communities of Beausoleil, Georgina and Rama First Nations, and the Mississauga (MishiSaagiig) communities of Alderville, Curve Lake, Hiawatha and Scugog Island First Nations. In the 18th and 19th centuries all seven of these communities were involved in what are termed "pre-Confederation treaties" before and after their present day First Nation land bases were established. In 1923 after decades of correspondence to government on the matter of the encroachment of their unsurrendered lands in southern Ontario, a Commission was struck to take evidence across all seven communities. What resulted was the validation of their claims and the subsequent and quick execution of both the Chippewa and Mississauga treaties by November of 1923. The deficiencies in the treaties would become the subject of a lawsuit by 1992, which was resolved in the 2018 Williams Treaties Settlement Agreement.

In 2024, by mutual agreement, group meetings with the Williams Treaties First Nations moved from monthly (established at the Nations' request in 2021) to a quarterly schedule. Meetings were held in January, April, July, and October and included community updates and information sharing, along with updates on the PHAI and areas of collaboration. Specific discussion topics were determined in advance of each meeting based on interests of the Nations, involving priority setting and meeting planning, proposed changes to the PHAI Cleanup Criteria, and an overview of the AECL Government-Owned/Contractor-Operated procurement process.

Canadian Nuclear Laboratories projects taking place on Williams Treaties lands were also discussed including both the proposed Near Surface Disposal Facility at the CRL site and the decommissioning of the Nuclear Power Demonstration Facility.

With the change to a quarterly schedule, each Nation was also offered the opportunity for one-on-one meetings with CNL Indigenous Relations and Environmental Remediation Management staff. Individual quarterly meetings were established at the request of Curve Lake First Nation, Hiawatha First Nation, and Mississaugas of Scugog Island First Nation. In 2024 November, Alderville First Nation expressed interest in establishing quarterly meetings; these meetings have been confirmed for 2025.

A number of topic-specific meetings were held with each Nation based on CNL initiatives and specific requests and interests. Details for each Nation are outlined in the sections below.

15.2.2.1 Alderville First Nation

> *Alderville First Nation has been home to the Mississauga Anishinabeg of the Ojibway Nation since the mid-1830s. Before that time the people lived in their traditional lands around Bay of Quinte (Grape Island) but with the influx of settlement after the American Revolution their existence found itself under increased pressure. The British having lost the American colonies after 1783, were forced to relocate the soldiers and civilians that had been loyal to the King during the conflict. For this reason, the Bay of Quinte became one area of settlement for those who became known as the United Empire Loyalists. The Mississauga then, were directly involved in early "land surrenders" along the St. Lawrence River and the Bay, allowing this settlement to occur.* [73]

In 2024, Alderville First Nation participated in the quarterly Williams Treaties First Nations meetings and received information, newsletters, project updates, and public disclosures, as well as information on the Waterworks West restoration project and the PHAI Cleanup Criteria Amendment application proposal with the offer of an update or presentation.

In 2024 May and June, CNL held separate, dedicated meetings with each of the Mississauga Nations (Alderville, Curve Lake, Hiawatha, and Mississaugas of Scugog Island) to provide an update on the Waterworks West restoration project. See Section 15.2.10.2 for more information.

Also in 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback.

Canadian Nuclear Laboratories was pleased to be a sponsor of the Alderville First Nation Pow Wow in 2024 July.

In 2024 September, after receiving a Public Information Disclosure update on the topic of an effluent release at the CRL site, Alderville First Nations consultation staff requested a meeting with CNL-CRL environmental management staff to provide an in-depth follow-up about the unplanned sanitary sewage effluent release at the CRL site. The meeting information was received and it was confirmed that their concerns had been addressed.

15.2.2.2 Beausoleil First Nation

Beausoleil First Nation (G'Chimnissing) is an Ojibwe First Nation and band government located in Simcoe County, Ontario, Canada. The main settlement is on southern tip of Georgian Bay on Christian, Beckwith and Hope Islands. The community and government offices are situated on Christian Island. [74]

As a member of the Williams Treaties First Nations, Beausoleil First Nation has been identified as potentially having interest in the PHAI based on their proximity and interest in other projects in the area local to PHAI undertakings.

In 2024, the Chippewas received invitations and agendas for the quarterly meetings with the Williams Treaties First Nations. Canadian Nuclear Laboratories continued to provide information, newsletters, project updates, and public disclosures, as well as information and invitation for input and feedback on the Waterworks West site restoration project (Section 15.2.10.2) and the Cleanup Criteria Amendment application proposal (Section 15.1.5.7) with the offer of an update or presentation.

In 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback.

15.2.2.3 Chippewas of Rama First Nation

> *The Chippewas of Rama First Nation is located approximately one and a half hours north of Toronto, on 2,500 acres of interspersed land nestled in "Ontario's Lake Country", on the eastern side of Lake Couchiching. The Ojibwe peoples are part of the Three Fires Confederacy along with the Odawa and Pottawatomi Nations.* [75]

As a member of the Williams Treaties First Nations, the Chippewas of Rama First Nation have been identified as potentially having interest in the PHAI. Over the years, CNL has engaged in two-way dialogue and mutual information sharing.

In May 2024, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback.

In 2024, the Chippewas received invitations and agendas for the quarterly meetings with the Williams Treaties First Nations. Canadian Nuclear Laboratories also continued to provide information, newsletters, project updates, and public disclosures, as well as information on the Waterworks West site restoration project and the Cleanup Criteria Amendment application proposal with the offer of an update or presentation.

15.2.2.4 Curve Lake First Nation

> *Curve Lake First Nation people are the Michi Saagig or Mississaugas of the great Anishinaabe (uhnishi-nahbe) nation. The name Anishinaabe is derived from an-ish-aw, meaning "without cause" or "spontaneous," and the word in-au-a-we-se, meaning "human-body." This translates to mean "spontaneous man." The Anishinaabe did not have a written alphabet, but they did have a set of picture symbols or pictographs which*

> *were used to educate through stories. Traditional teachings have taught that before contact they shared the land with the Odawa and Huron nations. They are the traditional people of the North shore of Lake Ontario and its tributaries; this has been Mississauga territory since time immemorial.* [76]

Individual quarterly meetings were held with Curve Lake First Nation consultation staff in 2024 for mutual information sharing and updates. Canadian Nuclear Laboratories Indigenous Relations and Environmental Remediation Management provided project updates, and specific discussion topics were identified in collaboration with the Nation, including an update on the Nuclear Power Demonstration Restoration Plan and the CNL Cleanup Criteria Amendment application proposal.

In 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback.

In 2024 June, CNL held a separate, dedicated meeting with Curve Lake First Nation to provide an update on the Waterworks West site restoration project. See Section 15.2.10.2 for more information.

In 2024 July, CNL Indigenous Relations staff participated in Curve Lake First Nation's Harvesters Symposium Evening with a booth for attendees to learn more about the PHAI and potential economic and employment opportunities.

In 2024 September, CNL was pleased to provide sponsorship for the Curve Lake First Nation annual Pow Wow, and several CNL senior staff were able to attend.

Curve Lake First Nation invited CNL Indigenous Relations staff to the Canadian Canoe Museum in 2024 November for a cultural awareness session, followed by lunch with teachings shared by a community Elder and Chief. The gathering created an opportunity to meet new Curve Lake First Nation consultation and support staff. Later that month, CNL participated in Curve Lake First Nation's Alternative Routes Career Fair, providing information on CNL locations, projects, and available staff positions.

In 2024 December, CNL hosted a dedicated meeting with Curve Lake First Nation consultation staff to provide background and an update on the CNL application to change the PHAI Cleanup Criteria. See Section 15.1.5.7 for more information.

15.2.2.5 Chippewas of Georgina Island First Nation

> *Chippewas of Georgina Island First Nation is an Anishinaabe Nation located on the southern shores of Lake Simcoe. Their ancestors were inhabitants of the Lake Simcoe region long before the arrival of settlers. Six years after a government experiment to colonize the Chippewa people in 1830, Chief Joseph Snake moved his people back to Snake Island, and then to Georgina Island as the community grew. Georgina Island was the first community in Canada to ratify The Framework Agreement on First Nation Lands Management and preserve inherent rights to hunt, fish, and gather.* [77]

As a member of the Williams Treaties First Nations, Georgina Island First Nation has been identified as potentially having interest in the PHAI projects based on their proximity and interest in other projects in the area local to PHAI undertakings.

In 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback.

In 2024, Georgina Island First Nation received invitations and agendas for the quarterly meetings with the Williams Treaties First Nations. Canadian Nuclear Laboratories continued to provide information, newsletters, project updates, and public disclosures, as well as information on the Waterworks West site restoration project and the Cleanup Criteria Amendment application proposal with the offer of an update or presentation.

15.2.2.6 Hiawatha First Nation

> *Hiawatha First Nation is located on the north-shore of Rice Lake, east of the Otonabee River in Otonabee Township, approximately 30 kilometres south of Peterborough. The First Nation consists of approximately 2,145 acres of land of which 1,523 are under certificates of possession.* [78]

Individual quarterly meetings were held with Hiawatha First Nation consultation staff in 2024 for mutual information sharing and updates. Canadian Nuclear Laboratories Indigenous Relations and Environmental Remediation Management staff provided project updates, and specific discussion topics were identified in collaboration with the Nation, including an update on the Nuclear Power Demonstration Restoration Plan and the CNL Cleanup Criteria Amendment application proposal.

In 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback.

In 2024 May and June, CNL held separate, dedicated meetings with each of the Mississauga Nations (Alderville, Curve Lake, Hiawatha, and Mississaugas of Scugog Island) to provide an update the Waterworks West site restoration project. See Section 15.2.10.2 for more information.

In 2024 September, after receiving a Public Information Disclosure update on the topic of an effluent release at CRL site, Hiawatha First Nation consultation staff requested a meeting with CNL-CRL environmental management staff to provide an in-depth follow-up about the unplanned sanitary sewage effluent release at the CRL site. The meeting information was received and it was confirmed that their concerns had been addressed.

Canadian Nuclear Laboratories was pleased to sponsor the Hiawatha First Nation Pow Wow held in September.

15.2.2.7 Mississaugas of Scugog Island First Nation

> *The Mississaugas of Scugog Island First Nation moved into southern Ontario from their former homeland north of Lake Huron around the year 1700. The Mississaugas are a*

branch of the greater Ojibwa Nation, one of the largest native groups in Canada. From time immemorial, Mississauga people secured all their needs from the surrounding environment ("Mother Earth"); hunting and fishing and harvesting plant materials for food and medicines. Wild rice, an important food staple, grows in shallow water and was gathered in late summer using birch bark canoes. [79]

Individual quarterly meetings were held with Mississaugas of Scugog Island First Nation consultation staff in 2024 for mutual information sharing and updates. Canadian Nuclear Laboratories Indigenous Relations and Environmental Remediation Management staff provided project updates, and specific discussion topics were identified in collaboration with the Nation, including an update on the Nuclear Power Demonstration Restoration Plan and the CNL Cleanup Criteria Amendment application proposal.

The Mississaugas of Scugog Island First Nation had expressed interest in participating in a peer review of the risk assessment for the Chemetron Lagoon site once excavation was complete. A dedicated meeting on the topic was held in 2024 January.

The 2024 May quarterly meeting took place in person with consultation staff and staff lead of Voyageur (Nation-owned construction business) in attendance and included PHAI project updates, and a focus on Chemetron Lagoon. The meeting was followed by a tour of the Chemetron Lagoon project site.

The meeting also included an overview on the Waterworks West Offsetting & Restoration Plan and options (see Section 15.2.10.2 for more information).

Also in 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine to the Williams Treaties First Nations for their review and feedback. The Mississaugas of Scugog Island First Nation provided feedback on the plans, which was dispositioned and incorporated into the draft plans.

Canadian Nuclear Laboratories was pleased to make a financial contribution to support the Nation's annual Pow Wow held in July.

In 2024 December, CNL hosted a dedicated meeting with Mississaugas of Scugog Island First Nation consultation staff to provide background and an update on the CNL application to change the PHAI Cleanup Criteria. See Section 15.1.5.7 for more information.

15.2.3 Organizations with Interests

15.2.3.1 Anishinabek Nation

The Anishinabek Nation established the Union of Ontario Indians (UOI) as its secretariat in 1949. The UOI was established because the Anishinabek Nation did not legally exist and a legal entity was required to enter into legally binding agreements. The Anishinabek Nation is a political advocate for 39 member First Nations across Ontario. The Anishinabek Nation is the oldest political organization in Ontario and can trace its

> *roots back to the Confederacy of Three Fires, which existed long before European contact.* [80]

In 2019, Anishinabek Nation reached out to CNL to establish a relationship and explore potential economic opportunities for member Nations. Over the years, CNL has participated in meetings, presentations and site tours with representatives and Grand Council members.

In 2024, CNL continued to provide information, newsletters, project updates, and public disclosures.

15.2.3.2 Mohawks of Bay of Quinte

The Mohawks of the Bay of Quinte are a First Nation within Hastings County, Ontario. They control the Tyendinaga Mohawk Territory, which is a 7,362.5 ha reserve on the shores of Bay of Quinte in south-eastern Ontario, east of Belleville.

> *The ancestral homeland of the Mohawk Nation is the Mohawk River Valley, which is in present day New York State. The Mohawks are considered the easternmost Nation within the Iroquois/Six Nation Confederacy and as such are referred to as the Keepers of Eastern Door. The original Five Nation Confederacy was made up of the Mohawk, Oneida, Onondaga, Cayuga and Seneca Nations. When the Tuscaroras were adopted into the Iroquois Confederacy around 1722, the Iroquois became known as the Six Nations Confederacy.* [81]

Over the years, CNL has provided the Mohawks of the Bay of Quinte with updates through project information mailings and circulates invitations for special events including Industry Day, career fairs, and information sessions.

In 2024, CNL continued to provide information, newsletters, project updates and public disclosures.

15.2.3.3 Métis Nation of Ontario

> *In 1993, the Métis Nation of Ontario was established through the will of Métis people and Métis communities coming together throughout Ontario to create a Métis-specific governance structure.* [82]

Over the years, CNL has engaged with Métis Nation of Ontario and in particular representatives from Region 6 (eastern Ontario including Peterborough and Ottawa), Region 8 (including Durham and the Greater Toronto Area), and the Wapiti District Métis Council, and exchanged dialogue and two-way information sharing.

In 2024, CNL continued to provide information, newsletters, project updates, and public disclosures.

15.2.4 Engagement with Indigenous Communities and Organizations

A list of all 2024 engagements with Indigenous communities and organizations (ICOs) is included in Table 32.

Table 32: Indigenous Engagement Activities for 2024

Date	Location	Activity
January 11	Virtual	Mississaugas of Scugog Island First Nation meeting re: Risk Assessment Planning meeting
January 11	Virtual	Waterworks West Meeting: 4 Directions, DFO, CNL, WSP
January 31	Virtual	Williams Treaties First Nations meeting: quarterly ERM
January 31	Email	Public Disclosure to ICOs: Chalk River training issues
February 09	Email	Public Disclosure to ICOs: sewage spill at Port Hope Harbour
February 14	Virtual	4 Directions WWW comment disposition meeting
February 16	Virtual	4 Directions discussion with Founder re: collaboration with Municipality of Port Hope
March 04	Port Hope	Meeting: Indigenous contractor re: questions/concerns on PHAI contracting
March 14	Email	Invitation to all ICOs – CNL Community Update webinar
March 25	Virtual	Mississaugas of Scugog Island First Nation quarterly ERM meeting
March 27	Virtual	Hiawatha First Nations quarterly ERM meeting
March 27	Virtual	Curve Lake quarterly ERM meeting
April 02	Email	Public Disclosure to ICOs: fencing fall at Lions Recreation Centre Park site due to high winds
April 03	Virtual	CNL, WSP, 4 Directions meeting: WWW technical clarification, next steps
April 22	Port Hope	4 Directions of Conservation Consulting (retained by Curve Lake First Nation / Hiawatha First Nation) and Municipality of Port Hope meeting re: WWW restoration plans
April 24	Virtual	Williams Treaties First Nations quarterly ERM meeting including WWW update
May 03	Virtual	4 Directions of Conservation Consulting, WSP, Fisheries and Oceans Canada meeting re: WWW plans
May 22	Port Hope	Mississaugas of Scugog Island First Nation dedicated meeting re: PHAI/WWW restoration plans; Chemetron Lagoon Risk Assessment; PHAI Project Sites Tour
May 29	Alderville First Nation	Alderville First Nation dedicated ERM meeting on WWW restoration plans
June 05	Virtual	Curve Lake First Nation dedicated ERM meeting incl: update on WWW restoration plans
June 06	Email	Public Disclosure to ICOs: cylinder with unknown contents at Centre Pier site
June 06	Email	Email to all Williams Treaties First Nations: Circulated WWW Offsetting & Restoration Plans Rev. 5 with request for feedback by 2024 June 28
June 07	Hiawatha First Nation	Hiawatha First Nation dedicated meeting re: PHAI/WWW restoration plans
June 21	Email	Public Disclosure to ICOs: submerged boat oil leak due to heavy rain at Harbour
July 01	Email	Alderville First Nation: Feedback received on WWW draft restoration plans
July 03	Virtual	Mississaugas of Scugog Island First Nation quarterly ERM meeting re: PHAI updates/discussion
July 10	Curve Lake First Nation	Curve Lake First Nation Harvesters Evening – CNL booth

Date	Location	Activity
July 10	Email	Public Disclosure to ICOs: overflowed maintenance hole due to heavy rain at Lions Park site
July 12	Email	Public Disclosure to ICOs: gasoline leak from boat in Port Hope Harbour
July 12	Email	Invitation to all ICOs - CNL Industry Day at Chalk River Laboratories campus
July 15	Email	Mississaugas of Scugog Island First Nation: feedback received on WWW draft restoration plans
July 29	Email	Public Disclosure to ICOs: overflow of non-impacted water to neighbouring properties due to heavy rain at Lions Recreation Centre Park site
July 31	Virtual	Williams Treaties First Nations quarterly ERM meeting
August 08	Email	Invitation to all ICOs – CNL September webinar series
August 12	Email	Public Disclosure to ICOs: exceedances in routine sampling of effluent into Lake Ontario
August 28	Virtual	Hiawatha First Nations quarterly ERM meeting
September 04	Virtual	Curve Lake First Nation quarterly ERM meeting
September 06	Email	Public Disclosure to ICOs: airborne dry cement release at Centre Pier site
September 17	Email	Public Disclosure to ICOs: structural issue at private property remediation site
September 18	Email	Invitation to all ICOs - PHAI in the Park event
September 18	Virtual	Mississaugas of Scugog Island First Nation quarterly ERM meeting
September 18	Virtual	Hiawatha First Nation meeting re: CRL Sanitary Sewage Treatment Facility disclosure
September 23	Virtual	Alderville First Nation meeting re: CNL Sanitary Sewage Treatment Facility disclosure
October 30	Virtual	Williams Treaties First Nations quarterly ERM meeting
November 15	Peterborough	Curve Lake First Nation cultural awareness day - Canadian Canoe Museum
November 19	Email	Public Disclosure to ICOs: vehicle collision at municipally owned lot
November 20	Curve Lake First Nation	Curve Lake First Nation Career Fair: CNL Booth
November 27	Virtual	Hiawatha First Nations meeting: quarterly ERM: CNL application to change the PHAI Cleanup Criteria
December 03	Virtual	Alderville First Nation meeting re: CNL application to change the PHAI Cleanup Criteria
December 04	Virtual	Curve Lake First Nation quarterly ERM meeting: CNL application to change the PHAI Cleanup Criteria
December 10	Email	Public Disclosure to ICOs: gas spill in harbour
December 11	Virtual	Mississaugas of Scugog Island First Nation meeting: quarterly ERM: CNL application to change the PHAI Cleanup Criteria
December 20	Email	CNL-Mississauga Nations collaboration: WWW Offsetting & Restoration Plans submitted to DFO

DFO – Fisheries and Oceans Canada; WSP – WSP Canada Inc.; ERM – Environmental Remediation Management; WWW – Waterworks West.

15.2.5 Contribution/Relationship Agreements

Canadian Nuclear Laboratories supports the development of Contribution/Relationship Agreements to provide funding so that Indigenous communities can remain actively involved in CNL communications, engagement, and project planning.

Agreements may include financial support for staff time related to administration, community liaison activities, and meetings; technical documentation review; and environmental and habitat assessments, as well as community capacity building through skills training and job shadowing.

In 2024, CNL began discussions with two Nations on extending their respective existing agreements with CNL. Discussions advanced with a third Nation to establish a Relationship Agreement and toward the end of 2024, a fourth Nation expressed interest in establishing an agreement with CNL. Staff will continue to work directly with each Nation develop community-specific agreements that meet their individual needs.

Canadian Nuclear Laboratories remains open to developing Contribution/Relationship Agreements with other ICOs.

15.2.6 Indigenous Knowledge Systems

The CNL Indigenous Relations program includes ongoing enhancement of participation and collaboration with ICOs. Canadian Nuclear Laboratories seeks input to apply guidance and Indigenous knowledge systems into project activities as part of the goal of meaningful interaction and engagement with Indigenous communities and peoples.

In 2024, CNL continued a collaboration with Indigenous communities to develop offsetting and restoration plans at the Waterworks West and Alexander Creek sites including the application of Indigenous ecological knowledge. This work supports enhanced fisheries habitat restoration and will support sustainability and protection of Treaty rights to fish and harvest on these lands and waterways. See Section 15.2.10.2 for more information.

In 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine site. The Mississaugas of Scugog Island First Nation provided feedback including specific planting species recommendations. All feedback was dispositioned and incorporated into the draft plans or noted why it could not be incorporated.

Through ongoing collaboration with Indigenous communities, CNL will continue to engage on this approach for various project sites and work to incorporate Indigenous knowledge systems and worldviews into its environmental programming and project planning and execution.

15.2.7 Archaeology Program

The CNL Protocol for Archaeological and Forensic Discovery outlines the required procedure should items of potential archaeological, Indigenous, or cultural heritage significance be uncovered during PHAI work. The protocol requires that the archaeologist overseeing the site engage with cultural heritage liaisons from Indigenous communities. Canadian Nuclear

Laboratories communicates with Indigenous communities, so they remain engaged and involved in all stages of the archaeological work.

Mandatory archaeological training is provided to all PHAI front-line project staff and contractors to outline what to expect during field work, what to watch for, and the steps required when uncovering an object of potential significance.

When CNL was advised there may be Indigenous artifacts in Port Hope's Lions Recreation Centre Park, Indigenous communities were informed and representatives from Curve Lake, Hiawatha First Nations joined CNL staff for a site walk-down before the lands were cleared for excavation of contamination. Hiawatha First Nation expressed interest in observing remediation at the site, and Cultural Heritage Liaison Monitors from the Nation were on site in 2023 December to observe the work and again in 2024 January when CNL completed removal of native soil contaminated with waste. No items of potential significance were uncovered during the work.

In fall 2024, CNL Indigenous Relations staff reviewed the outcome report from the Phase 1 and 2 archaeology investigation along the access road to the PH LTWMF, which had found no artifacts of potential Indigenous interest.

15.2.8 Indigenous Business and Trade Liaison

Canadian Nuclear Laboratories is committed to implementing *Call to Action No. 92, Business and Reconciliation* [72] in the Truth and Reconciliation Commission report to actively promote and enable economic opportunity for Indigenous businesses.

To facilitate access to CNL supply chain opportunities, the PHAI website includes links to CNL's Indigenous Vendor Portal to connect potential or current Indigenous suppliers with information on procurement opportunities for goods, services, equipment, decommissioning, and construction. Canadian Nuclear Laboratories circulates information on PHAI and CNL business and employment events, including CNL industry days and career fairs, as well as job opportunities to ICOs. Throughout the year, CNL responded to inquiries from and held meetings with Indigenous businesses and contractors and facilitated introductions to CNL contractors working on the PHAI.

Introduced in 2023, the CNL *Indigenous Relations Procurement Strategy* [83] sets out how CNL intends to deliver on its commitments and provides a vehicle for engagement and consultation on CNL's supply chain approach to reconciliation. The strategy was developed in collaboration with Indigenous Nations and is evolving to properly meet the needs of Indigenous-owned businesses.

In 2024 November, CNL participated in the Alternative Routes Career Fair at Curve Lake First Nation to provide information on the PHAI, current job opportunities, and information on potential career pathways in the environmental remediation industry.

In 2024, CNL continued its contract with an Indigenous environmental consulting firm with fisheries ecology expertise to conduct work at the Waterworks West site including a vegetation

survey and participation in a fish rescue at Alexander Creek, as well as providing input into the restoration design plans.

Mississaugas of Scugog Island First Nations is a majority owner of Voyageur, a construction firm. During regular meetings with the Nation, they have expressed their ongoing interest in CNL projects including the construction of the Near-Surface Disposal Facility and Phase 3 maintenance and monitoring at PHAI sites.

15.2.9 Information Updates

Canadian Nuclear Laboratories routinely engages in two-way dialogue and encourages information sharing to learn more about local ICOs. Canadian Nuclear Laboratories distributes PHAI newsletters, media releases, public disclosures, and invitations to special events to ICOs via email.

Public disclosures as detailed in Section 15.1.2 are shared directly with ICOs by email with the offer to provide more information and respond to any questions or concerns.

Links to the PHAI and CNL Public Disclosure pages are included in each agenda for quarterly meetings with the Williams Treaties First Nations and individual Nations, and a section of the agenda is dedicated to discussing any outstanding questions or concerns.

15.2.10 Ongoing Projects

15.2.10.1 Application to Amend PHAI Licence: Change to PHAI Cleanup Criteria (Amendment application)

Following a pause in 2022 for the PHAI licence renewal hearing, CNL re-launched engagement with Indigenous communities and organizations in autumn of 2024 and CNL held individual meetings with each of the Mississauga Nations to provide information to new staff and an overall update on next steps.

Discussion and feedback were recorded and applied, where applicable, to further refine messaging, address common questions, and maintain open dialogue about support and concerns throughout the engagement process.

15.2.10.2 Waterworks West Site Restoration

The remediation at the Waterworks West site (owned by the Municipality of Port Hope) includes the removal of LLRW within and adjacent to Alexander Creek and progressive restoration at the site.

In a 2022 meeting with the Williams Treaties First Nations, CNL shared details on the proposed remediation scope of work in the Waterworks West site and Alexander Creek project area. Given the potential for brook trout habitat (a cultural keystone species) in the Alexander Creek, consultation staff for Curve Lake and Hiawatha First Nations expressed an early interest in

further engagement and collaboration on this site and meetings were held with their consultant through 2023.

Canadian Nuclear Laboratories contracted an Indigenous environmental firm with expertise in fisheries ecology and Indigenous ecological knowledge to review the sampling design/report, participate in fieldwork, and review the resulting report.

Ongoing updates on fieldwork, Offsetting & Restoration Plans development, and opportunities for involvement were provided at monthly meetings with the Williams Treaties First Nations, and in 2023 August the first draft Offsetting & Restoration Plans were circulated to the Nations with a request for feedback and input. In 2023 September, written comments were received from Curve Lake First Nation and Hiawatha First Nation with input into the restoration designs of Alexander Creek and a list of sensitive features to incorporate into the design, including species of Indigenous significance.

In 2024, through more than 30 communications touchpoints, CNL provided information and opportunities for participation to the Williams Treaties First Nations including updates at each of the quarterly group and individual meetings with each the Mississauga Nations.

In 2024 April, CNL held an in-person meeting with senior staff from the Municipality of Port Hope (Waterworks West property owners) and consultants retained by Curve Lake and Hiawatha First Nations to provide an overview of proposed offsetting/restoration plans and restoration options. Municipal staff was very receptive to the restoration design concepts and supportive of returning the west area of that site to a naturalized state.

Later in 2024 April, CNL advised the Williams Treaties First Nations of a second-round opportunity to review the draft plan in the coming weeks. In June, drafts of Revision 5 plans and designs went to the Williams Treaties First Nations with the offer of community and/or staff-level meetings to provide an in-depth project update and to request feedback on the draft plans.

Meetings were requested by the Mississaugas of Scugog Island, Alderville, Hiawatha, and Curve Lake First Nations; CNL staff provided a detailed update of the engagement history and Alexander Creek design options and recorded feedback. Written responses to the draft plans were later received from Alderville First Nation and Mississaugas of Scugog Island First Nation.

All comments received throughout the process were reviewed, dispositioned, and addressed in the final version of the document submitted to the Fisheries and Oceans Canada in 2024 December. Ongoing engagement and review will continue throughout the restoration process, construction, and monitoring of the site.

The collaborative approach to this project aligns with CNL efforts for increased input from Indigenous communities and organizations into project planning and fulfils CNL’s commitment to honour and respect Aboriginal and Treaty Rights by protecting and enhancing lands where the Mississaugas exercise their rights to fish and harvest on the land.

15.2.10.3 Highland Drive South Ravine

In 2024 May, CNL circulated draft restoration and planting plans for the Highland Drive South Ravine site to the Williams Treaties First Nations. Mississaugas of Scugog Island expressed interest in reviewing the draft plans, and additional documentation was forwarded at their request. Written comments received from the Nation were dispositioned and addressed in the updated plans.

15.2.11 Host Community Communications

Canadian Nuclear Laboratories staff liaises regularly with staff of the host municipalities, providing regular updates on project progress, Indigenous relations and communications to municipal councils and staff.

In early 2024, the HWP General Manager met with the new Municipality of Port Hope Chief Administrative Officer and the new Project Consultant to provide an overview of engagement with ICOs on the PHAI. Canadian Nuclear Laboratories works closely with the Municipality of Port Hope to achieve alignment on project and restoration planning to ensure Indigenous rights are protected and participation is promoted wherever possible.

In 2024, CNL worked with the Municipality of Port Hope on the Waterworks West project including a dedicated meeting with CNL staff and the Indigenous consulting firm contracted to support the development of restoration plans at the site. See Section 15.2.10.2 for more information.

15.2.12 Monitoring Concerns and Incorporating Feedback

Canadian Nuclear Laboratories maintains open dialogue with ICOs to strengthen understanding of Indigenous worldviews and relationship to the land and monitor concerns about PHAI activities.

Through ongoing engagement with Indigenous communities, consistent issues and concerns below have been identified to CNL:

- How project development might interfere with or accommodate animal movement and migration at project sites.
- Accommodation or mitigation for Species at Risk in work areas.
- Fish relocation and habitat restoration in harbour area.
- Maintenance of groundwater quality and the prevention of seepage.
- Frequency of well sampling and testing.
- Plans to prevent the incursion of invasive species in work areas.
- CNL archaeological protocols.
- Arsenic and radiological cleanup criterion changes.
- Indigenous participation in and monitoring of project activities.

Indigenous communities have urged CNL to leave remediated sites in better condition than when the project began, balancing the commitment to remove contaminated soils with the protection of lands and waters.

Comments received on draft plans, reports, and other such documents are dispositioned, and a record circulated to all reviewers with the updated document outlining how each comment was dispositioned and applied or not applied and the reasoning.

In 2024, CNL circulated draft reports and documents to the Williams Treaties First Nations for review and comment on several projects, including the Chemetron Lagoon, Waterworks West, and Highland Drive South Ravine sites.

15.2.13 Documentation and Reporting

To measure the effectiveness of the Program for Engagement with Indigenous Communities and Organizations, all engagement is tracked and recorded, including comments and questions at meetings. Responses are provided in writing with input from subject matter experts where required.

As the regulatory authority responsible for licensing and oversight of the PHAI, the CNSC is kept apprised of CNL Indigenous Relations through annual written reporting.

To further enhance information sharing, CNL established regular update meetings with CNSC Indigenous Relations staff in 2022 for mutual information sharing and details on engagement with ICOs; those meetings continued in 2024 on a monthly basis.

15.2.14 CNL Staff Education and Awareness

Canadian Nuclear Laboratories recognizes that all employees are ultimately responsible for the corporate commitment to truth and reconciliation as outlined in *Call to Action No. 92, Business and Reconciliation* [72].

The evolution of CNL Indigenous Relations includes ongoing enhancement of education and awareness training for all employees. Throughout 2024, HWP Indigenous Relations staff continued to provide information, cultural teachings to all staff while expanding self-directed learning resources and improving user experience on myCNL (employee intranet) CNL Indigenous Relations pages. Indigenous Relations staff also make themselves available for one-on-one conversations and questions from other CNL staff.

15.2.14.1 Internal Communications and Engagement

Throughout the year, CNL Indigenous Relations provided employees with information, resources, and cultural teachings to support their ongoing learning through books, videos, and links to free online courses. At the request of an HWP employee, the CNL stocked a number of books from the list so employees at all project sites can easily access the information.

Indigenous days of commemoration were recognized throughout the year, with 14 articles and cultural teachings circulated to all staff via email and posted to myCNL intranet on topics

including National Indigenous Languages Day, Awareness for Missing and Murdered Indigenous Women and Girls, and the Moose Hide Campaign; moose hide pins were made available to CNL employees at all locations.

To mark National Indigenous History Month, two lunch and learn sessions were offered: Indigenous Olympians and The Road to Reconciliation, featuring cultural teachings by the HWP Senior Indigenous Engagement Advisor. Sessions were held in person at the Port Hope office with opportunity to join virtually. The sessions were recorded and added to the Indigenous Relations resources section on the myCNL TV intranet channel. Throughout the month, weekly cultural teachings on a variety of topics were circulated by email and posted on myCNL, including the history behind Indigenous Peoples Day and the *Indian Act*.

In honour of the National Day for Truth and Reconciliation in September, a cultural teaching was shared with all staff and copies of the Centre for Truth and Reconciliation Calls to Action booklet were made available to all CNL staff.

During Treaty Week in November, topical articles were posted on myCNL from the both the Director of Indigenous Relations and the HWP Senior Indigenous Engagement Advisor with links to a cultural teaching on the history of treaties in Canada.

At each quarterly HWP all-staff meeting, Indigenous Relations staff provided an update on recent initiatives and activities along with information on further resources.

15.2.14.2 Employee Training

In 2024, CNL Indigenous Relations staff completed development of the first in a planned series of training modules to enhance learning for employees. The mandatory training provides an overview of the international, national, and corporate protections of Indigenous rights and an overview of the CNL Reconciliation Action Plan currently in development. Prior to its release on the online training platform, in-person training opportunities were offered to all Port Hope business units.

Indigenous Relations training at CNL was released on September 30 in conjunction with the National Day for Truth and Reconciliation. By year end, 96% of CNL employees had completed the training and staff received many positive comments.

15.3 Remedial Cleanup Criteria

The PHAI Cleanup Criteria were developed and introduced during the environmental assessment phase of the project. The PHAI cleanup criteria apply to radiological and non-radiological substances. To verify the achievement of the PHAI Cleanup Criteria, or to confirm that a site already achieves the cleanup criteria, CNL has implemented remediation verification procedures that provide guidance on field screening, verification sampling, and laboratory analysis.

In accordance with the PHAI LCH [3], CNSC staff were notified ([84] to [89]) of revisions to the following remediation verification procedures:

- *Port Hope Project – Remediation Verification Standard Operating Procedure – Soil for Sites Without Remediation* [90]
- *Port Hope Project – Remediation Verification Standard Operating Procedure – Harbour* [91]
- *Port Hope Project - Remediation Verification Standard Operating Procedure – Radon* [92]
- *Port Hope Project – Remediation Verification Standard Operating Procedure – Contaminated Surfaces and Objects* [93]
- *Port Hope Project - Remediation Verification Standard Operating Procedure - Soil on a Remediated Site* [94]

During the reporting period, CNL continued to work with the Municipality of Port Hope to ensure council and staff were kept informed on the proposal to amend the PHAI Cleanup Criteria for arsenic. In 2024, feedback was received from the CNSC and Health Canada. Canadian Nuclear Laboratories continues to progress the initiative. Refer to the PHAI website for details: Application to change the PHAI Cleanup Criteria - PHAI.

16. Concluding Remarks

Canadian Nuclear Laboratories is committed to achieving high standards of operational safety and security. The information and data presented in this report support the conclusion that safe and secure performance was achieved at the PHAI, while enhancements were implemented to further improve results.

This Annual Compliance Report demonstrates that CNL's PHAI has successfully met the requirements of the Nuclear Safety and Control Act, regulations and the CNSC Waste Nuclear Substance Licence requirements. Canadian Nuclear Laboratories continues to make adequate provision to protect the health, safety, and security of workers, the public, and the environment, and continues to implement Canada's international obligations on the peaceful use of nuclear energy.

17. Acronyms

Acronym	Definition
ACMR	Annual Compliance Monitoring Report
AECL	Atomic Energy of Canada Limited
ALARA	As Low As Reasonably Achievable
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
CRL	Chalk River Laboratories
ERM	Environmental Remediation Management
FSA	Functional Support Area
HWP	Historic Waste Program
HWP MO	Historic Waste Program Management Office
IAEA	International Atomic Energy Agency
ICOs	Indigenous Communities and Organizations
ImpAct	Improvement Action
LLRW	Low Level Radioactive Waste
LMS	Learning Management System
NEW	Nuclear Energy Worker
NNC	Notice of Non-Compliance
OSH	Occupational Safety and Health
PG LTWMF	Port Granby Long-term Waste Management Facility
PGP	Port Granby Project
PG WMF	Port Granby Waste Management Facility
PHAI	Port Hope Area Initiative
PHAI LCH	Port Hope Area Initiative Licence Conditions Handbook
PH LTWMF	Port Hope Long-Term Waste Management Facility
PHP	Port Hope Project
PH WWTP	Port Hope Waste Water Treatment Plant
RP	Radiation Protection
SAT	Systematic Approach to Training
SCA	Safety and Control Area
SSHC	Site Safety and Health Committee
TDG	Transportation of Dangerous Goods
WWMF	Welcome Waste Management Facility

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