Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

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ORIGINAL

CMD: 19-H101

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A Licence Amendment

Une modification de permis

Canadian Nuclear Laboratories Ltd.

Les Laboratoires Nucléaires Canadiens ltée

Application by Canadian Nuclear Laboratories Ltd. for the Amendment of the Port Granby Long-Term Low-Level Radioactive Waste Management Project Licence WNSL-W1-2311.01/2021

Demande des Laboratoires Nucléaires Canadiens ltée concernant la modification du permis numéro WNSL-W1-2311.01/2021 pour le projet de gestion à long terme des déchets de faible activité de Port Granby

Hearing in writing based solely on written submissions

Audience fondée uniquement sur des mémoires

Scheduled for:

February 2019

Prévue pour :

Février 2019

Submitted by:

CNSC Staff

Soumise par :

Le personnel de la CCSN

e-Doc 5725072 (WORD)
e-Doc 5786041 (PDF)

Summary

This CMD presents information about the following matters of regulatory interest with respect to Canadian Nuclear Laboratories Ltd. (CNL):

- An amendment of the release limits for liquid effluents for the Port Granby Project as outlined in Appendix B of the Port Granby Long-Term Low-Level Radioactive Waste Management Project licence WNSL-W1-2311.01/2021
- Standardization of the licence and licence conditions handbook (LCH)

CNSC staff recommend the Commission take the following actions:

- Accept CNL's propose liquid effluent release limits
- Issue Port Granby Long-Term Low-Level Radioactive Waste Management Project licence WNSL-W1-2311.02/2021 that remains valid until December 31, 2021

The following items are attached:

- Current licence
- Proposed licence
- Draft Licence Conditions Handbook

Résumé

Ce CMD présente de l'information sur un ensemble de questions d'ordre réglementaire concernant les Laboratoires Nucléaires Canadiens ltée (LNC) :

- Modification des limites de rejet des effluents liquides pour le projet de Port Granby, tel que décrit à l'annexe B du fondement d'autorisation du permis WNSL-W1-2311.01/2021 pour le projet de gestion à long terme des déchets de faible activité de Port Granby
- Révision du permis et du manuel des conditions de permis (MCP)

Le personnel de la CCSN recommande à la Commission de prendre les mesures suivantes :

- Accepter les limites de rejet des effluents liquides proposées par les LNC
- Délivrer le permis WNSL-W1-2311.02/2021 pour le projet de gestion à long terme des déchets de faible activité de Port Granby, ce permis demeurant en vigueur jusqu'au 31 décembre 2021

Les pièces suivantes sont jointes :

- Permis actuel
- Permis proposé
- Ébauche du manuel des conditions de permis

Signed/signé le

February 15, 2019

Haidy Tadros

Director General

Directorate of Nuclear Cycle and Facilities Regulation

Directrice générale de la

Direction de la réglementation du cycle et des installations nucléaires

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EXECUTIVE SUMMARY

Canadian Nuclear Laboratories (CNL) has requested [1] to amend the Port Granby Long-Term Low-Level Radioactive Waste Management Project licence WNSL-W1-2311.01/2021 [5] to incorporate effluent release limits for the Port Granby Project and to standardize the conditions of the Port Granby Project licence.

The Port Granby Project is a federal government undertaking for the safe, long-term management of historic low-level radioactive waste situated in the Municipality of Clarington. The project involves relocating approximately 450,000 cubic metres of low-level radioactive waste, located at an existing waste management facility on the shoreline of Lake Ontario, to a new engineered above-ground mound approximately 1 kilometre north of the current site. Prior to starting the cleanup activities at the Port Granby Project, CNL constructed a new waste water treatment plant to treat contaminated water associated with the project's activities. The waste water treatment plant was commissioned in October 2016. The old water treatment plant was subsequently decommissioned and dismantled.

During the Port Granby Project licence hearing on September 27, 2011 [3], the Commission accepted the proposed water treatment process, the list of contaminants requiring treatment by the waste water treatment plant and the effluent contamination concentrations. The Commission also acknowledged that release limits for the new waste water treatment plant would be established after CNL had optimized the performance of the waste water treatment system following one year of operating experience.

Consequently, after operating the waste water treatment plant for one year, CNL has applied for a licence amendment to incorporate its proposed effluent release limits. CNSC staff provided the criteria used for establishing the release limits. Technical assessments of the proposed effluent release limits were conducted to support CNSC staff's recommendation to implement the limits into the Port Granby Project licence.

Since 2013, the CNSC has implemented a process for standardizing licence conditions in licences issued by the Commission. The purpose is not to change requirements from the current licence, but to ensure common wording is used in all CNSC issued licences and to ensure full coverage of necessary licence requirements. The standardization of the Port Granby Project licence is strategically being completed at the same time as the effluent release limit amendment to support the efficient use of resources.

CNSC staff have prepared the proposed licence for the Commission's consideration, and have attached a copy of the current licence. The draft licence conditions handbook (LCH) is included for the Commission's information only to demonstrate where content removed from the current licence is captured.

Referenced documents in this CMD are available to the public upon request.

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PART ONE

This Commission Member Document (CMD) is presented in two parts.

Part One includes:

1. An overview of the matter being presented;
2. Overall conclusions and overall recommendations;
3. General discussion pertaining to the safety and control areas (SCAs) that are relevant to this submission;
4. Discussion about other matters of regulatory interest; and
5. Addenda material that complements items 1 through 4.

Part Two provides all available information pertaining directly to the current and proposed licence.

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1. OVERVIEW

On June 1, 2018, Canadian Nuclear Laboratories Ltd. (CNL) submitted an application for amendment of the Port Granby Long-Term Low-Level Radioactive Waste Management Project WNSL-W1-2311.01/2021 [1]. The application requests an amendment of the release limits for liquid effluent for the Port Granby site. In addition, CNL requested that CNSC staff update the format of the licence to be in alignment with the CNSC's SCAs.

CNL's request for amendment was originally submitted to a CNSC Designated Officer (Director General, Directorate of Nuclear Cycle and Facilities Regulation). The Designated Officer is not authorized to amend the Port Granby Project licence and the application requires a Commission decision [2].

1.1 Background

Following a hearing held on September 27, 2011, the Commission issued Atomic Energy of Canada Limited (AECL) the Port Granby Long-Term Low-Level Radioactive Waste Management Project WNSL-W1-2311.00/2021 [3]. The licence was later transferred from AECL to CNL by the Commission on October 22, 2014 [4].

The Port Granby Project is split into three phases:

- Phase 1: the continued operation and ongoing care and maintenance of the Port Granby Waste Management Facility
- Phase 2: the continued operation of the Port Granby Waste Management Facility and the development of the Port Granby Long-Term Waste Management Facility
- Phase 3: long-term care and maintenance of the Port Granby Long-Term Waste Management Facility

The licence authorizes activities related to Phase 1, Phase 2 and Phase 3. The project is currently in Phase 2, and the current licence authorizes CNL to possess, package, transport, transfer, manage, and store nuclear substances except Category I, II and III nuclear material as defined in Section 1 of the *Nuclear Security Regulations* [5].

Appendix B of the licence lists the release limits for liquid effluent for "Phase 1: Continue Operation of the Port Granby Waste Management Facility". Following the commissioning of the Port Granby Waste Water Treatment Plant (PG WWTP), the legacy Port Granby Waste Water Building was decommissioned and dismantled. The release limits in Appendix B applied to the legacy system and are no longer applicable. Consequently, CNSC staff have removed these release limits from the proposed licence.

The Commission noted CNSC staff's position that release limits for the PG WWTP should be set after the plant had accumulated 12 months of operational data, as documented in paragraph 76 of the Record of Proceedings from the September 27, 2011 hearing [3]. This was reiterated at a Commission meeting on November 2016 [6].

The PG WWTP was commissioned in October 2016. Consequently, the 12 months of operational experience was acquired in October 2017. Consistent with the current practice of referencing release limits in the LCH, the new release limits for the PG WWTP will be included in the new LCH.

The PG WWTP is operated on federally-owned land under a government-owned contractor-operated model. CNL does not require an Environmental Compliance Approval from the Ontario Ministry of Environment, Conservation and Parks.

There is currently no CNSC guidance on setting release limits for hazardous substances within the CNSC regulatory framework. Thus, CNSC staff proposed a methodology consistent with other jurisdictions within Canada and international practices [7]. The methodology is consistent with the draft REGDOC-2.9.1 Part II *Controlling Releases to the Environment from Nuclear Facilities and Activities.*

1.2 Highlights

After achieving sufficient operating experience with the PG WWTP, CNL is applying to amend its licence to include release limits for a broad list of contaminants. The release limits are harmonized with the *Metal and Diamond Mining Effluent Regulations* where applicable and technology-based limits that are protective of the environment.

The proposed licence is consistent with the modern CNSC SCA format.

1.3 Overall Conclusions

CNSC staff have concluded the following with respect to paragraphs 24(4)(a) and (b) of the *Nuclear Safety and Control Act* (NSCA), in that the Canadian Nuclear Laboratories Ltd.:

1. Is qualified to carry on the activity authorized by the licence.
2. Will, in carrying out that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

CNSC staff have reviewed the application under the NSCA and have concluded that, given the nature of the proposed licence amendment, there are no impacts to the environment.

1.4 Overall Recommendations

CNSC staff recommend to the Commission the following:

1. Accept the proposed liquid effluent release limits.
2. Amend the licence to adopt the standardized licence format.

2. MATTERS FOR CONSIDERATION

2.1 Description of the Application

As part of the CNSC licence standardization, the effluent release limits will no longer be referenced in Appendix B of the licence. Rather, CNL's *Port Granby Project Environmental Monitoring Plan* (4502-509247-PLA-001) will be revised to include the list of release limits and captured in the applicable LCH, as seen in the following table:

Table 1: Liquid Effluent Release Limits Proposed for the Port Granby Project

Contaminant	Units	Weekly Concentration in a Composite Sample	Monthly Mean Concentration
Radium-226	Bq/L	0.74	0.37
Arsenic (As)	mg/L	0.2	0.1
Cadmium (Cd)	mg/L	0.002	0.001
Cobalt (Co)	mg/L	0.01	0.005
Copper (Cu)	mg/L	0.01	0.005
Phosphorus (P)	mg/L	0.7	0.35
Selenium (Se)	mg/L	0.06	0.03
Thallium (Tl)	mg/L	0.016	0.008
Uranium (U)	mg/L	0.2	0.1
Vanadium (V)	mg/L	0.08	0.04
Ammonia-N (NH_3)	mg/L	11.5	5.75
Nitrite-N (NO_2)	mg/L	3	1.5
Nitrate-N (NO_3)	mg/L	150	75
pH	pH	6 – 9.5	6 – 9.5
Total Suspended Solids	mg/L	30	15
Acute Toxicity	-	-	Cannot be toxic [1]

1 Acute toxicity testing may be performed quarterly after 12 consecutive months of non-toxic monthly results. CNL shall select and record the sampling date not less than 30 days in advance of collecting the grab sample to be used in toxicity testing. CNL shall inform CNSC staff when the toxicity testing frequency is changed.

2.2 Assessment of the Application

The Commission may amend a licence in accordance with subsection 24(4) of the NSCA, if the Commission considers that the applicant: is qualified to carry on the activity to be licensed and will, in carrying on the licensed activity, make adequate provisions for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

The changes made to standardize the conditions of the licence do not impact CNL's safety and control measure that are in place to conduct licensed activities safely nor does it add any additional licensing requirements. Standardization of the licence conditions and LCH will give greater clarity to the licensing basis.

The inclusion of more extensive release limits for the PG WWTP in the LCH provides for greater clarity and adds a more stringent requirement with respect to effluent releases. CNSC staff and CNL agree on the methodology used for establishing the liquid effluent release limits and CNSC staff accept that the release limits proposed are adequately protective of the environment. CNL note on page 2 of the application for amendment that "CNL is in the process of revising the *Port Granby Project Environmental Monitoring Plan* (4502-509247-PLA-001) to include the approved effluent release limits table for the Port Granby waste water treatment system" [1]. CNL has committed to providing the program document by January 31, 2018 [8]. This commitment is being tracked by CNSC staff under Regulatory Information Bank #15225.

The addition of release limits for the PGP site does not impact the activities that the licensee is authorized to conduct. CNL has several control mechanisms in place to ensure liquid effluent releases remain as low as reasonably achievable. This includes action levels for all radioactive substances and hazardous substances the PG WWTP was designed to treat. The release limits are requirements to limit the discharge of radioactive and hazardous substances to the receiving environment.

An Environmental Protection Review (EPR) under the NSCA and its regulations was conducted for this application.

2.3 Review of the Application

An application for an amendment is to include all information prescribed by paragraphs 6 (a)-(d) of the *General Nuclear Safety and Control Regulations* (GNSCR). CNSC staff reviewed CNL's application against those requirements and concluded the application was complete.

The release limits in CNL's application are consistent with those agreed to by CNSC staff [7][9].

2.4 Development of the Release Limits

A detailed description of the methodology used for the development of release limits is outlined in the CNSC technical assessment [7]. To summarize, the approach used to establish the proposed release limits encompassed the following steps:

a. identify the final effluent release points where the release limits will apply
b. identify the contaminants and/or physical stressors which will require release limits
c. identify and harmonize the release limits, where appropriate, with existing federal, provincial/territorial and municipal requirements
d. calculate release limits using:
    - an exposure-based approach to identify maximum releases for the protection of human health and the environment from unreasonable risk
    - a technology-based approach to identify maximum possible releases during normal operation based on the approved facility design
e. justification for final selection of release limits

The proposed release limits apply to the final point of discharge which consists of a diffuser in Lake Ontario with a mixing zone of 1 in 50 dilution. Imposing release limits at the final point of discharge is consistent with national and international practices.

Contaminants and/or physical stressors requiring release limits were identified during the development of design objectives for the PG WWTP, whereby the projected maximum effluent concentrations were compared to the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life, in order to protect the nearest receptor from the aquatic exposure pathway. In the absence of a CCME guideline, the Ontario Provincial Water Quality Objective (PWQO) was used. Release limits have been applied for contaminants which may be released at concentrations above the CCME guidelines.

A proposed release limit for molybdenum was not established. There are initiatives at the provincial level to increase the guideline for molybdenum by an order of magnitude in light of new science. This will result in the guideline being higher than the maximum predicted design release prior to treatment. As a result, molybdenum has been screened out of requiring a release limit. This indicates that even without treatment, the aquatic environment is protected from molybdenum.

Proposed release limits for radium-226, total suspended solids, and pH are set at limits outlined in the federal *Metal Mining Effluent Regulations*, which have been demonstrated to be achievable in industrial sectors. For uranium, a technology-based release limit has been proposed based on the optimization screening objective (OSO) as outlined in the *Annual Reports on Uranium Management Activities* [10][11][12].

Limits for contaminants of potential concern were calculated following both an exposure based and technology-based approach where no established limit existed in Canada.

Technology-based release limits are proposed on both the monthly mean concentration and the concentration in a weekly composite sample. In all cases, the technology-based release limit was more conservative than the exposure based release limit when a mixing zone of 1 in 50 dilution is assumed. The 1 in 50 dilution was determined to be appropriate for use in the calculation of the release limits at the Port Granby site using the results of a CORMIX® modelling assessment conducted by Cameco for the Port Granby Diffuser. The model demonstrated that a 1 in 50 dilution is achievable 20 meters from the discharge point [13].

Toxicity testing applied to the monthly mean concentrations, and the frequency of toxicity testing was monthly from April 2016 to December 2018. CNSC staff concurred with CNL starting quarterly sampling in April 2018 [9]. Should a quarterly sample be found toxic, CNL would no longer meet the criteria for quarterly testing, and thus would resume the default monthly testing frequency. CNSC staff assessed this approach and found it to be consistent with the approach used in section 16 of the *Metal and Diamond Mining Effluent Regulations.*

2.5 Other Matters of Regulatory Interest

2.5.1 Licensee Performance

In addition to establishing release limits for the PG WWTP, the Commission required that the licensee set appropriate action levels for ongoing monitoring of the performance of the water treatment plant [3]. Action levels were established for the complete suite of contaminants of concern on August 18, 2017 [15]. For the duration of time the PG WWTP was commissioned and the date the action levels were established, CNL reported effluent results to CNSC staff on a weekly frequency [14]. Since the establishment of the action levels, CNL has been reporting liquid effluent results to CNSC staff on a quarterly basis.

CNSC staff have reviewed the effluent results submitted quarterly by CNL and have concluded that the releases from the PG WWTP were below design objectives, and thus have not had an adverse effect on the environment or public health. Since the time liquid effluent releases began, the PG WWTP has not released effluent with contaminant concentrations higher than the release limits proposed in this application or the established action levels. CNSC staff have analyzed effluent samples from the PG WWTP and have verified that contaminant concentrations are consistent with CNL's reported values [17].

2.5.2 Aboriginal Consultation

There are no new activities and no novel offsite impacts anticipated to the environment, potential or established Aboriginal and/or treaty rights, from this licence amendment. Any impacts to the environment resulting from releases permitted by this licence are expected to be negligible or low risk. For these reasons, the duty to consult does not arise in relation to the proposed licence amendment.

2.5.3 Other Consultation

As per the CNSC-Environment and Climate Change Canada (ECCC) memorandum of understanding (MOU), CNSC staff consulted with ECCC during the finalization of the Port Granby release limits in order to ensure that the release limits were established based on the principles of pollution prevention, and are protective of the environment. Discussions focused on three chemical constituents: uranium, nitrite and ammonia [18][19]. CNSC staff were able to demonstrate to ECCC that the receiving environment quality respected the guidance provided by the CCME on the site-specific application of the water quality guidelines in Canada [20].

2.5.4 Cost Recovery

CNL's PGP licence was granted an exemption from the *Cost Recovery Regulations*, when the licence was transferred from AECL to CNL on October 22, 2014 [4].

2.5.5 Financial Guarantees

While the restructuring of AECL has seen the ownership of Canadian Nuclear Laboratories Ltd. (CNL) transferred to a private-sector contractor, the Canadian National Energy Alliance, AECL retains ownership of the lands, assets and liabilities associated with CNL's licences. AECL is a Crown Corporation under the *Financial Administration Act* and an agent of Her Majesty in Right of Canada. As an agent of Her Majesty in Right of Canada, AECL's liabilities are ultimately liabilities of Her Majesty in Right of Canada. These liabilities have been officially recognized by the Minister of Natural Resources in a letter dated July 31, 2015 [21].

3. OVERALL CONCLUSIONS AND RECOMMENDATIONS

CNSC staff have concluded the following with respect to paragraphs 24(4)(a) and (b) of the NSCA, in that the Canadian Nuclear Laboratories Ltd.:

1. Is qualified to carry on the activity authorized by the licence.
2. Will, in carrying out that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

CNSC staff recommend to the Commission the following:

1. Accept the proposed liquid effluent release limits.
2. Amend the licence to adopt the standardized licence format.

REFERENCES

[1] Letter, S. Faught (CNL) to H. Tadros (CNSC), *"Application for amendment and Modernization of the Port Granby Long-Term Low-Level Radioactive Waste Management Project WNSL-W1-2311.01/2021 – Revision of Release Limits for Liquid Effluent (Appendix B)"*, June 1, 2018 (e-Doc 5550460).

[2] Record of Proceedings, Including Reasons for Decisions, "*Redetermination of a Commission's Decision Regarding Future Licence Amendments for the Port Granby Project*", December 17, 2014 (e-Doc 4599085).

[3] Canadian Nuclear Safety Commission, *"Record of Proceedings, Including Reasons for Decision in the Matter of Atomic Energy Canada Limited Application by Atomic Energy of Canada Limited for a Waste Nuclear Substance Licence for the Port Granby Long-Term Low-Level Radioactive Waste Management Project"*, September 27, 2011 (e-Doc 3846017).

[4] Canadian Nuclear Safety Commission, *"Record of Proceedings, Including Reasons for Decision in the matter of Atomic Energy of Canada Limited Request for Five Licence Transfer to, and Request for Two Specific Exemptions for, Canada Nuclear Laboratories Limited"*, October 22, 2014 (e-Doc 4543516).

[5] Waste Nuclear Substance Licence Port Granby Long-Term Low-Level Radioactive Waste Management Project WNSL-W1-2311.01/2021, signed October 22, 2014 (e-Doc 4541235).

[6] Canadian Nuclear Safety Commission, *"Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on November 10, 2016"*, November 10, 2016 (e-Doc 5178848).

[7] Letter, R. Buhr (CNSC) to S. Faught (CNL), *"Proposed Port Granby Project Waste Water Treatment System Release Limits"*, June 5, 2017 (e-Doc 5259513).

[8] E-mail, S. Morris (CNL) to Z. Heilig (CNSC), *"PGP licence amendment documentation"*, September 10, 2018 (e-Doc 5630451).

[9] Letter, R. Buhr (CNSC) to S. Faught (CNL), *"Port Granby Project Waste Water Treatment System Release Limits"*, April 4, 2018 (e-Doc 5433337).

[10] A Joint Report by the Canadian Nuclear Safety Commission and Environment Canada. *"2008 Annual Report on Uranium Management Activities"*, 2010 (e-Doc 3620454).

[11] A Joint Report by the Canadian Nuclear Safety Commission and Environment Canada. *"2009 Annual Report on Uranium Management Activities"*, (2010) (e-Doc 3682179).

[12] A Joint Report by the Canadian Nuclear Safety Commission and Environment Canada. *"2010 Annual Report on Uranium Management Activities"*, 2012 (e-Doc 3927189).

[13] Cameco. *"Port Granby Waste Management Facility Outfall Modelling Report"*, 2010 (e-Doc 3562226).

[14] Letter, J. Thelen (CNSC) to S. Faught (CNL), *"CNL's Establishment of Action Levels for Effluent Discharges from the PHAI Port Granby Project Waste Water Treatment Plant"*, November 1, 2016 (e-Doc 5114821).

[15] Letter, R. Buhr (CNSC) to S. Faught (CNL), *"CNSC Staff Acceptance of the Proposed Port Granby Project Action Levels"*, August 18, 2017 (e-Doc 5310065).

[16] CNSC Compliance Inspection Report, *"Routine Compliance Inspections CNL-PHAI-PGP-2018-01 and CNL-PHAI-PGP-2018-02"*, May 2, 2018 (e-Doc 5469194)

[17] CNSC Compliance Inspection Report, *"Report No. NPFD-CNL-PGP-2016-03-22"*, March 22, 2016 (e-Doc 4969722)

[18] Email, D. Kim (ECCC) to Z. Heilig (CNSC), *"PtGranby-ProposedReleaseLimits2018-Analysis"*, February 1, 2018 (e-Doc 5610597)

[19] Email, D. Kim (ECCC) to Z. Heilig (CNSC), *"PtGranby-ProposedReleaseLimits2018-Analysis"*, February 2, 2018 (e-Doc 5610595)

[20] Email, Z. Heilig (CNSC) to D. Kim (ECCC), *"PtGranby-ProposedReleaseLimits2018-Analysis"*, March 14, 2018 (e-Doc 5736184)

[21] Letter to Dr. M. Binder (CNSC) from The Honourable Greg Rickford, P.C., M.P. Minister of Natural Resources and Minister for the Federal Economic Development Initiative for Northern Ontario, July 31, 2015 (e-Doc 4815508).

GLOSSARY

CNL	Canadian Nuclear Laboratories Ltd.
CNSC	Canadian Nuclear Safety Commission
AECL	Atomic Energy of Canada Limited
PG WWTP	Port Granby Waste Water Treatment Plant
GNSCR	*General Nuclear Safety and Control Regulations*
CCME	Canadian Council of Ministers of the Environment
PGP	Port Granby Project
MOU	*Memorandum of Understanding*
NSCA	*Nuclear Safety and Control Act*
NSR	*Nuclear Security Regulations*
PWQO	Provincial Water Quality Objective
ECCC	Environment Canada and Climate Change
LC	Licence Condition
LCH	Licence Conditions Handbook

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PART TWO

Part Two provides all relevant information pertaining directly to the licence, including:

1. Any proposed changes to the conditions, licensing period, or formatting of an existing licence;
2. The proposed licence;
3. The draft licence conditions handbook; and
4. The current licence.

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PROPOSED LICENCE CHANGES

Overview

The following table summarizes the differences from the current licence and proposed licence.

As detailed in the table below, several administrative changes were made to the licence to reflect the current project activities. For example, requirements related to Phase 1 of the project were removed as this phase is now completed and is no longer required to be in the licence.

The comment column provides the rationale for the addition and removal of licence conditions as a result of standardizing the licence. This activity did not add or remove any additional requirements from the current PGP licence. For example, the current licence does not have licence conditions for security and packaging and transport; however, these activities are authorized in section VI of the licence. Furthermore, security and packaging and transport were considered in the 2011 licensing hearing: the record of decision references corporate and PHAI programs, and thus these program documents are part of the licensing basis [3]. Though the requirements are only in the current LCH, they were enforceable as part of the licensing basis. For clarity, licence condition 9.1 for security and 10.1 for packaging and transport were added to the proposed licence.

Licence Conditions / Licence Format

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
Licensing Basis for Licensed Activities The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as: (i) the regulatory requirements set out in the applicable laws and regulations; (ii) the conditions and safety and control measures described in the facility's or activity's licence and the documents directly referenced in that licence; (iii) the safety and control measures described in the licence application and the documents needed to support that licence application; unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter "the Commission").	VI) CONDITIONS: The licensee shall comply with the following conditions, established pursuant to subsection 24(5) of the *Nuclear Safety and Control Act*.		No significant change between old and new LC. New standard text adds clarity.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
Public Information and Disclosure The licensee shall implement and maintain a public information and disclosure program.	2.5 The licensee shall have a program for public information for the project.		New LC – G.4 No significant change between old and new LC
Management System The licensee shall implement and maintain a management system.	2.3 The licensee shall implement and maintain a quality assurance program for the project.		New LC – 1.1 No significant change between old and new LC
Training Program (A) The licensee shall implement and maintain a training program.	2.6 The licensee shall have a training program for the project.		New LC – 2.1 No significant change between old and new LC
Reporting Requirements The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.	2.4 The licensee shall prepare written reports on any failure to meet the requirements of this licence, any action level exceedance, results of monitoring programs, progress and end-state of project activities as required by the Commission, or a person authorized by the Commission.		New LC – 3.1 Standardized LC is less specific on reporting requirements. Specific criteria on reporting are proposed to be described in the LCH for greater clarity. Action level notifications will be captured in the standardized LC for Radiation Protection and Environmental Protection.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
			The timeframe for filing a full report will be modified in the LCH to be consistent with the reporting requirements found in subsection 29(2) of the *General Nuclear Safety and Control Regulations*, 21 days after becoming aware of it, unless some other period is specified in the licence.
Design Program The licensee shall implement and maintain a design program.	2.7 The licensee shall conduct the project activities in accordance with the design documentation.		New LC – 4.1 No significant change between old and new LC.
Radiation Protection Program The licensee shall implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within 7 days.	2.8 The licensee shall have a program for radiation protection for the project.		New LC – 5.1 No significant change between old and new LC. 7-day notification period in the standardized LC. This is consistent with other CNL licences.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
Conventional Health and Safety Program The licensee shall implement and maintain a conventional health and safety program.	2.9 The licensee shall have a program for occupational health and safety for the project.		New LC – 6.1 No significant change between old and new LC.
Environmental Protection Program The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within 7 days.	2.10 The licensee shall have an environmental management and protection program for the project. 2.11 The licensee shall control, monitor and record releases to the environment from the facilities such that the releases do not exceed the release limits specified in Appendix B. 2.12 The licensee shall implement an Environmental Assessment follow-up program.		New LC – 7.1 Combined LC 2.10, 2.11 and 2.12 into one standardized LC. 7-day notification period in the standardized LC. This is consistent with other CNL licences.
Emergency Preparedness Program The licensee shall implement and maintain an emergency preparedness program.	2.13 The licensee shall have a program for emergency preparedness.		New LC – 8.1 No significant change between old and new LC. Propose using standardized LC.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
Fire Protection Program The licensee shall implement and maintain a fire protection program.	No Existing LC.		New LC – 8.2 The standardized LC has a distinct separation for Emergency Preparedness and Fire Protection. However, the SCA includes both. This LC does not add any new requirements. Fire protection LC added.
Security Program The licensee shall implement and maintain a security program.	No Existing LC.	3.2.12 Security The licensee must have a project specific security plan that covers facility security and security systems that the licensee is to comply with. Prior to implementation of Phase 2 of the Port Granby project, the licensee shall develop project specific procedures based on their threat and risk assessment/site security survey, established to meet the requirements of paragraphs 12(1)(c), (g), (h) and (j) of the *General Nuclear Safety and Control Regulations*.	New LC – 9.1 The current licence does not have a LC for a security program. In the record of proceedings for the 2011 hearing, it was acknowledged that AECL had provided an acceptable security plan, as part of the application (e-Doc 3846017). The current LCH has compliance verification criteria for a security program, including a reference to CNL's Security Program (e-Doc 4497968). Given that the program is part of the licensing basis, a new LC has been added, as part of the licence amendment.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
Packaging and Transport Program The licensee shall implement and maintain a packaging and transport program.	No Existing LC.	3.2.13 Transport and Packaging Packaging and Transport covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed areas. The licensee must have a written procedure(s) that must be maintained to ensure compliance with the *Transportation of Dangerous Goods Regulations* and in the CNSC *Packaging and Transport of Nuclear Substances Regulations, 2015.*	New LC – 10.1 The current licence does not have a LC for a Packaging and Transport program. In the record of proceedings for the 2011 hearing, it was acknowledged that AECL had provided an acceptable Packaging and Transport program, as part of the application (e-Doc 3846017). The current LCH has compliance verification criteria for a Packaging and Transport program, including a reference to the CNL's Packaging and Transport plan (e-Doc 4497968). Given that the program is part of the licensing basis, a new LC has been added, as part of the licence amendment.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
No Existing Standard LC	2.2 The licensee shall conduct remedial work in accordance with the project developed clean-up criteria specified in Appendix C to this licence.		New LC – G.3 This LC is not standard but needs to remain in the new licence. The clean-up criteria will not be referenced in the licence. The table in Appendix C of the current licence will be moved to the LCH. This is consistent with what is done for radiation protection and environmental limits.
No Existing Standard LC	2.1 The licensee shall inform the Commission, or a person authorized by the Commission, within 30 days of the transfer of lands associated with the "Agreement of Purchase and Sale" between "Her Majesty the Queen In Right Of Canada" and "Cameco Corporation" and "Canada Eldor Inc."		It is proposed that this LC be removed. The LC is no longer required as the land transfer has taken place. The licence condition for the Agreement of Purchase and Sale is captured in the Record of Proceedings (e-Doc 3846017). AECL provided the necessary information on March 29, 2012 (e-Doc 3915239). Confirmation from CNSC staff that the LC was met was sent on March 29, 2010 (e-Doc 3915239).

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
II) LICENSEE: … Canadian Nuclear Laboratories Ltd. … 286 Plant Road	II) LICENSEE: … Canadian Nuclear Laboratories Limited …. 1 Plant Road		The correction to the licensee name and address is administrative in nature and ensures the information is accurate and consistent with other licences held by the licensee.
III) LICENCE PERIOD: This licence is valid from the effective date.	III) LICENCE PERIOD: This licence is valid from the effective date of the land transfer of the Port Granby Waste Management Facility property, as set out in the "Agreement of Purchase and Sale" between "Her Majesty the Queen In Right Of Canada" and "Cameco Corporation" and "Canada Eldor Inc." and remains in effect until December 31, 2021, unless suspended, amended, revoked, or replaced. The effective date of the licence will take effect upon receipt of written confirmation, from both Atomic Energy of Canada Limited and Canadian Nuclear Laboratories Limited that all steps of the reorganization are complete.		Propose changing the licence period on the licence to reflect the effective date for when the land transfer took place (March 29, 2012, e-Doc 3915239).

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
	IV) LICENSED ACTIVITIES: This licence authorizes the licensee to: possess, manage and store nuclear substances that are required for, associated with or arise from Phase 1[2] activities associated with the Port Hope Area Initiative – Port Granby Project, located at the Port Granby Waste Management Facility, as more particularly described in Appendix A to this licence …		Removed text related to Phase 1 of the project. Phase 1 is now complete.

2 - Phase 1 activities are defined as those activities related to the continued operation of the Port Granby Waste Management Facility associated with ongoing care and maintenance.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
This licence authorizes the licensee to conduct the following activities located in the Municipality of Clarington, Regional Municipality of Durham, Province of Ontario: (i) possess, package, transport, transfer, manage, and store the nuclear substances except Category I, II and III nuclear- material as defined in section 1 of the *Nuclear Security Regulations*, that are required for, associated with or arise from Phases 2[1] and 3[2] of the Port Hope Area Initiative - Port Granby Long-Term Waste Management Facility, located in the Municipality of Clarington, Regional Municipality of Durham, Province of Ontario.	IV) LICENSED ACTIVITIES: This licence authorizes the licensee to: b) possess, package, transport, transfer, manage, and store the nuclear substances except Category I, II and III nuclear-material, as defined in section 1 of the *Nuclear Security Regulations*, that are required for, associated with or arise from Phases 2 and 3[3] of the Port Hope Area Initiative – Port Granby Long-Term Waste Management Facility, as more particularly described in Appendix A to this licence.		Appendix "A" removed from licence to align with the licence modernization format. Details of where the licensed activity will take place have been generally described in the licence. Details on the exact location are part of the licence application and not required in the licence. The LCH will be modified to include the equivalent to what is in Appendix A of the current licence.

3 - Phase 2 activities are those activities related to the continued operation of the Port Granby Waste Management Facility and those related to the development of the Port Granby Long-Term Waste Management Facility.

- Phase 3 activities are those activities related to the post-closure operations of the Port Granby Long-Term Waste Management Facility associated with long term care and maintenance.

Proposed Licence Condition	Current Licence Condition	Current PGP WNSL LCH Text	Comment
V) EXPLANATORY NOTES: a) Nothing in this licence shall be construed to authorize non-compliance with any other applicable legal obligation or restriction.	No text.		The current licensing format includes item (a).
	VI) CONDITIONS: b) The contents of Appendix A "DESCRIPTION of Port Granby Long-Term Low-Level Radioactive Waste Management Facility", Appendix B "RELEASE LIMITS", and Appendix C "CLEAN-UP CRITERIA" attached to this licence forms part of the licence;		Details found in Appendices A, B and C of the licence will be captured in the LCH. The location, release limits and clean-up criteria form the licensing basis of the project and are not required to be referenced in the licence.

Licence Period

No change to the licence period is recommended.

PROPOSED LICENCE

The proposed licence is provided on the following pages.

e-Doc (5604953) (Word)
e-Doc (5642987) (PDF)

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PDF Ref: e-Doc 5642987
Word Ref: e-Doc 5604953
File / Dossier: 2.05

WASTE NUCLEAR SUBSTANCE LICENCE

PORT GRANBY LONG-TERM LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT PROJECT

I) LICENCE NUMBER: **WNSL-W1-2311.02/2021**

II) LICENSEE: Pursuant to section 24 of the *Nuclear Safety and Control Act*, this licence is issued to:

Canadian Nuclear Laboratories Ltd.
Laboratoires Nucléaires Canadiens ltée
286 Plant Road
Chalk River, Ontario
K0J 1J0

III) LICENCE PERIOD: This licence is valid from **March 29, 2012** to **December 31, 2021**, unless suspended in whole or in part, amended, revoked, or replaced.

IV) LICENSED ACTIVITIES:

This licence authorizes the licensee to conduct the following activities located in the Municipality of Clarington, Regional Municipality of Durham, Province of Ontario:

(a) possess, package, transport, transfer, manage, and store nuclear substances, except Category I, II and III nuclear material as defined in section 1 of the *Nuclear Security Regulations*, that are required for, associated with or arise from the Port Hope Area Initiative - Port Granby Long-Term Low-Level Waste Management Facility, located in the Municipality of Clarington, Regional Municipality of Durham, Province of Ontario.

V) EXPLANATORY NOTES:

(a) Nothing in this licence shall be construed to authorize non-compliance with any other applicable legal obligation or restriction.

(b) Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the *Nuclear Safety and Control Act* and associated Regulations.

(c) The Port Granby Long-Term Low-Level Radioactive Waste Management Project Licence Conditions Handbook (LCH) provides compliance verification criteria including the codes, standards and regulatory documents used to verify compliance with the conditions in the licence. The LCH also provides information regarding applicable versions of documents and non-mandatory recommendations and guidance on how to achieve compliance.

VI) CONDITIONS:

G. General

G.1 The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:

(i) the regulatory requirements set out in the applicable laws and regulations;

(ii) the conditions and safety and control measures described in the licence and the documents directly referenced in that licence;

(iii) the safety and control measures described in the licence application and the documents needed to support that licence application;

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter "the Commission").

G.2 The licensee shall give written notification of changes to the licenced activity or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.

G.3 The licensee shall conduct remedial work in accordance with the project developed clean-up criteria.

G.4 The licensee shall implement and maintain a public information and disclosure program.

1. Management System

1.1 The licensee shall implement and maintain a management system.

2. Human Performance Management

2. 1 The licensee shall implement and maintain a training program.

3. Operating Performance

3. 1 The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

4. Physical Design

4. 1 The licensee shall implement and maintain a design program.

5. Radiation Protection

5.1 The licensee shall implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

6. Conventional Health and Safety

6.1 The licensee shall implement and maintain a conventional health and safety program.

7. Environmental Protection

7.1 The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

8. Emergency Management and Fire Protection

8.1 The licensee shall implement and maintain an emergency preparedness program.

8.2 The licensee shall implement and maintain a fire protection program.

9. Security

9.1 The licensee shall implement and maintain a security program.

10. Packaging and Transport

10.1 The licensee shall implement and maintain a packaging and transport program.

SIGNED at OTTAWA, this _____ day of _____, 2019.

_____

Rumina Velshi, President
On behalf of the Canadian Nuclear Safety Commission

DRAFT LICENCE CONDITIONS HANDBOOK

The draft licence conditions handbook has been provided for the Commission's information only, to demonstrate how the proposed release limits are captured, and to demonstrate that there was no impact in changing the licence wording. The draft licence conditions handbook is available on the following pages.

e-Doc (5605372) (Word)
e-Doc (5643566) (PDF)

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Canada's Nuclear Regulator

PDF Ref: e-Doc 5643566
Word Ref: e-Doc 5605372
File / Dossier: 2.05

LICENCE CONDITIONS HANDBOOK
WNSL-W1-LCH-2311

PORT GRANBY LONG-TERM LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT PROJECT

WNSL-W1-2311.02/2021

Revision 2

DRAFT

Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

Canada

Licence Conditions Handbook (WNSL-W1-LCH-2311, Revision 2)

Effective: Month XX, 2019

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

SIGNED at OTTAWA this _____ day of _____, 2019

_____

Kavita Murthy, Director

Canadian Nuclear Laboratories Regulatory Program Division
Directorate of Nuclear Cycle and Facilities Regulations
Canadian Nuclear Safety Commission

REVISION HISTORY:

Effective Date	Rev. #	e-Doc #	Description	CAF e-Doc #
N/A	DRAFT	3743933	DRAFT Document prepared for new licence for the Port Granby Project associated to WNSL-W1-2311.00/2021 for One Day Public Hearing. Prepared by M. Kostova, WDD.	N/A
Nov 29, 2011	000-Final	3743933	Condition 1.1 has been removed. Prepared by M. Kostova, WDD.	N/A
Jan 27, 2012	000-Final	3743933	Added Revised PHAI Occupational Safety and Health Plan Rev. 1. Prepared by M. Kostova, WDD.	3870826
Dec 5, 2014	Rev 1	4497968	Document associated to WNSL-W1-2311.01/2021. Prepared by J. Thelen, NPFD. Addresses licensee requested changes [LCH Change Request Form, April 2, 2014 (E-DOC 4419327)], as was accepted by CNSC [June 24, 2014 (E-DOC 4460343)]. Revised wording throughout to reflect a licence transfer from AECL to CNL (WNSL-W1-2311.01/2021); Revised wording throughout to reflect a change in CNSC staff's internal management of this licence from WDD to NPFD. Revised verification criteria under Section 3.1 to reflect the use of a controlled spreadsheet list to track version history of all licensee documents cited in the LCH. Wording of LC 2.5 and its references (RD/GD 99.3 and CNL's PHAI Communications Plan) now aligns with Port Hope Project LCH. Under LC 2.7, added reference to CNSC Regulatory Guide G-320, Assessing the Long Term Safety of Radioactive Waste Management. Removed radon table under LC 2.8 to reflect changes noted in (i) above; added a reference. Added new LC 2.12 reference: Port Hope Project Environmental Assessment Follow-up Program document. Added definitions to Appendix B; Removed Appendix C (list of examples of applicable laws and regulatory instruments); Added new Appendix C (summary of all documents listed in LCH).	4502716
March XX, 2018	Rev 2	5605372	LCH updated to reflect licence modernization and standardized LCH format. LCH also incorporates new effluent release limits. Revised Licence e Doc 5604953, CMD 19-H101 e-Doc 5786041.	5643168

TABLE OF CONTENTS

INTRODUCTION

The general purpose of the Licence Conditions Handbook (LCH) is to identify and clarify the relevant parts of the licensing basis for each licence condition. This will help ensure that the licensee performs the licensed activities in accordance with the licensing basis and the intent of the licence. The LCH should be read in conjunction with the licence.

The LCH typically has three parts under each licence condition: the Preamble, Compliance Verification Criteria (CVC), and Guidance. The Preamble explains, as needed, the regulatory context, background, and/or history related to the licence condition. CVC are criteria used by CNSC staff to verify and oversee compliance with the licence condition. Guidance is non-mandatory information, including direction, on how to comply with the licence condition.

The documents referenced in the LCH by e-Access numbers are not publicly available. The links provided in the LCH are references to the internal CNSC electronic filing system, and those documents cannot be opened from outside of the CNSC network.

Current versions of the licensing basis publications, licensee documents that require notification of change, and guidance documents referenced in the LCH are tracked in the document *Licensing Documents for Port Granby Long-Term Low-Level Radioactive Waste Management Project* (e-Doc 5450757) and *Licencing Documents for CRL – CNL Company-Wide Documents* (e-Doc 5507946), which are controlled by the Canadian Nuclear Laboratories Regulatory Program Division and are available to the licensee upon request.

Most CNSC documents referenced in the LCH are available through the CNSC public website. Documents listed on the CNSC website may contain prescribed information, as defined by the *General Nuclear Safety and Control Regulations*. Information in these documents will be made available only to stakeholders with appropriate security clearance, on a valid need to know basis.

The licensee documents referenced in the LCH are not publicly available; they contain proprietary information or prescribed information, as defined by the *General Nuclear Safety and Control Regulations*.

Domestic and international standards (in particular consensus standards produced by the CSA Group) are an important component of the CNSC's regulatory framework. Standards support the regulatory requirements established through the *Nuclear Safety and Control Act* (NSCA), its Regulations and licences by setting out the necessary elements for acceptable design and performance at a regulated facility or a regulated activity. Standards are one of the tools used by the CNSC to evaluate whether licensees are qualified to carry out licensed activities.

The CNSC offers complimentary access to the CSA Group suite of nuclear standards through the CNSC website. This access platform allows interested stakeholders to view these standards online through any device that can access the Internet.

Up to date lists of the nuclear and support facilities at Port Granby Project that are subject to CNSC regulatory oversight, and legacy facilities that were placed under care and maintenance or undergoing decommissioning under building removal plans, are maintained in the CNL document 900-514300-LST-001, *Site Licences, Certificates, Permits, Facilities and Representatives*.

Appendix A to the LCH provides definitions of terms and a list of acronyms used throughout it.

G. GENERAL

Licence Condition G.1: Licensing Basis

The licensee shall conduct the activities described in Part IV of this licence in accordance with the licensing basis, defined as:

(i) the regulatory requirements set out in the applicable laws and regulations;

(ii) the conditions and safety and control measures described in the licence and the documents directly referenced in that licence; and

(iii) the safety and control measures described in the licence application and the documents needed to support that licence application;

unless otherwise approved in writing by the Canadian Nuclear Safety Commission (hereinafter "the Commission").

Preamble:

The licensing basis sets the boundary conditions for acceptable performance of a regulated activity, and thus establishes the basis for the CNSC's compliance program in respect of that regulated activity. The degree to which the regulatory requirements are applied to the activities should reflect their importance to health and safety of persons, environment, national security, international obligations to which Canada has agreed, licensee's quality and economic expectations, the complexity of the activity, and the possible consequences if accidents occur or the activity is carried out incorrectly.

Where the licence condition requires the licensee to implement and maintain a particular program, the licensee documents that describe and implement the program are part of the licensing basis. Programs required by licence conditions or referred to in the LCH may or may not be health, safety, security, environment, and quality programs, as defined in the Canadian Nuclear Laboratories Ltd. (CNL)'s management system.

Compliance Verification Criteria:

Part (i) of the Licensing Basis

Part (i) of the licensing basis refers to applicable laws and regulations. There are many federal and provincial acts and regulations, and international laws and agreements applicable to activities performed at the Port Granby Project.

Part (ii) of the Licensing Basis

Part (ii) of the licensing basis refers to the conditions and the safety and control measures included in the licence and in the documents directly referenced in the licence.

The licence requires the licensee to implement and maintain certain programs. There are no documents directly referenced in the standardized Port Granby Project licence. A program may be a series of documented, coordinated activities, not necessarily a single document.

Part (iii) of the Licensing Basis

Part (iii) of the licensing basis refers to the safety and control measures described in the licence application and the documents needed to support that licence application. The safety and control measures include important aspects of that documentation such as, but not limited to: the projects specific design basis and operational information documented in detailed design description report documents.

Part (iii) of the licensing basis also includes safety and control measures outlined in CNSC regulatory documents, CSA standards, and other standards, codes and references that are cited in the application or in the licensee's supporting documentation.

Applicable licensee documents are listed in the LCH under the heading "Licensee Documents that Require Notification of Change". Applicable CNSC regulatory documents, CSA standards and other documents are listed in the LCH under the heading "Licensing Basis Publications". The licensee documents listed in the LCH could cite other documents that also contain safety and control measures (i.e., there may be safety and control measures "nested" in the application). The licensee documents listed in the LCH and their "nested" references define the licensing basis for the programs required by the licence, as long as they include safety and control measures.

Regulatory Role of the Licensing Basis

The licensing basis is established when the Commission renders its decision regarding the licence application.

Licence condition G.1 requires the licensee to conduct the licensed activities in accordance with the licensing basis. For activities that are not in accordance with the licensing basis, the licensee shall take action as soon as practicable to return to a state consistent with the licensing basis, taking into account the risk significance of the situation.

CNSC Staff's Approach to Assessing the Licensing Basis

For any proposed activity to be carried out for the Port Granby Project, CNSC staff will review the information submitted by CNL to determine if the proposed activity remains within the licensing basis. CNL may proceed with the proposed initiatives if they are found to be within the licensing basis.

CNSC staff assess a proposed activity as being within the licensing basis based on the hazard and risk of the change, and its impact on the overall safety of the Port Granby Project.

CNSC staff will submit to the Commission for consideration any proposed activity which CNSC staff consider to be outside the licensing basis. If the Commission grants approval permitting such an activity, this activity will become part of the licensing basis and reflected in a revised licence and updates to the LCH, as appropriate.

Activities Included in the Port Granby Project Licensing Basis

Conduct of licensed activities at the Port Granby Project includes:

a) possess, package, transport, transfer, manage, and store nuclear substances, except Category I, II and III nuclear material, as defined in section 1 of the *Nuclear Security Regulations*, that are required for, associated with or arise from the Port Hope Area Initiative - Port Granby Long-Term Low-Level Waste Management Facility, located in the Municipality of Clarington, Regional Municipality of Durham, Province of Ontario.

The Port Granby Project is to take place over three different phases, all of which are permitted under this licence. Phase 1 activities cover the period of time where the initial infrastructure and waste activities were to be managed as per the initial licence. Phase 1 activities are now completed. Phase 2 activities include the continued operation of the Port Granby Waste Management Facility, the development of the new Port Granby Long-Term Waste Management Facility and the remediation of the existing Port Granby Waste Management Facility. Phase 3 activities are those activities related to the post-closure operations of the Port Granby Long-Term Waste Management Facility associated with long-term care and maintenance.

The property description for the Port Granby Project is described in Appendix B of the Licensing Manual – Information in Support of the Port Granby Long-Term Low-Level Radioactive Waste Management Project Licence Application.

Licence Application Documents and Supporting Documents

Document Number	Document Title	e-Doc
2140-11RLZ-04-051	Licence Application for the Port Granby Long-Term Low-Level Radioactive Waste Management Project – Dec 2011	1228054
145-ACNO-14-0021-L	Atomic Energy of Canada Transferred Commission Licences to the Canadian Nuclear Laboratories Limited, and Associated Applications for Exemption from Regulations – July 2014	4483033
4502-CNNO-18-0017-L	Application for Amendment and Modernization of the Port Granby Long-Term Low-Level Radioactive Waste Management Project WNSL-W1-2311.01/2021 – Revision of Release Limits for Liquid Effluent (Appendix B) – June 2018	5550460
4502-508760-MAN-001	Licensing Manual – Information in Support of the Port Granby Long-Term Low-Level Radioactive Waste Management Project Licence Application	3780863

Guidance:

Guidance Documents

Document Number	Document Title	Version
REGDOC-3.5.3	Regulatory Fundamentals	1.0

When the licensee becomes aware that a proposed change or activity might be outside the licensing basis, it should first seek direction from CNSC staff regarding the potential acceptability of this change or activity. The licensee should take into account that certain types of proposed changes might require significant lead times before CNSC staff can make recommendations and/or the Commission can properly consider them.

Licence Condition G.2: Notification of Changes

The licensee shall give written notification of changes to the licensed activity or its operation, including deviation from design, operating conditions, policies, programs and methods referred to in the licensing basis.

Preamble:

Most changes to the Port Granby Project are captured as changes to corresponding licensee's documents. The LCH identifies licensee documents that require written notification of changes to the CNSC.

Compliance Verification Criteria:

The licensee shall notify CNSC staff of changes to licensee's documents identified in the LCH. The written notification of change shall include a copy of the revised document and a description of the change.

CNL program requirements documents (PRDs) and program description documents (PDDs) are accompanied by governing document indices (GDIs). The licensee shall provide updated versions of GDIs annually or upon request from the CNSC.

Licensee documents listed in the LCH are subdivided into groups having different requirements for notification of change.

PN prior notification - the licensee shall submit the notice to the CNSC prior to implementing the change; typically, the requirement is to submit the proposed changes 30 days prior to planned implementation; however, the licensee shall allow sufficient time for the CNSC to review the change proportionate to its complexity and the importance of the safety and control measures being affected

NT notification at time of making the change

ACC CNSC staff acceptance of changes is required before proceeding with change

Changes that may affect the licensing basis, including any change that is not captured as a change to a document listed in the LCH (e.g., construction of new buildings, transitioning any building/land from one phase of the project to another, or infrastructure improvements at the Port Granby Waste Water Treatment Plant), requires written notification to the CNSC to verify they are in accordance with the licensing basis.

For any change that is outside the licensing basis defined in subsection G.1 of the LCH, the licensee shall obtain Commission approval before proceeding with the change.

Guidance:

For proposed changes that are outside the licensing basis, the guidance for licence condition G.1 applies.

Licence Condition G.3: Remedial Clean-up Criteria

The licensee shall conduct remedial work in accordance with the project developed clean-up criteria.

Preamble:

The clean-up criteria were developed and introduced during the environmental assessment phase of the project. Consequently, the clean-up criteria cannot be amended without reconsideration of the environmental assessment for the project. This is meant to apply in one direction only, as the licensee may make changes in a safe direction without approval of the Commission.

To verify the achievement of the Port Hope Area Initiative clean-up criteria, or to confirm that a site already achieves the clean-up criteria, CNL has implemented a remediation verification procedure. The procedure provides guidance on field screening, verification sampling and laboratory analysis.

Compliance Verification Criteria:

The Port Hope Area Initiative clean-up criteria apply to radiological and hazardous substances. CNL verifies that the clean-up criteria have been achieved by following a remediation verification procedure.

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
4502-509247-PLA-001	Environmental Monitoring Plan Port Granby Project	3796546	NT
2016-10-03 60154177	Port Hope Area Initiative Port Granby Remediation Verification Procedure & Addendum 1	5450757	NT

Port Hope Area Initiative clean-up criteria, found in Appendix D-1 of the Environmental Monitoring Plan Port Granby Project 4502-509247-PLA-001, include radiological and hazardous substances as shown in the table below.

Cleanup Criteria for Inorganic Contaminants of Potential Concern (COPC) in Surface Soils

Contaminants of Potential Concern	Clean-up Criteria	Contaminants of Potential Concern	Clean-up Criteria
Primary COPC		**Secondary COPC**	
226Ra (Bq/g)	0.92	Barium (ppm)	1,500
230Th (Bq/g)	4.62	Beryllium (ppm)	-
232Th (Bq/g)	0.343	Boron (ppm)	2.0
Arsenic (ppm)	40	Cadmium (ppm)	12
Antimony (ppm)	40	Mercury (ppm)	10

Contaminants of Potential Concern	Clean-up Criteria	Contaminants of Potential Concern	Clean-up Criteria
Primary COPC		**Secondary COPC**	
Cobalt (ppm)	80	Molybdenum (ppm)	40
Copper (ppm)	225	Selenium (ppm)	2
Flouride6 (ppm)	2000	Silver (ppm)	40
Lead (ppm)	1000	Vanadium (ppm)	200
Nickel (ppm)	150		
Uranium (ppm)	76		

Guidance:

None provided.

Licence Condition G.4: Public Information and Disclosure Program

The licensee shall implement and maintain a public information and disclosure program.

Preamble:

This licence condition requires the licensee to implement and maintain a PIDP program for ongoing, timely and accurate public communication about the activities of the Port Granby Project.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
4500-513000-PLA-003	Port Hope Area Initiative Phase 2 Public Information Program	5450757	NT

Guidance:

Document Number	Document Title	Version	Effective Date
REGDOC-3.2.1	Public Information and Disclosure	2018	May 1, 2018

SCA – MANAGEMENT SYSTEM

Licence Condition 1.1: Management System

The licensee shall implement and maintain a management system.

Preamble:

The objective of a Management System is to define requirements for establishing, implementing, assessing and continually improving all the activities of an organization. A management system is to be established, implemented, assessed and continually improved. It is to be aligned with the goals of the organization and contribute to their achievement.

The *General Nuclear Safety and Control Regulations* require that a licence application contain the applicant's organizational management structure, including the internal allocation of functions, responsibilities and authority.

The management system is in place to satisfy the requirements set out in the NSCA, regulations made pursuant to the NSCA, the licence and the measures necessary to ensure that safety is of paramount consideration in the implementation of the management system. The management system promotes and supports a healthy safety culture by integrating the characteristics of a healthy safety culture:

- Safety is a clearly recognized value;
- Accountability for safety is clear;
- Safety is integrated into all activities;
- A safety leadership process exists; and
- Safety culture is learning driven

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-514100-MAN-001	Management System	5507946	PN
900-514200-MAN-001	Quality Assurance	5507946	NT
236-514200-QAP-001	Historic Waste Program Quality Assurance Plan	5450757	NT

Guidance:

Guidance Documents

None provided.

SCA – HUMAN PERFORMANCE MANAGEMENT LICENCE

Condition 2.1: Training Program

The licensee shall implement and maintain a training program.

Preamble:

This licence condition requires the licensee to develop and implement training programs for workers.

It also provides the requirements regarding the program and processes necessary to support responsibilities of, qualifications and requalification training of persons conducting an authorized activity.

As defined by the *General Nuclear Safety and Control Regulations*, a worker is a person who performs work that is referred to in a licence. This includes contractors and temporary employees. Training requirements apply equally to these types of workers as to the licensee's own employees.

The *General Nuclear Safety and Control Regulations* require that licensees ensure that there are a sufficient number of properly trained and qualified workers to safely conduct the licensed activities.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-510200-PDD-001	Training and Development	5507946	NT
900-510200-PRD-001	Training and Development	5507946	PN
4500-510200-PLA-001	Port Hope Area Initiative Training Plan	5450757	NT

The licensee shall ensure that all workers are qualified to perform the duties and tasks required of their position.

Guidance:

Document Number	Document Title	Version	Effective Date
REGDOC-2.2.2	Personnel Training	2.0	2016

SCA – OPERATING PERFORMANCE

Licence Condition 3.1: Reporting Requirements

The licensee shall implement and maintain a program for reporting to the Commission or a person authorized by the Commission.

Preamble:

This LC requires the licensee to implement and maintain a process for reporting information to the CNSC. This includes monitoring results, changes to facilities or approved activities, performance assessments and the occurrence of unusual events. Sections 29 and 30 of the *General Nuclear Safety and Control Regulations* provides further insight into reportable events.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
CW-508760-PRO-001	Canadian Nuclear Laboratories Reporting of Unplanned Events and Situations to the Canadian Nuclear Safety Commission	5507946	NT

Compliance Monitoring: Annual Reporting

The licensee shall prepare and submit to CNSC staff, at the intervals specified below, written reports that cover

a) component, or process system, or an inappropriate procedure or human action that resulted in, or could have resulted in the release of a nuclear substance or hazardous substance from the activity;

b) Quarterly written reports on monitoring of liquid effluent releases to the environment including liquid effluent toxicity testing

c) An annual compliance submitted to the CNSC by end of April each year, covering the previous calendar year's operation and the results of all monitoring programs associated with the licence.

d) Written quarterly progress reports on project activities.

e) Written reports at completion of project activities. Project completion reports include, commissioning of the completion of LTWMF capping system and commissioning of the East Gorge collection system. A timeframe for submitting the reports and the content of the report shall be agreed to by CNL and CNSC staff.

Guidance:

Event Reporting

To encourage reporting of situations or events that may result in improvement actions, event reporting should not be used as a tool for assessing or measurement of nuclear safety, or as a basis for assessing the licensee's performance.

SCA – PHYSICAL DESIGN

Licence Condition 4.1: Design Program

The licensee shall implement and maintain a design program.

Preamble:

The *National Fire Code of Canada* sets out technical provisions regulating (a) activities related to the construction, use or demolition of buildings and facilities; (b) the condition of specific elements of buildings and facilities; (c) the design or construction of specific elements of facilities related to certain hazards; and (d) protection measures for the current or intended use of buildings.

The *National Building Code of Canada* sets out technical provisions for the design and construction of new buildings. It also applies to the alteration, change of use and demolition of existing buildings.

The detailed design description report describes the construction of an engineered containment mound, ancillary facilities, storm water management works, civil site servicing, transportation route upgrades and construction and operation of a new wastewater treatment plant. The detailed design description report also includes the design of the structures, systems and components that provide the measures necessary for the protection of health, safety, security and the environment.

Compliance Verification Criteria:

Licensing Basis Publications

Document Number	Document Title	Version	Effective Date
	National Building Code of Canada	2015	
	National Fire Code of Canada	2015	
CSA-393-13	Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances	2013	

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-508120-PDD-001	Design Authority and Design Engineering	5507946	NT
900-508120-PRD-001	Design Authority and Design Engineering	5507946	PN
2010-12-22-60154177-DDDR-RA	Detailed Design Description Report	5450757	NT
4502-508120-DBD-001	Detailed Design Description Addendum	5450757	NT
4502-121256-DBD-001	Design Basis Document Water Treatment Definition – Port Granby Project	5450757	NT

Guidance:

None provided.

SCA – RADIATION PROTECTION

Licence Condition 5.1: Radiation Protection Program

The licensee shall implement and maintain a radiation protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

Preamble:

The *Radiation Protection Regulations* requires the licensee to implement a radiation protection program and also ascertain and record doses for each person who performs any duties in connection with any activity that is authorized by the NSCA or is present at a place where that activity is carried out. The radiation protection program must ensure that doses to workers and members of the public do not exceed prescribed dose limits and are kept as low as reasonably achievable (ALARA), social and economic factors being taken into account. Also, the radiation protection program must ensure that occupational exposures are ascertained and recorded in accordance with the *Radiation Protection Regulations* through the establishment of dosimetry requirements.

The regulatory dose limits to workers and members of the public are specified in the *Radiation Protection Regulations*. The *Radiation Protection Regulations* also specify the requirements related to action levels (ALs) and indicate that the licence will be used to identify their notification timeframes.

ALs are designed to alert licensees before regulatory dose limits are reached. By definition, if an action level is reached, a loss of control of some part of the associated radiation protection program may have occurred, and specific action is required as specified in the *Radiation Protection Regulations* and the licence. ALs are not intended to be static and are to reflect operating conditions for the Port Granby Project.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-508740-PDD-001	Radiation Protection Program Description Document	5507946	NT
900-508740-PRD-001	Radiation Protection Program Requirements Document	5507946	PN
900-508740-MCP-006	Action Levels for Internal and External Exposures	5507946	PN
4500-508740-PLA-001	Port Hope Area Initiative Radiation Protection Plan	5450757	PN

ALs for radiation protection at the Port Granby Project are included in the table below. In the event of a discrepancy between the table and the licensee documentation upon which they are based, the licensee documentation shall be considered the authoritative source considering that the licensee has followed its own change control process.

Port Granby Project Action Levels

Type of Dose	Action Level	
	mSv (mrem) per four week or maximum monitoring period [1]	mSv (rem) per year
Effective Dose	3 (300) [2]	10 (1000)
Shallow Dose	10 (1000)	20 (2000)
Extremity Dose [3]	10 (1000)	N/A
Localized area of the skin due to a single skin contamination incident [3, 4]	10 (1000)	

Notes:

1. The monitoring period is normally four weeks, but may be longer if justified. The monitoring period shall not exceed 3 months.
2. Action levels for pregnant women shall be 0.3 mSv (0.03 rem) per four weeks to the abdomen.
3. Extremity dose action level applies in situations where an extremity TLD has measured a dose exceeding 10 mSv. All contamination events that result in a dose to the skin, irrespective of the location on the body of the exposed skin, will be recorded and reported as appropriate as a skin dose.
4. The averaging area shall never be less than 1 cm^2, even in case of hot particles. When skin is unevenly irradiated, the equivalent dose received by the skin is the average equivalent dose over the 1 cm^2 area that received the highest equivalent dose. When the contamination is relatively uniform over the skin, the averaging area of 100 cm^2 may be used for operational convenience but not if significantly lowers the average dose.

Guidance:

Guidance Documents

Document Number	Document Title	Version
G-129, Rev. 1	Keeping Radiation Exposures and Doses "As Low as Reasonably Achievable (ALARA)"	2004
G-228	Developing and Using Action Levels	2001

The licensee should conduct a documented review and, if necessary, revise the ALs at least once every five years in order to validate their effectiveness. The results of such reviews should be provided to CNSC staff.

SCA – CONVENTIONAL HEALTH AND SAFETY

Licence Condition 6.1: Conventional Health and Safety Program

The licensee shall implement and maintain a conventional health and safety program.

Preamble:

As the PGP is federally regulated, CNL is subject to the requirements of *Canada Labour Code* and *Canada Occupational Health and Safety Regulations*.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-510400-PDD-001	Occupational Safety and Health	5507946	NT
900-510400-PRD-001	Occupational Safety and Health	5507946	PN
4500-510400-PLA-001	Port Hope Area Initiative Occupational Safety and Health Plan	5450757	NT

Employment and Social Development Canada is mandated with overseeing and enforcing compliance with the *Canada Labour Code* and its regulations. CNSC staff monitor licensee compliance with its conventional health and safety program, and will take regulatory actions for any potential unsafe work practice situations.

Guidance:

None provided.

SCA – ENVIRONMENTAL PROTECTION

Licence Condition 7.1: Environmental Protection Program

The licensee shall implement and maintain an environmental protection program, which includes a set of action levels. When the licensee becomes aware that an action level has been reached, the licensee shall notify the Commission within seven days.

Preamble:

The *General Nuclear Safety and Control Regulations* requires every licensee to take all reasonable precautions to protect the environment. The *Radiation Protection Regulations* prescribe the radiation dose limits for the general public of 1 mSv per calendar year.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-509200-PDD-001	Environmental Protection	5507946	NT
900-509200-PRD-001	Environmental Protection	5507946	PN
4502-509200-PLA-001	Environmental Management and Protection Plan	5450757	NT
4502-509247-PLA-001	Environmental Monitoring Plan	5450757	NT
4502-508120-041-000-0072	Environmental Protection Plan	5450757	NT
4500-509200-PLA-001	Port Hope Area Initiative Dust Management Plan	5450757	NT
4502-509246-PLA-001	Port Granby Project Environmental Assessment Follow-up Program	5450757	NT
4502-509246-PLA-002	EA Follow up Program - Biophysical Effects Management Monitoring Plan	5450757	NT

The release limits for radiological and hazardous substances are considered part of the licensing basis. Changes to these limits are subject to Licence Condition G.1. The action levels and release limits for treated water from the Port Granby Project are summarized in the table below. In the event of a discrepancy between the table below and the licensee documentation, upon which they are based, the licensee documentation shall be considered the authoritative source.

Treated Water Action Levels and Release Limits for Radioactive Substances and Hazardous Substances for the Port Granby Project

Contaminant	Units	Action Level for Weekly Concentration of Composite Sample	Limits for Weekly Concentration of Composite Sample	Limit for Monthly Mean Concentration of Composite Sample
Radium-226 (Ra)	Bq/L	0.05	0.74	0.37
Arsenic (As)	mg/L	0.05	0.2	0.1
Cadmium (Cd)	mg/L	0.001	0.002	0.001
Cobalt (Co)	mg/L	0.005	0.01	0.005
Copper (Cu)	mg/L	0.005	0.01	0.005
Phosphorus (P)	mg/L	0.35	0.7	0.35
Selenium (Se)	mg/L	0.02	0.06	0.03
Thallium (Tl)	mg/L	0.0005	0.016	0.008
Uranium (U)	mg/L	0.1	0.2	0.1
Vanadium (V)	mg/L	0.005	0.08	0.04
Ammonia-N (NH_3)	mg/L	5.75	11.5	5.75
Nitrite-N (NO_2)	mg/L	1.5	3	1.5
Nitrite-N (NO_3)	mg/L	75	150	75
Molybdenum (Mo) [1]	mg/L	0.05	-	-
pH	pH	6.5 – 8.5	6 – 9.5	6 – 9.5
Total Suspended Solids	mg/L	15	30	15
Acute Toxicity	-	-	-	Cannot be toxic [2]

[1] The maximum predicted design release prior to treatment is well below the Province of British Columbia surface water quality guideline for the protection of aquatic life, of 1 mg/L, and was screened out of requiring a licence limit. This indicates that even without treatment, the aquatic environment is protected from exposure to Molybdenum.

[2] Acute toxicity testing may be performed quarterly after 12 consecutive months of non-toxic monthly results. CNL shall select and record the sampling date not less than 30 days in advance of collecting the grab sample to be used in toxicity testing. CNL shall inform CNSC staff when the toxicity testing frequency is changed.

Guidance:

Guidance Documents

Document Number	Document Title	Version
CSA N288.8	Establishing and implementing action levels to control releases to the environment from nuclear facilities	2017

SCA – EMERGENCY MANAGEMENT AND FIRE PROTECTION

Licence Condition 8.1: Emergency Preparedness Program

The licensee shall implement and maintain an emergency preparedness program.

Preamble:

This licence condition requires the licensee to establish an emergency preparedness program to prepare for, to respond to, and to recover from the effects of accidental radiological/nuclear and/or hazardous substance release. As part of the emergency preparedness program, the licensee establishes an onsite emergency response plan and an emergency response organization and makes arrangements for coordinating off-site activities and cooperating with external response organizations throughout all phases of an emergency.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-508730-PDD-001	Emergency Preparedness	5507946	NT
900-508730-PRD-001	Emergency Preparedness	5507946	PN
4500-508730-PLA-001	Port Hope Area Initiative Emergency Plan	5450757	NT

Guidance:

Guidance Documents

None provided.

Licence Condition 8.2: Fire Protection Program

The licensee shall implement and maintain a fire protection program.

Preamble:

Licensees require a comprehensive fire protection program (the set of planned, coordinated, controlled and documented activities) to ensure the licensed activities do not result in unreasonable risk to the health and safety of persons and to the environment due to fire and to ensure that the licensee is able to efficiently and effectively respond to emergency fire situations.

The *National Fire Code of Canada* sets out technical provisions regulating (a) activities related to the construction, use or demolition of buildings and facilities; (b) the condition of specific elements of buildings and facilities; (c) the design or construction of specific elements of facilities related to certain hazards; and (d) protection measures for the current or intended use of buildings.

The *National Building Code of Canada* sets out technical provisions for the design and construction of new buildings. It also applies to the alteration, change of use and demolition of existing buildings.

Compliance Verification Criteria:

Licensing Basis Publications

Document Number	Document Title	Version	Effective Date
	National Fire Code of Canada	2015	
	National Building Code of Canada	2015	

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-508720-PDD-001	Fire Protection	5507946	NT
900-508720-PRD-001	Fire Protection	5507946	PN

Guidance:

None provided.

SCA – SECURITY

Licence Condition 9.1: Security Program

The licensee shall implement and maintain a security program.

Preamble:

The *General Nuclear Safety and Control Regulations* require that a licence application contain information related to site access control and measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment or prescribed information.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-508710-PDD-001	Security	5507946	NT
900-508710-PRD-001	Security	5507946	PN
4500-508710-PLA-001	Port Hope Area Initiative Security Plan	5450757	NT

The CNL document 4500-508710-PLA-001 *Port Hope Area Initiative Security Plan* is required to be updated periodically and resubmitted to CNSC staff.

Guidance:

None provided

SCA – PACKAGING AND TRANSPORT

Licence Condition 10.1: Packaging and Transport Program

The licensee shall implement and maintain a packaging and transport program.

Preamble:

Every person who transports radioactive material, or requires it to be transported, shall act in accordance with the requirements of the *Transportation of Dangerous Goods Regulations* and the *Packaging and Transport of Nuclear Substances Regulations, 2015*.

The *Packaging and Transport of Nuclear Substances Regulations, 2015* and the *Transportation of Dangerous Goods Regulations* provide specific requirements for the design of transport packages, the packaging, marking and labeling of packages and the handling and transport of nuclear substances.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change

Document Number	Document Title	e-Doc	Notification
900-508520-PDD-001	Transportation of Dangerous Goods	5507946	NT
900-508520-PRD-001	Transportation of Dangerous Goods	5507946	PN
4500-508520-PLA-001	Transportation of Dangerous Goods Port Hope Area Initiative	5450757	NT

Guidance:

None provided

APPENDIX A: DEFINITIONS AND ACRONYMS

1. DEFINITIONS

The following is a list of definitions of words or expressions used in the LCH that may need clarification; they are defined for the purpose of the LCH only. All other terms and expressions used in the LCH are consistent with the definitions provided in the NSCA, the Regulations made pursuant to the NSCA, or in the CNSC regulatory document REGDOC-3.6 *Glossary of CNSC Terminology*.

Approval – Commission's permission to proceed, for situations or changes where the licensee would be:

- not compliant with a regulatory requirements set out in applicable laws and regulations;
- not compliant with a licence condition; and
- not in the safe direction but the objective of the licensing basis is met.

Compliance Verification Criteria – regulatory criteria used by CNSC staff to verify compliance with the licence conditions.

Effective Date – the date that a given document becomes effective within the licensing period. The effective date is either set to the licence issue date or to a future date when the given document becomes effective.

Guidance – guidance in the LCH is non-mandatory information, including direction, on how to comply with the licence condition.

Program(s) – a documented group of planned activities, procedures, processes, standards, and instructions coordinated to meet a specific purpose.

Qualified Staff – trained licensee staff, deemed competent and qualified to carry out tasks associated with their respective positions.

Safe Direction – changes in activity safety levels that would not result in:

(a) a reduction in safety margins;

(b) a breakdown of barrier;

(c) an increase (in certain parameters) above accepted limits;

(d) an increase in risk;

(e) impairment(s) of safety systems;

(f) an increase in the risk of radioactive releases or spills of hazardous substances;

(g) injuries to workers or members of the public;

(h) introduction of a new hazard;

(i) reduction of the defence-in-depth provisions;

(j) reducing the capability to control, cool and contain the reactor while retaining the adequacy thereof; or

(k) causing hazards or risks different in nature or greater in probability or magnitude than those stated in the safety analysis of the activity.

Safety and Control Measures – measures or provisions which demonstrate that the applicant:

(i) is qualified to carry on the licensed activities; and

(ii) has made adequate provision for the protection of the environment, the health and safety of persons, the maintenance of national security and any measures required to implement international obligations to which Canada has agreed.

Written Notification – a physical or electronic communication between CNSC staff and a person authorized to act on behalf of the licensee.

2. ACRONYMS LIST

Acronym	Definition
ACC	Prior CNSC acceptance of change is required
ALARA	As Low As Reasonably Achievable
ALI	Annual Limit of Intake
CAF	Change Approval Form
CNL	Canadian Nuclear Laboratories
CNSC	Canadian Nuclear Safety Commission
CSA	Canadian Standards Association
IAEA	International Atomic Energy Agency
LCH	Licence Conditions Handbook
NSCA	*Nuclear Safety and Control Act*
NT	Notification at time of making the change
PN	Prior Notification
PTNSR	*Packaging and Transport of Nuclear Substances Regulations, 2015*
TDGR	*Transportation of Dangerous Goods Regulations*
TLD	Thermoluminescent Dosimeter

CURRENT LICENCE

The current licence is provided on the following pages of the document.

e-Doc 4490416 (Word)
e-Doc 4541235 (PDF)

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Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

PDF Ref: e-Doc 4541235
Word Ref: e-Doc 4490416
File: 2.02

TRANSFER

WASTE NUCLEAR SUBSTANCE LICENCE

PORT GRANBY LONG-TERM LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT PROJECT

Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the *Nuclear Safety and Control Act* and its associated Regulations.

I) LICENCE NUMBER: WNSL-W1-2311.00/2021

II) LICENSEE: This licence is issued to:

Atomic Energy of Canada Limited–
Énergie atomique du Canada limitée
Chalk River, Ontario
K0J 1J0

III) TRANSFER:

Pursuant to subsection 37 of the *Nuclear Safety and Control Act*, this licence is hereby transferred as follows:

Section II of the licence is modified as follows:

Canadian Nuclear Laboratories Limited
Laboratoires nucléaires canadiens limitée
1 Plant Road
Chalk River, Ontario
K0J 1J0

Section III of the licence is modified as follows:

The effective date of the license will take effect upon receipt of written confirmation, from both Atomic Energy of Canada Limited and Canadian Nuclear Laboratories Limited that all steps of the reorganization are complete.

IV) TRANSFER REQUESTED:

1. AECL. July 29, 2014. Correspondence from R.S. Walker, AECL to M. Leblanc, CNSC. Atomic Energy of Canada Limited transfer of Designated Officer Licences to the Canadian Nuclear Laboratories Limited. AECL Document Number 145-ACNO-14-0022-L. e-Doc 4494654.

V) DATE OF TRANSFER:

The Commission at a hearing, made the decision for the transfer on November 2014. The effective date of the license will take effect upon receipt of written confirmation, from both Atomic Energy of Canada Limited and Canadian Nuclear Laboratories Limited that all steps of the reorganization are complete

The foregoing transfer is consolidated in the revised licence, WASTE NUCLEAR SUBSTANCE LICENCE, No. WNSL-W1-2311.01/2021, attached hereto as Schedule 1.

SIGNED at OTTAWA this 22nd day of October , 2014

M. Binder

Michael Binder, President
On behalf of the Canadian Nuclear Safety Commission

Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Schedule 1

PDF Ref: e-Doc 4541235
Word Ref: e-Doc 4490416
File: 2.02

WASTE NUCLEAR SUBSTANCE LICENCE

PORT GRANBY LONG-TERM LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT PROJECT

I) LICENCE NUMBER: WNSL-W1-2311.01/2021

II) LICENSEE: Pursuant to section 24 of the *Nuclear Safety and Control Act*, this licence is issued to:

Canadian Nuclear Laboratories Limited
Laboratoires nucléaires canadiens limitée
1 Plant Road
Chalk River, Ontario
K0J 1J0

III) LICENCE PERIOD: This licence is valid from the effective date of the land transfer of the Port Granby Waste Management Facility property as set out in the "Agreement of Purchase and Sale" between "Her Majesty the Queen In Right Of Canada" and "Cameco Corporation" and "Canada Eldor Inc." and remains in effect until **December 31, 2021** unless suspended, amended, revoked or replaced.

The effective date of the license will take effect upon receipt of written confirmation, from both Atomic Energy of Canada Limited and Canadian Nuclear Laboratories Limited that all steps of the reorganization are complete.

IV) LICENSED ACTIVITIES:

This licence authorizes the licensee to:

a) possess, manage and store nuclear substances that are required for, associated with or arise from Phase 1[1] activities associated with the Port Hope Area Initiative – Port Granby Project, located at the Port Granby Waste Management Facility, as more particularly described in Appendix A to this licence, and

b) possess, package, transport, transfer, manage and store the nuclear substances except Category I, II and III nuclear- material as defined in section 1 of the *Nuclear Security Regulations*, that are required for, associated with or arise from Phases 2 and 3[2] of the Port Hope Area Initiative – Port Granby Long-Term Waste Management Facility, as more particularly described in Appendix A to this licence.

V) EXPLANATORY NOTES:

a) Unless otherwise provided for in this licence, words and expressions used in this licence have the same meaning as in the *Nuclear Safety and Control Act* and associated Regulations;

b) The contents of Appendix A "DESCRIPTION of Port Granby Long-Term Low-Level Radioactive Waste Management Facility", Appendix B "RELEASE LIMITS", and Appendix C "CLEAN-UP CRITERIA" attached to this licence forms part of the licence;

c) The Port Granby Long-Term Low-Level Radioactive Waste Management Facility LICENCE CONDITIONS HANDBOOK (LCH) provides compliance verification criteria in order to meet the conditions listed in the licence;

VI) CONDITIONS:

The licensee shall comply with the following conditions, established pursuant to subsection 24(5) of the *Nuclear Safety and Control Act*.

1. GENERAL

1.1 Changes that are outside of the licence conditions are not permitted without the prior written approval of the Canadian Nuclear Safety Commission (hereinafter "the Commission") or a person authorized by the Commission.

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1 - Phase 1 activities are defined as those activities related to the continued operation of the Port Granby Waste Management Facility associated with ongoing care and maintenance.

2 - Phase 2 activities are those activities related to the continued operation of the Port Granby Waste Management Facility and those related to the development of the Port Granby Long-Term Waste Management Facility.

- Phase 3 activities are those activities related to the post-closure operations of the Port Granby Long-Term Waste Management Facility associated with long term care and maintenance.

1.2 The licensee shall, in the event of any conflict or inconsistency between licence conditions or regulatory documents referenced in this licence, direct the conflict or inconsistency to the Commission or a person authorized by the Commission, for regulatory interpretation.

2. OPERATIONS

2.1 The licensee shall inform the Commission, or a person authorized by the Commission, within 30 days of the transfer of lands associated with the "Agreement of Purchase and Sale" between "Her Majesty the Queen In Right Of Canada" and "Cameco Corporation" and "Canada Eldor Inc.".

2.2 The licensee shall conduct remedial work in accordance with the project developed clean-up criteria specified in Appendix C to this licence.

2.3 The licensee shall implement and maintain a quality assurance program for the project.

2.4 The licensee shall prepare written reports on any failure to meet the requirements of this licence, any action level exceedance, results of monitoring programs, progress and end-state of project activities as required by the Commission, or a person authorized by the Commission.

2.5 The licensee shall have a program for public information for the project.

2.6 The licensee shall have a training program for the project.

2.7 The licensee shall conduct the project activities in accordance with the design documentation.

2.8 The licensee shall have a program for radiation protection for the project.

2.9 The licensee shall have a program for occupational health and safety for the project.

2.10 The licensee shall have an environmental management and protection program for the project.

2.11 The licensee shall control, monitor and record releases to the environment from the facilities such that the releases do not exceed the release limits specified in Appendix B.

2.12 The licensee shall implement an Environmental Assessment follow-up program.

2.13 The licensee shall have a program for emergency preparedness.

SIGNED at OTTAWA, this 22 day of October , 2014

M. Binder

Michael Binder, President,
on behalf of the Canadian Nuclear Safety Commission

APPENDIX A

Port Granby Waste Management Facility

The Port Granby Waste Management Facility is located on Lot 3, Broken Front Concession "A" in the Municipality of Clarington, Regional Municipality of Durham, Province of Ontario. The facility is bounded by Lake Ontario to the south, by farmland owned by Cameco Corporation to the east and west, and by Lakeshore Road to the North.

Port Granby Long-Term Waste Management Facility

The Port Granby Long-Term Waste Management Facility will be located approximately 580 m north of Lakeshore Road immediately north-west of the existing Port Granby Waste Management Facility. The site is bounded by Elliott Road to the west, Nicolas Road to the east, and the Canadian National Railway to the north. The location of the Long-Term Waste Management Facility is shown on the following figure.

APPENDIX B

RELEASE LIMITS FOR LIQUIDE EFFLUENT

1. Phase 1: Continue Operation of the Port Granby Waste Management Facility

Substance and Form	Monthly Average Limits
Radium-226 (Ra-226)	0.37 Bq/L
pH	Between 6 and 9
Toxicity Testing	Effluent cannot be toxic

APPENDIX C

CLEAN UP CRITERIA FOR REMEDIATION

Cleanup Criteria for Inorganic Contaminants of Potential Concern (COPC) in Surface Soils

COPC	**Clean-up Criteria for Port Granby Project**
Primary COPC	
226Ra (Bq/g)1,4	0.92
230Th (Bq/g)1,4	4.62
232Th (Bq/g)1,4	0.343
Arsenic (ppm)	40
Antimony (ppm)	40
Cobalt (ppm)	80
Copper (ppm)	225
Flouride6 (ppm)	2000
Lead (ppm)	1000
Nickel (ppm)	150
Uranium (ppm)	76
Secondary COPC	
Barium (ppm)	1,500
Beryllium (ppm)	-
Boron (ppm)	2.0
Cadmium (ppm)	12
Mercury (ppm)	10
Molybdenum (ppm)	40
Selenium (ppm)	2
Silver (ppm)	40
Vanadium (ppm)	200

Water Quality Criteria for Potable Groundwater Conditions

Contaminant	Recommended Criterion
Primary COPCs (mg/L)	
Antimony	0.006
Arsenic	0.025
Lead	0.01
Uranium	0.02
Secondary COPCs (mg/L)	
Barium	1
Boron	5
Cadmium	0.005
Copper	1
Fluoride	1.5
Mercury	0.001
Selenium	0.01
Radioactive Constituents* (Bq/L)	
^{238}U	2.8
^{234}U	2.8
^{230}Th	0.65
^{226}Ra	0.49
^{210}Pb	0.2
^{201}Po	0.11
^{232}Th	0.60
^{228}Ra	0.20
^{228}Th	1.9
^{224}Ra	2.1

Notes:

*MOE criteria updated to incorporate ICRP-72 dose coefficient. For groundwater containing more than one radionuclide, the following limit shall apply:

$_{c1}/C1 + _{c2}/C2 + _{ci}/Ci \leq 1$

where $_{c1}$ is the activity concentration of radionuclide I and Ci is the criterion for radionuclide i.