2021 March 26

Mr. M. Leblanc
Commission Secretary
Canadian Nuclear Safety Commission
280 Slater Street, P.O. Box 1046, Station B
Ottawa, Ontario, KIP 5S9

Dear Mr. Leblanc,

Updated Application for Licence Amendment to add the Near Surface Disposal Facility to the Chalk River Laboratories Licensing Basis

The purpose of this letter is to submit an updated application to the Canadian Nuclear Safety Commission (CNSC) for an amendment of the Nuclear Research and Test Establishment Operating Licence for Chalk River Laboratories NRTEOL-01.00/2028 [1] to add a new Class 1B Nuclear Facility, the Near Surface Disposal Facility (NSDF), to the Chalk River Laboratories (CRL) licensing basis.

In 2017, Canadian Nuclear Laboratories (CNL) submitted a construction application for the NSDF as a modification to an existing Class IB Nuclear Facility (the Waste Management Areas (WMA)) [2]. This updated application is being submitted for the following reasons:

- The original application [2] was submitted under the previous CNL Site Licence and Licence Condition Handbook (LCH). This application has been updated to reflect the current licence [1] and LCH [3]. Attachment A provides the concordance table for the licence amendment application.
- Many of the CNL documents supporting the initial application have been updated or superseded through the technical evaluation by CNSC staff. In some cases additional documents have been submitted. Attachment B shows the changes in supporting documents by Safety Control Area (SCA) between the initial application [2] and the current application.
- In 2019, CNL submitted a letter [4] notifying the CNSC of a change in licensing strategy where the NSDF would be a stand-alone facility rather than part of WMA.

BACKGROUND INFORMATION

Canadian Nuclear Laboratories is proposing to construct and operate the NSDF for the disposal of solid, radioactive Low-Level Waste (LLW) at CRL. The purpose and urgency of the NSDF Project is rooted in the requirements established by Atomic Energy of Canada Limited (AECL), on behalf of the Government of Canada, to substantially reduce the risks associated with the CNL legacy wastes, liabilities and the cost of laboratory operations to taxpayers and to create the conditions for the revitalization of the CRL site.

Presently, wastes generated at CNL sites are temporarily and safely contained in waste storage systems in accordance with current licence conditions that protect workers, the public and the environment. However, the practice of continuing to build additional temporary storage systems at the CRL site for radioactive waste is not consistent with modern waste management principles. In accordance with Framework for Radioactive Waste Management and Decommissioning in Canada [5], the waste producers and owners of radioactive waste are responsible for the funding, organization, management and operation of disposal and other facilities required for their wastes. Responsible nuclear waste management includes full life cycle management from generation to disposal.

The NSDF design incorporates an Engineered Containment Mound (ECM), to provide containment and isolation of CNL's disposed LLW. The NSDF is expected to be operational for approximately 50 years and has a design life of 550 years. The development of the ECM and the placement of LLW within the ECM, is completed in two phases. Phase 1 provides a total waste capacity of 525 000 m^3 to accommodate wastes currently in storage and wastes to be generated over the next 20 to 25 years. Phase 2 provides a total waste capacity of 475 000 m^3, expanding the ECM to 1 000 000 m^3 for future waste disposal.

APPLICATION FOR LICENCE AMENDMENT

Pursuant to the *Nuclear Safety and Control Act* and associated regulations, CNL is requesting that the Commission, or a person authorized by the Commission, amend the current Nuclear Research and Test Establishment Operating Licence for Chalk River Laboratories NRTEOL-01.00/2028 [1] to authorize CNL to add the NSDF, as new Class IB facility to the CRL licensing basis. This would be in addition to the 11 separate Class I Nuclear Facilities that are currently part of CRL's licensing basis.

Attachment A provides a clause-by-clause statement for relevant excerpts from the Act and relevant CNSC Regulations, and describes how CNL meets these requirements as per the compliance verification criteria prescribed by the CNSC in the Licence Conditions Handbook, NRTEOL-LCH-01.00/2028 [3].

If you should have any questions with respect to the foregoing, please contact me directly or Meggan Vickerd (Director, NSDF Project) at 613-585-3488.

Sincerely,

Phillip Boyle,
Vice President, Central Technical Authority and Chief Nuclear Officer
Email: phillip.boyle@cnl.ca

Attachments (2)

References:

[1] *Nuclear Research and Test Establishment Operating Licence, Chalk River Laboratories*, NRTEOL-01.00/2028.

[2] Letter from J.M. Hammell (CNL) to J. LeClair (CNSC), "*Application for Approval of a Modification to the Waste Management Areas at Chalk River Laboratories: Construction of the Near Surface Disposal Facility*", 232-CNN0-17-0004-L, 2017 March 31.

[3] Canadian Nuclear Safety Commission, *Licence Conditions Handbook*, NRTEOL-LCH-01.00/2028, CRL-508760-HBK-002, Revision 2, Effective 2021 February 28.

[4] Letter from M. Vickerd (CNL) to M.C. Gacem (CNSC), "*Submission of Near Surface Disposal Facility (NSDF) Facility Authorization (232-00583-FA-001)*", 232-CNNO-19-0037-L, 2019 September 3.

[5] Canadian Nuclear Safety Commission, *Framework for Radioactive Waste Management and Decommissioning in Canada*, REGDOC-2.11, 2018 December.

c.

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Attachment A
Concordance Table for Licence Amendment Application

Section	Requirement	CNL Response
Nuclear Safety and Control Act [A-1]		
24(2)	The Commission may issue, renew, suspend in whole or in part, amend, revoke, or replace a licence on receipt of an application (a) in the prescribed form;	This attachment with the cover letter provides the information required by the NSCA (the Act) and the Regulations made pursuant to the Act and constitute, in part, an application by CNL to amend its Chalk River Laboratories (CRL) operating licence [A-2] to prepare a site and construct the NSDF, a Class IB nuclear facility. Other supporting material will be provided to CNSC staff, as required, under separate cover
24(2)	(b) containing the prescribed information and undertakings and accompanied by the prescribed documents; and	See response to item 24(2) (a) above.
24(2)	(c) accompanied by the prescribed fee.	CNL is in good standing with respect to the provision of CNSC licensing fees and will provide any additional fees, as and when required.
24(4)	No licence may be issued, renewed, amended or replaced unless, in the opinion of the Commission, the applicant or, in the case of an application for an authorization to transfer the licence, the transferee (a) is qualified to carry on the activity that the licence will authorize the licensee to carry on; and	CNL understands that qualification will be determined through consideration by the Commission of this application and the associated supporting material as well as deliberation through the Commission public hearing process.

Section	Requirement	CNL Response
24(4)	(b) will, in carrying on 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.	CNL understands that adequate provision will be determined through consideration by the Commission of this application and the associated supporting material as well as deliberation through the Commission public hearing process.
24(5)	A licence may contain any term or condition that the Commission considers necessary for the purposes of this Act, including a condition that the applicant provide a financial guarantee in a form that is acceptable to the Commission.	CNL understands the requirement for an acceptable financial guarantee. While ownership of CNL has transferred to the Canadian National Energy Alliance, Atomic Energy of Canada Limited retains ownership of the lands, assets and liabilities associated with CNL's licences. These liabilities have been officially recognized by the Minister of Natural Resources in a letter dated 2015 July 31 [A-3]. This recognition was reaffirmed by AECL to CNL on 2020 August 12 [A-4].
25	The Commission may, on its own motion, renew, suspend in whole or in part, amend, revoke or replace a licence under the prescribed conditions.	CNL understands the clause and no response is required.
26	Subject to the regulations, no person shall, except in accordance with a licence, (e) prepare a site for, construct, operate, modify, decommission or abandon a nuclear facility; or	CNL understands the clause and no response is required.

Section	Requirement	CNL Response
General Nuclear Safety and Control Regulations [A-5]		
3	(1) An application for a licence shall contain the following information: (a) the applicants name and business address;	The applicants name and business address are found in Section II) of CRL, Nuclear Research and Test Establishment Operating Licence, NRTEOL-01.00/2018 [A-2].
3	(b) the activity to be licensed and its purpose;	CNL intends to prepare the site and construct the NSDF to dispose of low level radioactive waste generated during the decommissioning activities at CNL, as well as waste currently stored on-site and potential future waste streams. Further details are provided in Section 3 of the NSDF Safety Case [A-6].
3	(c) the name, maximum quantity and form of any nuclear substance to be encompassed by the licence;	Information is provided in Section 3 of the NSDF Safety Case [A-6].
3	(d) a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence;	Information is provided in Section 3 of the NSDF Safety Case [A-6].
3	(e) the proposed measures to ensure compliance with the *Radiation Protection Regulations* and the *Nuclear Security Regulations and the Packaging and Transport of Nuclear Substances Regulations, 2015*;	Compliance with the Radiation Protection Regulations at CRL is ensured through implementation of the CNL Radiation Protection Program [A-7], [A-8], as per Safety and Control Area (SCA) "Radiation Protection" Licence Condition 7.1: Radiation Protection Program of the CRL LCH [A-9]. Compliance with the Nuclear Security Regulations is ensured through implementation of the CNL Security Program [A-10], [A-11] and the CNL Cyber Security Program [A-12], [A-13] as per SCA "Security" Licence Condition 12.1: Security Program of the CRL LCH [A-9].

Section	Requirement	CNL Response
		Compliance with the Packaging and Transport of Nuclear Substances Regulations is ensured through implementation of the CNL Transportation of Dangerous Goods Program [A-14], [A-15] as per SCA "Packaging and Transport" Licence Condition 14.1: Packaging and Transport Program of the CRL LCH [A-9].
3	(f) any proposed action level for the purpose of Section 6 of the *Radiation Protection Regulations*;	Environmental action levels for the CRL site are defined under the CNL Environmental Protection Program [A-16], [A-17], as per SCA "Environmental Protection" Licence Condition 9.1: Environmental Protection Program of the CRL LCH [A-9]. Radiation Protection action levels for the CRL site are defined under the CNL Radiation Protection Program [A-7], [A-8], as per Safety and Control Area (SCA) "Radiation Protection" Licence Condition 7.1: Radiation Protection Program of the CRL LCH [A-9].
3	(g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information;	Compliance with the Nuclear Security Regulations is ensured through implementation of the CNL Security Program [A-10], [A-11] and CNL Cyber Security Program [A-12], [A-13] as per SCA "Security" Licence Condition 12.1: Security Program of the CRL LCH [A-9].
3	(h) the proposed measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment, or prescribed information;	Compliance with the Nuclear Security Regulations is ensured through implementation of the CNL Security Program [A-10], [A-11] and the CNL Cyber Security Program [A-12], [A-13] as per SCA "Security" Licence Condition 12.1: Security Program of the CRL LCH [A-9].
3	(i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;	Section 4 and Section 5 of the NSDF Safety Case [A-6] summarize and reference the tests, analyses and calculations performed to substantiate the information included in this application.
3	(j) the name, quantity, form, origin, and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be	Information on the radiological and non-radiological waste inventory is provided in Section 3 of the NSDF Safety Case [A-6].

Section	Requirement	CNL Response
	stored, managed, processed, or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;	
3	(k) the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the Act and the Regulations made under the Act, including the internal allocation of functions, responsibilities and authority;	CNL's senior management organizational structure for the operation of CRL is documented in the CNL Management System Manual [A-18]. As per the requirements of SCA "Management System" Licence Condition 1.1: Management System of the CRL LCH [A8], further relevant information regarding the responsibilities and authority at the CRL site is provided in Site Licences, Certificates, Permits, Building/Facility Contacts, & Licence Representatives [A-19].
3	(l) a description of any proposed financial guarantee relating to the activity to be licensed; and	CNL understands the requirement for an acceptable financial guarantee. While ownership of CNL has transferred to Canadian National Energy Alliance, Atomic Energy of Canada Limited retains ownership of the lands, assets and liabilities associated with CNL's licences. These liabilities have been officially recognized by the Minister of Natural Resources in a letter dated 2015 July 31 [A-3]. This recognition was reaffirmed by AECL to CNL on 2020 August 12 [A-4].
3	(m) any other information required by the Act or the Regulations made under the Act for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment, or prescribed information to be encompassed by the licence.	CNL understands this requirement and will provide any other additional information upon request. Substantiation of the information included with this application is demonstrated through the implementation of annual reporting requirements. An annual summary report of compliance monitoring and operational performance is submitted to CNSC staff, as per the requirement of SCA "Operating Performance" Licence Condition 3.2: Reporting Requirements of the CRL LCH [A-9].

Section	Requirement	CNL Response
		This report provides information on operational practices, maintenance of the facilities and the laboratories, and presents a summary of performance for each of the Safety and Control Areas.
3	(1.1) The Commission or a designated officer authorized under paragraph 37(2)(c) of the Act, may require any other information that is necessary to enable the Commission or the designated officer to determine whether the applicant: (a) is qualified to carry on the activity to be licensed; or	CNL understands this requirement and will provide any other additional information upon request. The framework for CNL to carry out licensed activities is covered through the CNL Management System Manual [A-18] and lower tier documents. The management system describes the relevant statutory, regulatory, contractual, and corporate frameworks within which CNL exists and operates. The CNL Management System is summarized in Appendix A of the NSDF Safety Case [A-6].
3	(b) will, in carrying on 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.	CNL understands this requirement and will provide any other additional information upon request. Environmental protection at CRL is ensured through implementation of the CNL Environmental Protection Program [A-16], [A-17], as per Safety and Control Area (SCA) "Environmental Protection" Licence Condition 9.1: Environmental Protection Program of the CRL LCH [A-9]. Conventional health and safety at CRL is ensured through implementation of the CNL Occupational Safety and Health Program [A-20], [A-21] as per Safety and Control Area (SCA) "Conventional Health and Safety" Licence Condition 8.1: Conventional Health and Safety Program of the CRL LCH [A-9].

Section	Requirement	CNL Response
		Safeguards and Non-Proliferation at CRL is ensured through implementation of the CNL Nuclear Materials and Safeguards Management Program [A-22], [A-23], as per Safety and Control Area (SCA) "Safeguards and Non-Proliferation" Licence Condition 13.1: Safeguards Program of the CRL LCH [A-9].
3	(2) Subsection (1) does not apply in respect of an application for a licence to import or export for which the information requirements are prescribed by the *Nuclear Non-Proliferation Import and Export Control Regulations*, or in respect of an application for a licence to transport while in transit for which the information requirements are prescribed by the *Packaging and Transport of Nuclear Substances Regulations*, 2015.	CNL understands this requirement and will provide any other additional information upon request. Compliance is ensured through implementation of the CNL Nuclear Materials and Safeguards Management Program [A-22], [A-23] as per Safety and Control Area (SCA) "Safeguards and Non-Proliferation" Licence Condition 13.1: Safeguards Program and the CNL Transportation of Dangerous Goods Program [A-14], [A-15] as per SCA "Packaging and Transport", Licence Condition 14.1: Packaging and Transport Program of the CRL LCH [A-9].
6	An application for the amendment, revocation or replacement of a licence shall contain the following information: (a) a description of the amendment, revocation or replacement and of the measures that will be taken and the methods and procedures that will be used to implement it;	This attachment with the cover letter provides the information required by the NSCA (the Act) and the Regulations made pursuant to the Act and constitute, in part, an application by CNL to amend its Chalk River Laboratories (CRL) operating licence [A-2] to prepare the site and construct the NSDF. The NSDF Safety Case [A-6] provides additional supporting detail on the proposed amendment.
6	(b) a statement identifying the changes in the information contained in the most recent application for the licence;	A Facility Authorization for the NSDF [A-24] was prepared and submitted to the CNSC.
6	(c) a description of the nuclear substances, land, areas, buildings, structures, components, equipment and systems that will be affected by the amendment, revocation or replacement and of the manner in which they will be affected; and	Information is provided in Section 2, Section 5, Section 6, Section 7 and Section 8 of the NSDF SAR [A-25], and summarized in Section 3 of the NSDF Safety Case [A-6].

Section	Requirement	CNL Response
6	(d) the proposed starting date and the expected completion date of any modification encompassed by the application.	The proposed starting date of the NSDF construction is 2022 and the planned completion date is 2025. Operation of the NSDF is proposed to begin in 2025 and continue for 50 years.
7	An application for a licence or for the renewal, suspension in whole or in part, amendment, revocation or replacement of a licence may incorporate by reference any information that is included in a valid, expired or revoked licence.	The Clause is understood and no response is required.
15	Every applicant for a licence and every licensee shall notify the Commission of: (a) the persons who have authority to act for them in their dealings with the Commission;	CNL's Organizational structure for the operation of CRL is documented in the CNL Management System Manual [A-18] and Site Licences, Certificates, Permits, Building/Facility Contacts, & Licence Representatives [A-19].
15	(b) the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence; and	CNL's Organizational structure for the operation of CRL is documented in the CNL Management System Manual [A-18] and Site Licences, Certificates, Permits, Building/Facility Contacts, & Licence Representatives [A-19].
15	(c) any change in the information referred to in paragraphs (a) and (b), within 15 days after the change occurs.	The Clause is understood, and no response is required.

Section	Requirement	CNL Response
Class I Nuclear Facilities Regulations [A-26]		
3	An application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the following information in addition to the information required by Section 3 of the *General Nuclear Safety and Control Regulations*: (a) a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;	Appendix B of the NSDF Safety Case [A-6] provides the concordance table for the Class I Nuclear Facilities Regulations. Information is provided in Section 3 of the NSDF Safety Case [A-6].
3	b) plans showing the location, perimeter, areas, structures, and systems of the nuclear facility;	Information is provided in Section 3 of the NSDF Safety Case [A-6].
3	(c) evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed;	Atomic Energy of Canada Limited maintains the ownership of the CRL site [A-27] and authorizes CNL to conduct licensed activities at the CRL site. This is captured in licence condition G5: Financial Guarantee of the NSDF LCH [A-9].
3	(d) the proposed quality assurance program for the activity to be licensed, including measures to promote and support safety culture ;	The CNL Management System Manual [A-18] incorporates the Quality program [A-28], [A-29] and complies with the Class I Nuclear Facilities Regulations. Information is provided in Appendix A of the NSDF Safety Case [A-6].
3	(d.1) the proposed human performance program for the activity to be licensed, including measures to ensure workers' fitness for duty.	Compliance with the requirements for human performance at CRL is ensured through implementation of the Performance Assurance Program [A-30] [A-31] as per SCA "Human Performance Management", licence condition 2.1: Human Performance Program of the CRL LCH [A-9]
3	(e) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on;	Information on non-radiological wastes (hazardous substances) is provided in Section 3 of the NSDF Safety Case [A-6].

Section	Requirement	CNL Response
		Comprehensive information on name, form, characteristics, and quantity of hazardous substances is made available to CNL staff through the Occupational Safety and Health Program web-site.
3	(f) the proposed worker health and safety policies and procedures;	Compliance with the requirements for worker health and safety at CRL is ensured through implementation of the Occupational Safety and Health Program [A-20], [A-21] as per SCA "Conventional Health and Safety", licence condition 8.1: Conventional Health and Safety Program of the CRL LCH [A-9].
3	(g) the proposed environmental protection policies and procedures;	Compliance with the requirements for environmental protection at CRL is ensured through implementation of the Environmental Protection Program [A-16], [A-17] as per SCA "Environmental Protection", licence condition 9.1: Environmental Protection Program of the CRL LCH [A-9].
3	(h) the proposed effluent and environmental monitoring programs;	Information is provided in [A-32] and [A-33]. Additional information is found in Section 7 of the NSDF Safety Case [A-6] and Section 11.0 of the NSDF Environmental Impact Statement (EIS) [A-34].
3	(i) if the application is in respect of a nuclear facility referred to in paragraph 2(b) of the *Nuclear Security Regulations*, the information required by Section 3 of those Regulations;	Paragraph 2(b) of the Nuclear Security Regulations [A-35] refers to "a nuclear power plant"; therefore this Clause does not apply to the NSDF.
3	(j) the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed; and	Compliance with the requirements for notification to local residents and associated activities is ensured through implementation of the Public Information Program and Public Disclosure as per licence condition G6: Public Information and Disclosure Program of the CRL LCH [A-9]. Additional compliance is ensured through the CNL Emergency Preparedness Program [A-36], [A-37] as per SCA "Emergency

Section	Requirement	CNL Response
		Management and Fire Protection", licence condition 10.1: Emergency Preparedness Program of the CRL LCH [A-9].
3	(k) the proposed plan for the decommissioning of the nuclear facility or of the site.	Information is provided in the Preliminary Decommissioning Plan [A-38].
4	An application for a licence to prepare a site for a Class I nuclear facility shall contain the following information in addition to the information required by Section 3 : (a) a description of the site evaluation process and of the investigations and preparatory work that have been and will be done on the site and in the surrounding area;	Information is provided in Section 5 of the NSDF Safety Case [A-6].
4	(b) a description of the site's susceptibility to human activity and natural phenomena, including seismic events, tornadoes and floods;	Information is provided in Section 3, Section 4 and Section 5 of the NSDF Safety Case [A-6].
4	(c) the proposed program to determine the environmental baseline characteristics of the site and the surrounding area;	Information is provided in Section 5 of the NSDF EIS [A-34].
4	(d) the proposed quality assurance program for the design of the nuclear facility; and	Information is provided in Section 3 of Design Description [A-39] and the Quality Program [A-28] and [A-29] as well as summarized in Section 5 of the NSDF Safety Case [A-6].
4	(e) the effects on the environment and the health and safety of persons that may result from the activity to be licensed, and the measures that will be taken to prevent or mitigate those effects.	Information is provided in Section 5 of the NSDF EIS [A-34].
5	An application for a licence to construct a Class I nuclear facility shall contain the following information in addition to the information required by Section 3:	Information is provided in, Section 3 and Section 5 of the NSDF Safety Case [A-6].

Section	Requirement	CNL Response
	(a) a description of the proposed design of the nuclear facility, including the manner in which the physical and environmental characteristics of the site are taken into account in the design;	
5	(b) a description of the environmental baseline characteristics of the site and the surrounding area;	Information is provided in Section 5 of the NSDF EIS [A-34].
5	(c) the proposed construction program, including its schedule;	Construction activities will be performed in accordance with the CNL Construction Program [A-40], [A-41] as per SCA "Operating Performance", licence condition 3.1: Operating Program of the CRL LCH [A-9]. CNL proposes to begin construction in 2022 and complete construction in 2025.
5	(d) a description of the structures proposed to be built as part of the nuclear facility, including their design and their design characteristics;	Information is provided in Section 5 and Section 6 of the NSDF SAR [A-25].
5	(e) a description of the systems and equipment proposed to be installed at the nuclear facility, including their design and their design operating conditions;	Information is provided in Section 5, Section 6, Section 7 and Section 8 of the NSDF SAR [A-25].
5	(f) a preliminary safety analysis report demonstrating the adequacy of the design of the nuclear facility;	Information is provided in the NSDF SAR [A-25].
5	(g) the proposed quality assurance program for the design of the nuclear facility;	Information is provided in Section 3 of Design Description [A-39] and the Quality Program [A-28] and [A-29], as well as summarized in Section 5 of the NSDF Safety Case [A-6].
5	(h) the proposed measures to facilitate Canada's compliance with any applicable safeguards agreement;	Safeguards and Non-Proliferation at CRL is ensured through implementation of the CNL Nuclear Materials and Safeguards Management Program [A-22], [A-23], as per Safety and Control Area (SCA) "Safeguards and Non-Proliferation" Licence Condition 13.1; Safeguards Program of the CRL LCH [A-9].

Section	Requirement	CNL Response
5	(i) the effects on the environment and the health and safety of persons that may result from the construction, operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;	Information is provided in Section 5 of the NSDF EIS [A-34].
5	(j) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;	Information is provided in Section 3 and Section 5 of the NSDF EIS [A-34].
5	(k) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;	Information is provided in Section 3 and Section 5 of the NSDF EIS [A-34].
5	(l) the proposed program and schedule for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility; and	Compliance with the requirements for training and qualification at CRL is ensured through implementation of the CNL Training and Development Program [A-42], [A-43] as per SCA “Human Performance Management”, licence condition 2.2: Training Program of the CRL LCH [A-9].
5	(m) a description of any proposed full-scope training simulator for the nuclear facility.	This Clause is not relevant to this application.
6	An application for a licence to operate a Class I nuclear facility shall contain the following information in addition to the information required by Section 3 : (a) a description of the structures at the nuclear facility, including their design and their design operating conditions;	Information is provided in Section 5, Section 6, Section 7, and Section 15 of the NSDF SAR [A-25].

Section	Requirement	CNL Response
6	(b) a description of the systems and equipment at the nuclear facility, including their design and their design operating conditions;	Information is provided in Section 5, Section 6, Section 7, Section 8, and Section 15 of the NSDF SAR [A-25].
6	(c) a final safety analysis report demonstrating the adequacy of the design of the nuclear facility;	Information is provided in the NSDF SAR [A-25].
6	(d) the proposed measures, policies, methods, and procedures for operating and maintaining the nuclear facility;	Operating the NSDF is governed through implementation of the CNL Conduct of Operations Program [A-44], [A-45] as per SCA "Operating Performance", licence condition 3.1: Operating Program of the CRL LCH [A-9]. Maintenance of the NSDF is governed through implementation of the CNL Maintenance and Work Management Program [A-46], [A-47] and the CNL Equipment Reliability Program [A-48], [A-49] as per SCA "Fitness for Service", licence condition 6.1: Fitness for Service Program of the CRL LCH [A-9]. This information is summarized in Section 10 of the NSDF SAR [A-25].
6	(e) the proposed procedures for handling, storing, loading, and transporting nuclear substances and hazardous substances;	The CNL Transportation of Dangerous Goods Program [A-14], [A-15] as per SCA "Packaging and Transport", Licence Condition 14.1: Packaging and Transport Program of the CRL LCH [A-9] addresses this Clause. Additional information is summarized in Section 9 of the NSDF SAR [A-25].
6	(f) the proposed measures to facilitate Canada's compliance with any applicable safeguards agreement;	Safeguards and Non-Proliferation at CRL is ensured through implementation of the CNL Nuclear Materials and Safeguards Management Program [A-22], [A-23], as per Safety and Control Area (SCA) "Safeguards and Non-Proliferation" Licence Condition 13.1; Safeguards Program of the CRL LCH [A-9].

Section	Requirement	CNL Response
6	(g) the proposed commissioning program for the systems and equipment that will be used at the nuclear facility;	Commissioning the NSDF is governed through implementation of the Commissioning program [A-50], [A-51] as per SCA "Operating Performance", licence condition 3.1: Operating Program of the CRL LCH [A-9]. Information is provided in Section 12 of the NSDF SAR [A-25].
6	(h) the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;	Information is provided in Section 5 of the NSDF EIS [A-34], as well as summarized in Section 14 of the NSDF SAR [A-25].
6	(i) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;	Information is provided in Section 3 of the NSDF EIS [A-34], as well as summarized in Section 6, Section 14 and Section 15 of the NSDF SAR [A-25].
6	(j) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;	Compliance with the requirements for environmental protection at CRL is ensured through implementation of the CNL Environmental Protection Program [A-16], [A-17] as per SCA "Environmental Protection", licence condition 9.1: Environmental Protection Program of the CRL LCH [A-9]. Information is provided in of the Section 11 of the NSDF EIS [A-34] and Section 15 of the NSDF SAR [A-25].
6	(k) the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security, including measures to	Compliance with the requirements to mitigate the effects of accidental releases is ensured through implementation of the: • Environmental Protection Program [A-16], [A-17] as per SCA "Environmental Protection", licence condition 9.1: Environmental Protection Program of the CRL LCH [A-9].

Section	Requirement	CNL Response
		• Emergency Preparedness Program [A-36], [A-37] as per SCA "Emergency Management and Fire Protection", licence condition 10.1: Emergency Preparedness Program of the CRL LCH [A-9]. • Radiation Protection Program [A-7], [A-8] as per SCA "Radiation Protection", licence condition 7.1: Radiation Protection Program of the CRL LCH [A-9]. Information is summarized in Section 14 and Section 15 of the NSDF SAR [A-25].
6 (k)	(i) assist off-site authorities in planning and preparing to limit the effects of an accidental release,	See response under introduction to item 6 (k) above.
6 (k)	(ii) notify off-site authorities of an accidental release or the imminence of an accidental release,	See response under introduction to item 6 (k) above.
6 (k)	(iii) report information to off-site authorities during and after an accidental release,	See response under introduction to item 6 (k) above.
6 (k)	(iv) assist off-site authorities in dealing with the effects of an accidental release, and	See response under introduction to item 6 (k) above.
6 (k)	(v) test the implementation of the measures to prevent or mitigate the effects of an accidental release;	See response under introduction to item 6 (k) above.
6	(l) the proposed measures to prevent acts of sabotage or attempted sabotage at the nuclear facility, including measures to alert the licensee to such acts;	Compliance with the requirements for security at CRL is ensured through implementation of the CNL Security Program [A-10], [A-11] and the CNL Cyber Security Program [A-12], [A-13] as per SCA "Security", licence condition 12.1: Security Program of the CRL LCH [A-9].
6	(m) the proposed responsibilities of and qualification requirements and training program for workers, including the procedures for the requalification of workers; and	Compliance with the requirements for training and qualification at CRL is ensured through implementation of the CNL Training and Development Program [A-42], [A-43] as per SCA "Human Performance Management", licence condition 2.2: Training Program of the CRL LCH [A-9].

Section	Requirement	CNL Response
		Information is summarized in Section 10 of the NSDF SAR [A-25].
6	(n) the results that have been achieved in implementing the program for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility.	Compliance with the requirements for training and qualification at CRL is ensured through implementation of the CNL Training and Development Program [A-42], [A-43] as per SCA "Human Performance Management", licence condition 2.2: Training Program of the CRL LCH [A-9].
14	(1) Every licensee shall keep a record of the results of the effluent and environmental monitoring programs referred to in the licence.	Information is provided in the CNL Information Management Program [A-52] and [A-53].
14	(2) Every licensee who operates a Class I nuclear facility shall keep a record of (a) operating and maintenance procedures;	CNL understands the Clause and no response is required.
14	(b) the results of the commissioning program referred to in the licence;	CNL understands the Clause and no response is required.
14	(c) the results of the inspection and maintenance programs referred to in the licence;	CNL understands the Clause and no response is required.
14	(d) the nature and amount of radiation, nuclear substances and hazardous substances within the nuclear facility; and	Information on radiological and non-radiological (hazardous) wastes may be found in Section 5 and Section 6 of the NSDF SAR [A-25].
14	(e) the status of each worker's qualifications, requalification and training, including the results of all tests and examinations completed in accordance with the licence.	Compliance with the requirements for training and qualification at CRL is ensured through implementation of the CNL Training and Development program [A-42], [A-43] as per SCA "Human Performance Management", licence condition 2.2: Training Program of the CRL LCH [A-9]. Specific and generic position descriptions exist within each facility to define responsibilities and qualification requirements for workers. Training plans are established accordingly, based on these defined requirements.

Section	Requirement	CNL Response
14	(4) Every person who is required by this section to keep a record referred to in paragraph (2)(a) to (d) or (3)(a) to (d) shall retain the record for 10 years after the expiry date of the licence to abandon issued in respect of the Class I nuclear facility.	CNL understands the Clause and no response is required.
14	(5) Every person who is required by this section to keep a record referred to in paragraph (2)(e) or (3)(e) shall retain the record for the period that the worker is employed by the licensee and for five years after the worker ceases to be so employed.	CNL understands the Clause and no response is required.

References:

[A-1] *Nuclear Safety and Control Act*, S.C. 1997, c.9.
[A-2] *Nuclear Research and Test Establishment Operating Licence, Chalk River Laboratories*, NRTEOL-01.00/2028.
[A-3] Rickford, G., (NRCan), Letter to Binder, M., (CNSC), *untitled, relating to provision of financial guarantees for CNL sites in Canada*, 145-NRCANNO-15-0001-L, 2015 July 31.
[A-4] Boyle, P. (CNL), Letter to Murthy, K. (CNSC), *Submission of Information Regarding Financial Guarantees for All Atomic Energy of Canada Limited Sites Operated by Canadian Nuclear Laboratories,* 145-CNNO-20-0028-L, 2020 August 25.
[A-5] *General Nuclear Safety and Control Regulations*, SOR/2000-202.
[A-6] *Near Surface Disposal Facility Safety Case*, 232-03610-SAR-001, Revision 2, 2021 January.
[A-7] *Radiation Protection Program Requirements Document*, 900-508740-PRD-001, Revision 3, 2018 June.
[A-8] *Radiation Protection Program Description Document*, 900-508740-PDD-001, Revision 0, 2017 March.
[A-9] Canadian Nuclear Safety Commission, *Licence Conditions Handbook*, NRTEOL-LCH-01.00/2028, CRL-508760-HBK-002, Revision 2, Effective 2021 February 28.
[A-10] *Security Program Requirements Document*, 900-508710-PRD-001, Revision 2, 2020 April.
[A-11] *Security Program Description Documen*t, 900-508710-PDD-001, Revision 3, 2019 December.
[A-12] *Cyber Security Program Requirements Document*, 900-511400-PRD-001, Revision 2, 2021 January.
[A-13] *Cyber Security Program Description Document*, 900-511400-PDD-001, Revision 1, 2020 September.
[A-14] *Transportation of Dangerous Goods Program Requirements Document*, 900-508520-PRD-001, Revision 2, 2021 January.
[A-15] *Transportation of Dangerous Goods Program Description Document*, 900-508520-PDD-001, Revision 1, 2019 November.
[A-16] *Environmental Protection Program Requirements Document*, 900-509200-PRD-001, Revision 2, 2018 May.
[A-17] *Environmental Protection Program Description Document*, 900-509200-PDD-001, Revision 2, 2018 July.
[A-18] *CNL Management System Manual*, 900-514100-MAN-001, Revision 1, 2020 August.
[A-19] *Site Licences, Certificates, Permits, Building/Facility Contacts, & Licence Representative*s, 900-514300-LST-001, Revision 9, 2020 July.
[A-20] *Occupational Safety and Health Program Requirements Document*, 900-510400-PRD-001, Revision 1, 2017 April.
[A-21] *Occupational Safety and Health Program Description Document*, 900-510400-PRD-001, Revision 2, 2018 April.
[A-22] *Nuclear Materials and Safeguards Management Program Requirements Document*, 900-50510-PRD-001, Revision 2, 2019 March.

[A-23] *Nuclear Materials and Safeguards Management Program Description*, 900-508510-PDD-001, Revision 2, 2020 April.
[A-24] *Facility Authorization for the Operation of the Near Surface Disposal Facility at the Chalk River Laboratories*, 232-00583-FA-001, Revision 3, 2020 October.
[A-25] *Near Surface Disposal Facility Safety Analysis Report*, 232-508770-SAR-002, Revision 2, 2020 October.
[A-26] *Class I Nuclear Facilities Regulations*, SOR/2000-204.
[A-27] Amrouni, J. C., Letter to Howden, B.D., *CRL Deed*, JCA-00-033, 2002 May 02.
[A-28] *Quality, Program Requirements Document*, 900-514200-PRD-001, Revision 1, 2019 August.
[A-29] *Quality, Program Description Document*, 900-514200-PDD-001, Revision 0, 2019 June.
[A-30] *Performance Assurance Program Description Document*, 900-51400-PDD-001, Revision 1, 2020 November.
[A-31] *Performance Assurance Program Description Document*, 900-51400-PRD-001, Revision 2, 2020 November.
[A-32] *Management and Monitoring of Emissions*, 900-509200-STD-009, Revision 0, 2018 March.
[A-33] *Environmental Monitoring Program*, 900-509200-STD-010, Revision 0, 2018 October.
[A-34] *Environmental Impact Statement*, 232-509220-REPT-004, Revision 2, 2020 December.
[A-35] *Nuclear Security Regulations*, SOR/2000-209.
[A-36] *Emergency Preparedness Program Requirements Document*, 900-508730-PRD-001, Revision 1, 2019 June.
[A-37] *Emergency Preparedness Program Description Document*, 900-508730-PDD-001, Revision 2, 2020 January.
[A-38] *Preliminary Decommissioning Pla*n, 232-508300-PLA-001. Revision 1. 2018 August.
[A-39] *Design Description*, 232-503212-DD-001, Revision 1 2019 May.
[A-40] *Construction Program Requirements Document*, 900-505240-PRD-001, Revision 1, 2019 May.
[A-41] *Construction Program Description Document*, 900-505240-PDD-001, Revision 1, 2019 May.
[A-42] *Training and Development, Program Requirements Document*, 900-510200-PRD-001, Revision 3, 2020 November.
[A-43] *Training and Development, Program Description Document*, 900-510200-PDD-001, Revision 3, 2020 March.
[A-44] *Conduct of Operations, Program Requirements Document*, 900-508200-PRD-001, Revision 3, 2020 November.
[A-45] *Conduct of Operations, Program Description Document*, 900-508200-PDD-001, Revision 4, 2020 December.
[A-46] *Maintenance and Work Management, Program Requirements Document*, 900-508230-PRD-001, Revision 1, 2019 March.
[A-47] *Maintenance and Work Management, Program Description Document*, 900-508230-PDD-001, Revision 1, 2019 March.
[A-48] *Equipment Reliability Program Requirements Document*, 900-508230-PRD-002, Revision 0, 2017 February.
[A-49] *Equipment Reliability Program Description Document*, 900-508230-PDD-002, Revision 0, 2017 February.

[A-50] *Commissioning Program Requirements Document*, 900-505250-PRD-001, Revision 0, 2017 March.
[A-51] *Commissioning Program Description Document*, 900-505250-PDD-001, Revision 1, 2019 January.
[A-52] *Information Management Program Requirements Document*, 900-511300-PRD-001, Revision 2, 2019 June.
[A-53] *Information Management Program Description Document*, 900-511300-PDD-001, Revision 2, 2019 March.

Attachment B
NSDF Supporting Documents by Safety Control Area

Safety and Control Area	2017 Application [2]			2021 Updated Application		
	NSDF Documentation	NSDF Document Number	Submission Date to CNSC	NSDF Documentation	NSDF Document Number	Submission Date to CNSC
Management System	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document
Human Performance Management	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document
Operating Performance	Waste Management Areas Facility Authorization	WMA-00583-FA-001	2017 April 28	Facility Authorization for the Operation of the Near Surface Disposal Facility at the Chalk River Laboratories	232-00583-FA-001	2020 October 15
	Construction schedule	232-80000-062-000	2017 March 31	No change	No change	No change
				Commissioning Plan	232-505250-PLA-001	2019 May 8
				Construction Quality Assurance Plan	232-508244-QAP-001	2019 September 27
Safety Analysis	Performance Assessment for Near Surface Disposal Facility to Support the Environmental Impact Statement	232-509240-ASD-001	2017 March 17	Post-Closure Safety Assessment, 3rd Iteration	232-509240-ASD-004	2020 December 22

	And Performance Assessment for Near Surface Disposal Facility - 100% Design		2017 April 28			
	Safety Analysis Report Revision D2 (60% Design) and Safety Analysis Report	232-503230-SAR-001	2017 January 16 2017 April28	Near Surface Disposal Facility Safety Analysis Report	232-508770-SAR-002	2020 October 16
				Near Surface Disposal Facility Safety Case	232-03610-SAR-001	2021 January 8
				Criticality Safety Document (CSD)	232-503230-CSD-001	2020 August 31
				Fire Hazard Analysis (FHA)	232-503230-FHA-001	2019 August 7
				NSDF Safety-Related Systems List	232-503230-SRSL-001	2019 January 8
				Hazard Identification and Analysis	232-503230-HA-002 and Addendum 232-503230-REPT-002	2019 August 23 2020 August 14
Physical Design				Near Surface Disposal Facility Design Requirements	232-503212-DR-001	2019 May 21

	Detailed Design Description Report.	232-503212-REPT-003	2017 April 28	Near Surface Disposal Facility Design Description	232-503212-DD-001	2019 June 14
				Bearing Capacity, Settlement and Lateral Earth Pressure Analysis	232-503212-REPT-010	2019 April 30
				Slope Stability Analysis	232-503212-REPT-011	2019 July 30
				Seismic Analysis & Structural Calculation	232-503212-DK-003	2019 July 30
				Seismic Analysis	232-503212-REPT-015	2019 July 30
				Seismic Criteria and Assessment	232-01040-ASD-001	2019 July 30
				Base Liner and Final Cover Evaluation and Optimization	232-508600-TN-002	2019 April 4
Fitness for Service	Post-Closure Care Plan	232-508220-PLA-004	March 31, 2017	No Change	No Change	No Change
				Operations and Maintenance Plan	232-508220-PLA-006	2019 September 20
Radiation Protection				Near Surface Disposal Facility ALARA Assessment and Memorandum, NSDF Project	232-508740-ASD-001 232-508740-041-000	2020 March 24 2020 November 30

				ALARA Assessment		
				Radiation Protection Plan	232-508740-RWP-001	2019 April 16
Conventional Health and Safety	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document
Environmental Protection				WWTP Treated Effluent Discharge Options	232-106499-REPT-001	2018 September 19
				Near Surface Disposal Facility Effluent Discharge Targets	232-106499-REPT-002	2019 October 18
Emergency Preparedness and Fire Protection	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document
Waste Management	Waste Placement and Compaction Plan	B1550-508600-PLA-001	2017 April 28	Waste Placement and Compaction Plan	B1550-508600-PLA-001	2019 December 9
	Waste Acceptance Criteria	232-508600-WAC-002	2017 April 28	Near Surface Disposal Facility Waste Acceptance Criteria	232-508600-WAC-003	2020 November 13
				Waste Characterization	232-508600-REPT-002	2020 February 24
	Preliminary Decommissioning Plan	232-508300-PLA-001	March 31, 2017	No change	No change	No change

				Near Surface Disposal Facility Reference Inventory Report	232-508600-REPT-003	2020 April 3
				Near Surface Disposal Facility (NSDF) Non-Radiological Inventory of Constituents of Potential Concern (COPC)	232-508600-TN-007	2019 November 5
Security	Security compliance letter	119-NOCN-17-0030-L 119-CNNO-17-0012-L	April 28, 2017	No change	No change	No change
Safeguards and Non-Proliferation	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document
Packaging and Transport	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document	No NSDF specific document