



Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

## Record of Decision

DEC 19-H4

In the Matter of

Applicant Canadian Nuclear Laboratories Ltd.

Subject Application for the Renewal of the Nuclear  
Research and Test Establishment  
Decommissioning Licence for Whiteshell  
Laboratories

Public Hearing  
Date October 2-3, 2019

Record of  
Decision Date December 19, 2019

## RECORD OF DECISION – DEC 19-H4

Applicant: Canadian Nuclear Laboratories Ltd

Address/Location: 286 Plant Road  
Chalk River, Ontario  
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Purpose: Application for the Renewal of the Nuclear Research and Test Establishment Decommissioning Licence for Whiteshell Laboratories

Application received: November 15, 2018

Date of public hearing: October 2-3, 2019

Location: Lac du Bonnet Community Centre, Lions Hall, 25 McArthur Avenue, Lac du Bonnet, Manitoba

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Secretary: M. Leblanc  
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**Licence: Renewed**

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## 1.0 INTRODUCTION

1. Canadian Nuclear Laboratories Ltd. (CNL) has applied to the Canadian Nuclear Safety Commission<sup>1</sup> (CNSC) for the renewal of the Nuclear Research and Test Establishment Decommissioning Licence (NRTEDL) for its Whiteshell Laboratories (WL), located in Pinawa, Manitoba. The current licence, NRTEDL-W5-8.05/2019, which expires on December 31, 2019, allows CNL to operate and decommission WL. CNL requested a licence renewal for a period of 10 years.
2. The WL site encompasses an area of approximately 4,375 hectares and includes facilities such as the Whiteshell reactor (WR-1 reactor), shielded facilities, radioactive waste management facilities and structures, a concrete canister storage area and various research laboratories and support buildings. WL operated as a nuclear research facility for approximately 40 years. During this time, the WR-1 reactor operated for a period of 20 years.
3. In February 2019, up to \$50,000 in funding to participate in this licensing process was made available to Indigenous groups, not-for-profit organizations and members of the public through the CNSC's Participant Funding Program (PFP). A Funding Review Committee, independent of the CNSC, recommended that up to \$63,300 in participant funding be provided to five applicants. These applicants were required, by virtue of being awarded participant funding, to submit a written intervention and make an oral presentation at the public hearing commenting on CNL's application.
4. The Commission wishes to make clear that the scope of CNL's licence renewal application and of this public hearing was the renewal of the WL licence. This hearing did not consider the *in situ* decommissioning of the WR-1 reactor that has been proposed by CNL. The Commission understands that the proposed *in situ* decommissioning of the WR-1 reactor is an important concern for intervenors, as raised in several interventions. Those issues are outside the scope of these proceedings and the Commission will consider the concerns raised by Indigenous peoples, members of the public and other stakeholders regarding the proposed *in situ* decommissioning of the WR-1 reactor, as well as the EA for the proposed decommissioning method, through a future public Commission hearing, that will provide an opportunity for public participation.

### Issues

5. In considering the application, the Commission was required to decide:
  - a) what environmental assessment review process to apply in relation to this application;

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<sup>1</sup> The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

- b) whether CNL is qualified to carry on the activity that the licence would authorize; and
- c) whether, in carrying on that activity, CNL would 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.

### Public Hearing

6. The Commission, in making its decision, considered information presented for a public hearing held on October 2-3, 2019 in Lac du Bonnet, Manitoba. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*<sup>2</sup> (the Rules). During the hearing, the Commission considered written submissions and heard oral presentations from CNL (CMD 19-H4.1, CMD 19-H4.1A, CMD 19-H4.1B and CMD 19-H4.1C) and CNSC staff (CMD 19-H4, CMD 19-H4.A, CMD 19-H4.B, CMD 19-H4.C and CMD 19-H4.D). The Commission also considered oral and written submissions from 11 intervenors (see Appendix A for a list of interventions). The hearing was webcast live via the CNSC website, and video archives are available on the CNSC's website.

### Request for Ruling

7. On October 2, 2019, the Canadian Environmental Law Association (CELA) filed a ruling request<sup>3</sup> pursuant to Rule 20(1) of the Rules. The Commission acknowledged receipt of the request during the hearing and indicated that the Commission would consider the ruling request during its deliberations.
8. As stated in a previous decision,<sup>4</sup> the Commission has made its Rules and interprets them in light of the direction Parliament gave to the Commission in subsection 20(3) of the NSCA, that it deal with all proceedings “as informally and expeditiously as the circumstances and considerations of fairness permit.” In this context, Rule 20 contemplates that a participant in a public hearing may request that the Commission rule on a particular issue. Such a request may be made at any time before the start of a public hearing or during a public hearing. The rule contemplates that the “relevant persons” – those whose interests might be affected by the ruling that is requested – have notice of a request and have an opportunity to present their views on it, before a ruling may be made.

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<sup>2</sup> Statutory Orders and Regulations (SOR)/2000-211.

<sup>3</sup> CMD 19 H4.13, *Request for Ruling from the Canadian Environmental Law Association*, October 2, 2019.

<sup>4</sup> Canadian Nuclear Safety Commission Record of Decision, *Application to Renew the Nuclear Power Reactor Operating Licence for the Pickering Nuclear Generating Station*, issued December 2018.

9. The intervenor requested “that the Commission in its Record of Decision actively support, advance and implement the Winnipeg Nuclear Declaration 2018 in respect to the Right to Nuclear Peace and Freedom from Nuclear Fear.” The Commission determined that consultation with persons whose interests may be affected by the ruling requested was not required for this matter as it was determined that this request was outside the scope of this hearing.
10. Requests for ruling can contribute to the Commission ensuring that it conducts an expeditious and fair hearing. Such requests are always in the context of a particular hearing, and some requests for a ruling on a matter of substance or procedure can contribute to a fair hearing and should be dealt with specifically – a ruling on substance might narrow the scope of a hearing, for example, or might fully address a matter arising in a hearing, or might speak to the limiting of participation in a hearing, as contemplated in paragraph 2(b) of Rule 20. In such circumstances, the potential for specific rulings before or within a hearing is positive, and reliance on the rule, salutary. Requests for rulings are appropriate in respect of matters that either would not otherwise arise in a hearing and a participant feels a ruling would clarify or simplify a matter in some way, or would advance the Commission’s consideration of the subject-matter of the hearing in some way that merits separate treatment outside of or in addition to the flow of the hearing.
11. The Commission, as a quasi-judicial administrative tribunal, renders decisions that are within its legislated mandate and does not take a position on matters such as is contemplated by this ruling request. The Commission notes that Canada is a non-nuclear weapon country and that the Commission, in regulating the peaceful use of nuclear energy and materials, must be confident in its decision that licensees ensure maintenance of national security and measures required to implement international obligations to which Canada has agreed.

## **2.0 DECISION**

12. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Decision*, the Commission concludes that CNL is qualified to carry on the activity that the licence will authorize. The Commission is of the opinion that, in carrying on that activity, CNL will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Nuclear Research and Test Establishment Decommissioning Licence issued to Canadian Nuclear Laboratories Ltd. for its Whiteshell Laboratories located in Pinawa, Manitoba. The renewed licence, NRTEDL-W5-8.00/2024, is valid from January 1, 2020 until December 31, 2024.

13. Although CNL requested a ten-year licence renewal, the Commission considers that a licence for a period of five-year is more appropriate considering all the important activities to be carried out at this specific site in the next couple of years and the concerns raised by some intervenors. The five-year licence period will provide enough time for CNL to submit the Environmental Impact Statement for the proposed *in situ* decommissioning of the WR-1 reactor, which the Commission understands will be available in 2020, and the Safety Analysis Report for the underground low-level waste (LLW) trenches, which the Commission understands will be available by the end of 2023. Indigenous peoples and members of the public are invited to review and comment CNL's performance as part of the regular Regulatory Oversight Report (ROR), as well as during future licensing hearings.
14. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 19-H4, CMD 19-H4.A, CMD 19-H4.B and CMD 19-H4.C, including licence condition 12.2. The Commission also delegates authority for the purposes of licence condition 3.2, as recommended by CNSC staff.
15. The Commission is satisfied that an environmental assessment (EA) under the *Canadian Environmental Assessment Act, 2012*<sup>5</sup> (CEAA 2012) was not required for the renewal and considers the environmental protection review that was conducted by CNSC staff to be acceptable and thorough.
16. With this decision, the Commission directs CNSC staff to report on the performance of CNL and WL as part of a ROR. CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate. The Commission encourages Indigenous groups and members of the public to participate.
17. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission of any changes made to the Licence Conditions Handbook (LCH) as a component of the ROR.

### **3.0 ENVIRONMENTAL ASSESSMENT**

#### **3.1 Application of the *Canadian Environmental Assessment Act, 2012* and the *Impact Assessment Act***

18. In coming to its decision, the Commission was first required to determine whether an EA under the CEAA 2012 was required.
19. CNL's application was made November 15, 2018. At that time, the CEAA 2012 and its regulations were the environmental assessment regime in place and specified the requirements for EA for nuclear projects. The licence renewal of a facility is not

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<sup>5</sup> S.C. 2012, c. 19, s. 52

included on the Designated Project list for an EA, as renewing a licence is not an activity identified in the *Regulations Designating Physical Activities*.<sup>6</sup>

20. The application submitted by CNL is for a licence renewal and CNL is not requesting authorization to conduct new projects or new physical activities.<sup>7</sup> The Commission notes that a licence renewal is not a designated project under CEAA 2012. The Commission recognizes that the decommissioning of the WR-1 reactor triggered an EA under CEAA 2012 that is currently in process, with licensing for that project to be considered at a separate proceeding.
21. The *Impact Assessment Act*<sup>8</sup> (IAA) came into force on August 28, 2019. Under the IAA and the *Physical Activities Regulations*<sup>9</sup> made under it, impact assessments are to be conducted in respect of projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction. Since CNL's application was submitted to the CNSC prior to the coming into force of the IAA, the Commission is satisfied that the IAA does not apply to this licensing application.
22. Based on the information provided for this hearing, the Commission is satisfied that an EA under CEAA 2012 is not required in regard to this licence renewal.

### **3.2 CNSC Environmental Protection Review**

23. The Commission considered the completeness and adequacy of the environmental protection review under the *Nuclear Safety and Control Act*,<sup>10</sup> (NSCA) and its regulations that CNSC staff conducted for this licence renewal. CNSC staff findings included that:
  - CNL's environmental protection programs met CNSC regulatory requirements and results from CNL's and from other regional monitoring programs carried out by other levels of government confirmed that the environment and health of persons around the WL site remained protected.
  - CNSC staff concluded that the potential risk from physical stressors and radiological and hazardous releases to the atmospheric, terrestrial, hydrogeological, aquatic and human environment are low to negligible. As required by the regulation, CNSC staff will verify that CNL conducts a site-wide ERA in accordance with REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*<sup>11</sup> and CSA N288.6-12, *Environmental*

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<sup>6</sup> SOR/2012-147

<sup>7</sup> "Projects" as defined in section 66 of CEAA 2012.

<sup>8</sup> S.C. 2019, c. 28, s. 1

<sup>9</sup> SOR/2019-285

<sup>10</sup> Statutes of Canada (S.C.) 1997, chapter (c.) 9.

<sup>11</sup> CNSC Regulatory Document REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*, 2016.

*Risk Assessment at Class I Nuclear Facilities and Uranium Mines and Mills*<sup>12</sup> during the proposed licensing period.

- The 2017 sampling results from CNSC's Independent Environmental Monitoring Program (IEMP) confirmed that the environment and health of persons around the WL site were protected.

24. Based on the information provided on the record for this hearing, the Commission is satisfied that the environmental protection review conducted by CNSC staff for the WL licence renewal was acceptable and thorough. The Commission notes that the NSCA provides a strong regulatory framework for environmental protection, and the health and safety of persons. The Commission understands that an Environmental Risk Assessment (ERA) is currently underway and expects that the results from this ERA will form part of the information to be filed for the next licence renewal.

### **3.3 Conclusion on Environmental Assessment**

25. Based on the information provided for this hearing, the Commission concludes that the licence renewal is not a designated project under CEAA 2012 and that an EA under CEAA 2012 is not required. Further, the Commission is satisfied that CNL has made, and will continue to make, adequate provision for the protection of the environment throughout the proposed renewed licence period.
26. Following its consideration of the information provided on the record for this hearing, the Commission concludes that an environmental protection review conducted under the NSCA and its regulations was appropriate for this licence renewal application.

### **4.0 ISSUES AND COMMISSION FINDINGS**

27. In making its licensing decision, the Commission considered a number of issues and submissions relating to CNL's qualification to carry out the proposed licensed activities. The Commission also considered the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.
28. CNL submitted a licence renewal application for WL on November 15, 2018. In its consideration of this matter, the Commission examined the completeness of the application and the adequacy of the information submitted by CNL, as required by the NSCA, the *General Nuclear Safety and Control Regulations*<sup>13</sup> (GNSCR) and other

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<sup>12</sup> N288.6-12, *Environmental risk assessment at Class I nuclear facilities and uranium mines and mills*, CSA Group, 2012.

<sup>13</sup> SOR/2000-202.

applicable regulations made under the NSCA. The Commission also examined CNSC staff's assessment of CNL's performance in all 14 safety and control areas (SCAs) and in relation to several other matters of regulatory interest over the current licence period.<sup>14</sup>

#### 4.1 Management System

29. The Commission examined CNL's management system which covers the framework that establishes the processes and programs required to ensure that WL achieve its safety objectives, continuously monitor its performance against these objectives, and foster a healthy safety culture. CNSC staff rated CNL's performance in this SCA as "satisfactory" throughout the current licence period.
30. The Commission assessed the information submitted by CNL and CNSC staff regarding the WL management system. CNSC staff submitted that CNL implemented CSA N286-12, *Management system requirements for nuclear facilities*<sup>15</sup> to all CNL sites in a CNL-wide management system program with Quality Assurance Plans to describe site-specific functions, responsibilities and authorities. CNSC staff also submitted that the WL Decommissioning Quality Assurance Plan met the expectations set in CSA N286-12.
31. The Commission reviewed the information submitted by CNL regarding its organizational structure at WL. CNL described the government owned-contractor operated (GoCo) model that has been in place since 2015. CNL submitted that the organizational structure at WL identified the high-level responsibilities and authorities of the positions associated with its operations, as detailed in its organizational chart.
32. CNSC staff reported that it had no concerns regarding CNL organizational structure and confirmed that it was of the view that CNL's organization was suitable to ensure continued safe operation and compliance with regulatory requirements. CNSC staff also reported that its reviews showed that CNL appropriately documented the roles, responsibilities, accountabilities and authorities in its documentation.
33. The Commission examined the information provided by CNL in regard to facility management at WL. CNL submitted that it operated under eleven corporate policies, providing direction and expectations to management and employees for all business activities performed at WL.
34. CNL submitted that it developed software to support the operating experience process and that the software contained a reporting component for workers to report issues and opportunities for improvement. CNSC staff indicated that CNSC staff routinely

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<sup>14</sup> In this Record of Decision, when referring to the "current licence period", the Commission refers to the period including the current one-year licence issued on January 1, 2019, as well as the previous licence, which was valid from December 31, 2008 to December 31, 2018.

<sup>15</sup> N286-12, *Management system requirements for nuclear facilities*, CSA Group, 2012 (R2017).

reviewed the issues raised by CNL's employees and conducted field verifications of the completion of follow-up actions, where appropriate, during on-site inspection activities.

35. CNL provided the Commission with information on its change management program, noting that changes were made according to the Organizational Change Control process.

#### 4.1.1 Safety Culture

36. The Commission assessed the adequacy of CNL's safety culture at WL. CNL reported that a detailed safety culture assessment was executed in the fall of 2012 and that results indicated that, at that time, additional effort was required to ensure that standards and expectations were established and clearly communicated to CNL employees. CNL also reported that it had implemented a corrective action plan to enhance safety culture and described the measures that had been taken, such as the 2013 alignment of CNL's Nuclear Safety Policy with the Institute of Nuclear Power Operators' *Traits of a Healthy Nuclear Safety Culture*.<sup>16</sup>
37. CNL submitted detailed information about its monitoring of safety culture through frequent surveys, including in 2017 and 2018. CNL stated that results from the 2017 and 2018 surveys continued to show that results on safety and security aspects ranked the highest.
38. CNL indicated that attendance at nuclear safety culture courses was required for all of CNL's employees and that the courses were delivered to all new employees during orientation training. CNL added that programs and processes were implemented and maintained to ensure the fostering of a strong safety culture at WL.
39. CNL submitted that it conducted a company-wide safety stand-down on May 30, 2019, after indication that its industrial safety metrics were declining. CNL explained that the safety stand-down was devoted to increased safety awareness, the strengthening of work practices, and identifying emergent safety issues where immediate action would produce quick gains, in addition to recognizing issues where improvements would take longer time. CNSC staff indicated that it assisted the safety stand-down and that it was satisfied with CNL's promotion of health and safety awareness at WL.
40. The Commission is satisfied that CNL had maintained and will continue to maintain a strong safety culture at WL.

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<sup>16</sup> Institute of Nuclear Power Operators (INPO), INPO 12-012, *Traits of a Healthy Safety Culture* (Rev. 1), April 2013.

#### 4.1.2 Conclusion on Management System

41. On the basis of the information provided on the record for this hearing, the Commission concludes that CNL has appropriate organization and management structures in place and that the operating performance at WL in the current licence period provides a positive indication of CNL's ability to adequately carry out the activities under the proposed licence.

#### 4.2 Human Performance Management

42. The Commission assessed CNL's human performance management programs which encompass activities that enable effective human performance through the development and implementation of processes that ensure that the WL staff are sufficient in number in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties. During the current licence period, CNSC staff rated CNL's performance in this SCA as "satisfactory."
43. The Commission examined the information submitted by CNL regarding the WL human performance program and the improvements put in place by CNL during the current licence period to reduce human performance-related events and errors. CNL provided a list of improvement initiatives developed during the current licence period including the establishment of a Human Performance Steering Committee and the implementation of an Event Free Day Reset program at WL.
44. CNSC staff submitted that compliance inspections during the current licence period included verifications of the training records of employees in safety-related positions and a general verification of CNL's maintenance of a complement of competent and knowledgeable workforce at the WL. CNSC staff reported to the Commission that programs related to CNL's Human Performance Management activities at WL met the CNSC's regulatory requirements.
45. The Commission considered the information submitted by CNL about its personnel training programs. CNL informed the Commission that the application of the systematic approach to training (SAT) was mandatory for all personnel in direct operating positions in CNL nuclear facilities and that CNL's training procedures were aligned with REGDOC-2.2.2, *Personnel Training*, version 2.<sup>17</sup>
46. CNSC staff reported that CNL's program met specifications of REGDOC-2.2.2, version 2. CNSC staff submitted that its compliance verification activities determined that CNL had implemented and maintained appropriate training programs at WL.
47. The Commission assessed the information provided by CNL regarding the fitness for duty program at WL. CNL provided information elements of its fitness for duty program such as pre-employment medical screening for firefighters and drug and/or

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<sup>17</sup> CNSC Regulatory Document REGDOC-2.2.2, *Personnel Training*, version 2, 2016.

alcohol testing for post-incident response and investigation.

48. Concerning the implementation of REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue*,<sup>18</sup> CNL indicated that it performed a gap analysis in 2017 and presented an implementation plan to CNSC staff. CNSC staff submitted that CNL had revised the scheduling requirements to meet REGDOC-2.2.4 by January 2020.
49. In regard to REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, version 2,<sup>19</sup> CNL informed the Commission that CNL was on track to comply with the specifications of REGDOC-2.2.4, Volume II. CNSC staff submitted that the CNSC's licensees had requested that their implementation dates for this REGDOC be delayed to allow for the discussion of industry-proposed amendments regarding the use of oral fluid testing. CNSC staff will monitor the implementation of REGDOC-2.2.4, Volume II by CNL during the proposed licence period.
50. Based on its consideration of the information presented on the record for this hearing, the Commission concludes that CNL has appropriate programs in place and that current efforts related to human performance management provide a positive indication of CNL's ability to adequately carry out the activities under the proposed licence.
51. The Commission is satisfied that CNL has appropriate training programs in place at WL and that these programs meet the objectives of REGDOC-2.2.2, version 2.
52. The Commission is satisfied that the factors for fitness for duty examined above were adequate and acknowledges the discussion of industry-proposed amendments for REGDOC-2.2.4, Volume II. The Commission expects REGDOC-2.2.4 and REGDOC-2.2.4, Volume II to be implemented in the renewed licence period as detailed in the submissions made for this hearing. The Commission expects updates in this regard via an ROR or other means, as appropriate.

### **4.3 Operating Performance**

53. The Commission examined operating performance at WL, which includes an overall review of the conduct of the licensed activities and the activities that enable effective performance as well as improvement plans and significant future activities at WL. Throughout the current licence period, CNSC staff rated CNL's performance in the operating performance SCA as "satisfactory."
54. CNL submitted that WL were safely operated in accordance with the operating limits and conditions during the current licence period. CNL further reported that its safe operating practices were governed by its Conduct of Operations Program.

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<sup>18</sup> CNSC Regulatory Document, REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue*, 2017.

<sup>19</sup> CNSC Regulatory Document REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, 2017, version 2.

55. CNSC staff submitted that CNSC compliance verification activities showed that WL were operated safely during the current licence period and that CNL's Conduct of Operations Program was in accordance with CNL's licence requirements for WL.
56. The Commission also reviewed CNL's operating experience (OPEX) program at WL. CNL provided details about its OPEX program, as well as the corrective action program, and noted that its processes included responding to external events and disseminating lessons learned. CNL also reported that, through the OPEX Program, CNL aimed to achieve higher levels of operational safety and performance, and to reduce the significance and occurrence of unplanned events.
57. Asked about the difference between the corrective action program and the OPEX program, the CNL representative explained that the OPEX program reviewed and tracked lessons learned internally or from other entities in the nuclear industry. The CNL representative further explained that the corrective action program was used to identify actions to put in place once issues were identified and to track those issues to closure.
58. Having examined the information submitted for this hearing, the Commission is satisfied that WL were operated and will continue to be operated safely during the proposed licence period.
59. The Commission assessed the information submitted by CNL and CNSC staff regarding CNL's adherence to the reporting requirements of unplanned situations or events at WL. CNL submitted that CNL's reporting procedure document was revised in 2016 to incorporate the additional requirements about reporting to a CNSC Duty Officer, as required by CNSC staff during the licence period.
60. CNSC staff reported that CNL complied with the requirements for reporting unplanned situations or events at the WL site to the CNSC during the current licence period. CNSC staff also reported that CNL would be expected to comply with REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*<sup>20</sup> during the proposed licence period and that this expectation would be added to CNL's LCH should the licence be renewed.
61. Based on the information provided, the Commission is satisfied that CNL met all reporting parameters for reporting unplanned situations or events at WL. The Commission expects CNL to implement REGDOC-3.1.2 in the renewed licence period as presented during this hearing and directs CNSC staff to report progress in future RORs or other means, as appropriate.

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<sup>20</sup> CNSC Regulatory Document REGDOC-3.1.2, *Reporting Requirements, Volume I: Non-Power Reactor Class I Nuclear Facilities and Uranium Mines and Mills*, 2018.

62. The Commission considered the adequacy of CNL's documentation and procedures. CNSC staff submitted that CNL maintained a comprehensive suite of procedures across all programs and facilities at WL and had continually updated the facility-specific procedures as needed to support ongoing process improvements at WL. CNSC staff also confirmed that changes to procedures were made in accordance with CNL's change control process.
63. Based on the above information, the Commission concludes that the operating performance at WL during the current licence period provides a positive indication of CNL's ability to carry out the activities under the proposed licence. On the basis of its review of the above information, the Commission is satisfied that CNL will continue to ensure that appropriate operation performance-related programs are in place at WL to ensure the health and safety of persons and the protection of the environment.

#### **4.4 Safety Analysis**

64. The Commission assessed safety analysis at WL, which includes a systematic evaluation of the potential hazards associated with the conduct of the licensed activity or the operation of a facility, and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards. Safety analysis supports the overall safety case for WL. CNSC staff reported that, throughout the current licence period, WL were operated safely and within licence limits, with CNL's performance in this SCA rated as "satisfactory" by CNSC staff.
65. The Commission considered the information provided by CNL about the deterministic analyses that were performed for WL. CNL reported that the Safety Analysis Reports (SARs) demonstrated that the facilities at WL were appropriately designed to meet health, safety, security, environmental and regulatory requirements. CNL added that four facilities at WL had SARs: the Shielded Facilities, the Waste Management Area (WMA), the Concrete Canister Storage Facility (CCSF), and the Active Liquid Waste Treatment Centre.
66. CNSC staff reported that CNL updated the SARs over time as operational requirements changed and that the updates were reviewed by CNSC staff and carried out in accordance with the requirements of the licensing basis.
67. In regard to criticality safety, CNL informed the Commission of its procedures and guidance at WL providing oversight and direction in regard to all activities that involve fissionable materials. CNL reported that it updated its criticality safety documents on a risk-graded approach: upper subcritical limits were documented, criticality hazard identification studies were completed for all nuclear criticality controlled areas at WL and criticality accident mitigation measures were documented. CNL also reported that computer-based nuclear criticality safety awareness training was delivered to all staff as part of the required training.

68. CNSC staff submitted that the only remaining activities involving fissionable material at WL were the storage of used fuel in the CCSF and the WMA's Intermediate-Level Waste (ILW) standpipes, which CNSC staff reported to be of low risk. CNSC staff also reported that CNL implemented and maintained a nuclear criticality safety program compliant with RD-327, *Nuclear Criticality Safety*.<sup>21</sup>
69. On the basis of the information presented, the Commission concludes that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards is adequate for the operation of the facility and the activities under the proposed licence. The Commission finds that CNL's safety analysis program for WL meets regulatory requirements and that CNL has adequate preventive measures and strategies in place at WL to ensure the protection of workers, members of the public and the environment and that the facilities at WL meet safety requirements. The Commission is also satisfied that CNL is maintaining appropriate programs to ensure criticality safety at WL.

#### 4.5 Physical Design

70. The Commission considered the physical design of facilities at WL, including the activities to design the systems, structures and components to meet and maintain the design basis of the facility. The design basis is the range of conditions, according to established criteria, that the facility must withstand without exceeding authorized limits for the planned operation of safety systems. CNSC staff rated CNL's performance in this SCA as "satisfactory" throughout the current licence period.
71. The Commission examined the physical design and associated activities of the facilities at WL, which is managed by CNL under its Design Authority and Design Engineering Program. CNL submitted information about how its Design Engineering Program complied with CSA N286-12 and CSA N285.0, *General requirements for pressure retaining systems and components in CANDU nuclear power plants*,<sup>22</sup> noting that the program applied to all design activities at WL.
72. CNL submitted information regarding its Configuration Management Program which provides the framework to maintain and control the physical configuration of all structures, systems and components and which applies to all design, operation, decommissioning and maintenance activities at WL. CNL also provided the Commission with information regarding planned improvements and key initiatives for the proposed licence period such as performing a gap analysis for codes and standards and redistributing engineering functions to better leverage experience and knowledge in the workforce.

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<sup>21</sup> CNSC Regulatory Document RD-327, *Nuclear Criticality Safety*, 2010.

<sup>22</sup> N285.0-08, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants*, CSA Group, 2008.

73. CNL reported that the CNL chief nuclear engineer had the responsibility to ensure that staff executing design processes understood their accountabilities and that the chief nuclear engineer had authority over and provided oversight for the execution of the design program.
74. CNSC staff reviewed the design of new facilities, a Shielded Modular Above-Ground Storage Building and a Soil Storage Compound, constructed by CNL to support the on-going decommissioning activities at WL. CNSC staff determined that CNL met regulatory requirements related to the design of its facilities, and the operation of these new facilities remained within the design basis.
75. CNSC staff informed the Commission that, during the proposed licence period, CNL planned to design and construct facilities for the remediation of the 171 standpipes and ILW bunkers. CNSC staff added that the planned work included the removal, characterization, packaging, and shipment of the waste. CNSC staff indicated that CNSC staff will review the design of these facilities prior to their operation.
76. The Commission assessed the information provided by CNL and CNSC staff on the pressure boundary program at WL. CNL submitted that WL pressure boundary program provided assurance that pressure systems and components were in compliance with the applicable codes, standards, and regulatory requirements.
77. CNSC staff submitted that the WL pressure boundary program met regulatory requirements. CNSC staff indicated that CNL was required to update its pressure boundary procedure to include the decommissioning of pressure boundary systems and components. CNSC staff added that it will review the design of new facilities at WL to ensure that they meet pressure boundary requirements.
78. The Commission considered the adequacy of the Fire Protection Program design at WL. CNSC staff indicated that CNL's Fire Protection Program met the *National Building Code of Canada 2010*,<sup>23</sup> the *National Fire Code of Canada 2010*,<sup>24</sup> and CSA N293-12, *Fire protection for nuclear power plants*.<sup>25</sup> CNSC staff informed that, at its request, CNL performed a gap analysis in 2016 against the operational requirements of CSA-N393, *Fire Protection for Facilities that Process, Handle, or Store Nuclear Substances*,<sup>26</sup> and developed and implemented a corrective action plan to address the gaps identified. CNSC staff added that it reviewed the corrective action plan and will verify its implementation during upcoming inspections.
79. On the basis of the information presented, the Commission concludes that CNL continues to implement and maintain an effective design program at WL and that the design of WL is adequate for the operation period included in the proposed licence. The Commission is satisfied with CNSC staff's assessment of the adequacy of the

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<sup>23</sup> IRC-10NBC, *National Building Code of Canada 2010*, National Research Council, 2010.

<sup>24</sup> IRC-10NBF, *National Fire Code of Canada 2010*, National Research Council, 2010.

<sup>25</sup> N293-12, *Fire protection for nuclear power plants*, CSA Group, 2012.

<sup>26</sup> N393-13, *Fire Protection for Facilities that Process, Handle, or Store Nuclear Substance*, CSA group, 2013.

physical design of WL.

#### **4.6 Fitness for Service**

80. Fitness for Service covers activities that are performed to ensure that the systems, structures and components (SSCs) at WL continue to effectively fulfill their intended purpose. CNSC staff rated the CNL's performance in this SCA as "satisfactory" throughout the current licence period.
81. The Commission considered the adequacy of CNL's maintenance programs. CNL provided the Commission with detailed information on preventative and corrective maintenance carried out at nuclear and non-nuclear facilities at WL. CNL reported that maintenance was carried out by qualified workers on safety systems as well as on those aspects of buildings, structures and grounds required to maintain personnel and structural safety, protection of site assets, protection of the environment and support of the closure mission.
82. CNSC staff reported that CNSC staff reviewed CNL's governing documents for the conduct of maintenance at WL and concluded that the program meets regulatory requirements and that SSCs verified during CNSC staff inspections were well maintained. CNSC staff also reported that CNL was compliant with CSA N286-12 in having processes in place for SSC maintenance.
83. CNL indicated that the concrete waste storage structures, the IWL bunkers, at WL were assessed under a Periodic Inspection Plan (PIP) and that the inspections were documented annually, with preventative maintenance and repairs occurring as needed. CNL added that the structural integrity of the CCSF was inspected quarterly, showing no significant cracking or spallation, and that preventative maintenance and repairs were performed as required. CNL also reported that maintenance plan updates would remain on a five-year review cycle in the proposed licence period.
84. CNSC staff reported that, based on its inspections and reviews of CNL's PIP and the CCSF inspection reports submitted by CNL, CNSC staff was of the view that CNL met and will continue to meet the regulatory requirements in regard to structural integrity at WL.
85. In response to a suggestion made in the intervention from the Local Government District of Pinawa regarding the hot cells in the shielded facility, the Commission asked whether it would be possible to retain the five fully functional hot cells at WL. The CNL representative explained that it could be possible to retain the hot cells but new work would be required to achieve this.
86. Based on the information provided on the record for this hearing, the Commission is satisfied with CNL's programs for the inspection and life-cycle management of key safety systems at WL. The Commission concludes that the equipment, as installed at

WL, is fit for service and that appropriate programs are in place to ensure that the equipment remains fit for service throughout the proposed licence period.

#### **4.7 Radiation Protection**

87. As part of its evaluation of the adequacy of the measures for protecting the health and safety of persons, the Commission considered the past performance of CNL in the area of radiation protection. The Commission also considered how the WL radiation protection program ensured that both radiation doses to persons and contamination were monitored, controlled and kept as low as reasonably achievable (ALARA), with social and economic factors taken into consideration. Throughout the current licence period, CNSC staff rated CNL's performance in this SCA as "satisfactory."
88. The Commission considered the information provided by CNL and CNSC staff to assess whether the WL radiation protection program satisfied the requirements of the *Radiation Protection Regulations*.<sup>27</sup> CNL informed the Commission that CNL updated its radiation protection program procedural documents in 2017 and 2018 to align with the new management system at CNL.
89. CNSC staff provided the Commission with information about the performance indicators used to monitor the radiation protection program at WL and submitted that CNL met CNSC expectations for the monitoring of the implementation and performance of the radiation protection program at WL. CNSC staff submitted that, throughout the current licence period, CNSC staff compliance inspection demonstrated that CNL had implemented an appropriate and effective radiation program at WL that satisfied regulatory requirements.

##### *4.7.1 Application of ALARA*

90. The Commission assessed the information submitted by CNL and CNSC staff regarding the application of ALARA at WL. CNL submitted that the ALARA principle was applied during the planning of radiological work at WL. CNL added that Health Physics and Radiation Protection employees were engaged in ALARA assessments, providing authoritative advice regarding radiation protection matters, preparing radiological safe work documents, providing oversight of the execution of radiation work and in the planning and conduct of radiological clearance surveys.
91. CNSC staff submitted that CNL had a documented ALARA program that identified the methods and processes in place at the WL site to control dose and minimize exposures based on current industry best practices and operating experience. CNSC staff added that its reviews of CNL's radiation protection program showed that CNL carried out ALARA planning for all radiological activities at WL, and that CNL's ALARA program met regulatory requirements.

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<sup>27</sup> SOR/2000-203.

92. CNL provided details about the radiation protection improvement initiatives that were completed during the current licence period, such as documenting the contamination clearance levels used for decommissioning activities at WL. CNL also reported that the implementation of its radiation protection program at WL ensured operation in compliance with CNSC regulations, with no regulatory limits or action levels having been exceeded during the current licence period, and with individual and collective doses remaining ALARA. CNL also reported that weekly and quarterly radiation protection performance reviews were undertaken at WL to identify performance trends and track program corrective actions and improvement initiatives.
93. Based on the information considered for this hearing, the Commission is satisfied that the ALARA concept is adequately applied to all WL activities.

#### *4.7.2 Worker Dose Control*

94. The Commission considered information submitted by CNL and CNSC staff about CNL's worker dose control practices at WL, including detailed worker dose data for the current licence period. CNL submitted that all nuclear energy workers (NEWs) and non-NEWs, including site visitors and members of the public, received whole-body doses that were well below regulatory limits.<sup>28</sup> CNL submitted that the highest individual whole body annual dose for WL NEWs during the last 10 years was 1.65 mSv.
95. CNL submitted information about proposed improvements at WL that would further improve worker dose control, such as evaluation and employment of telescoping radiation detectors, high-range probes, and remote monitoring methods for the measurement radiation fields. CNL added that it would re-evaluate the radiological source term hazard in all buildings and facilities planned to be decommissioned to ensure that protection is optimized and exposures remain ALARA.
96. The Commission noted Northwatch's concern regarding an upward trend in doses in 2017 and 2018, but is satisfied that doses to workers remain low and that the small increase does not represent an increased risk to the health and safety of workers.
97. CNL submitted that CNL transferred the majority of WL Dosimetry service activities to the CNSC-licensed Chalk River Laboratories (CRL) dosimetry service. CNL added that WL procedures and processes were updated in 2018 to reflect the change of provider.
98. CNSC staff reported that CNL had effectively implemented its radiation protection program at WL to ensure that doses received by workers remained below regulatory limits. CNSC staff also informed the Commission that CNL operated a CNSC-

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<sup>28</sup> The effective dose limits for a NEW is set at is set at 50 mSv in any one year and 100 mSv in five consecutive years, and for pregnant NEWs the dose limit is 4 mSv from the time the pregnancy is declared to the end of the term. The dose limits for non-NEWs, including members of the public, is set at 1 mSv per year.

licensed dosimetry service that was implemented through the radiation protection program and that the dosimetry service met regulatory requirements. CNSC staff added that effective and equivalent doses, along with the effective dose distribution data, demonstrated that CNL was maintaining effective control over worker exposures at WL.

99. CNSC staff informed the Commission that CNL was in the process of revising some of the radiation protection action levels used at WL. CNSC staff added that these new action levels will be subject to CNSC staff review and acceptance.
100. The Commission requested additional information on the type of personal and area dosimetry equipment used at WL. The CNL representative responded that CNL employees wore thermoluminescent dosimeters as well as electronic personal dosimeters. The CNL representative added that trained radiation detection staff also used remote radiation survey meters to monitor the dose rates at job sites. The Commission was satisfied with the information provided on this topic.
101. Based on the information provided for this hearing, the Commission is satisfied that doses to workers at WL are adequately controlled.

#### *4.7.3 Dose to the Public Control and Radiological Hazard Control*

102. The Commission considered the effectiveness of CNL's programs to prevent uncontrolled releases of radioactive materials to the public from the WL site. CNL submitted that weekly and quarterly radiation protection performance reviews were undertaken to identify performance trends and track program corrective actions and improvement initiatives. CNL added that radiation doses to the public did not exceed the annual dose limit of 1 mSv per year<sup>29</sup> for the most exposed member of the public.
103. The Commission also assessed CNL's identification and control of existing and potential radiological hazards during work activities at WL. CNL indicated that changes and improvements were planned for the proposed licence period, such as an enhanced air monitoring program for nuclear building demolition.
104. CNSC staff submitted that CNL had effectively controlled the radiological dose to the public. CNSC staff further reported that the maximum effective dose based on all radioactive releases from WL during the last five years was 0.0014 mSv per year in 2014. CNSC staff also submitted that CNL continued to maintain and implement radiation protection program requirements for contamination monitoring at WL such as contamination control, radiation dose rate control, and airborne monitoring and control.

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<sup>29</sup> The regulatory dose limit for a member of the public is 1 mSv (1,000 µSv) per year and the natural background dose is estimated between 2 mSv – 5 mSv (2,000 µSv – 5,000 µSv) per year.

105. Based on the Commission's assessment of the information provided for this hearing, the Commission is satisfied that CNL is adequately controlling radiological doses to the public and will continue to adequately identify and control radiological hazards at WL.

#### 4.7.4 Conclusion on Radiation Protection

106. Based on the information provided on the record for this hearing, the Commission concludes that, given the mitigation measures and safety programs that are in place and will be in place to control radiation hazards, CNL provides for, and will continue to provide for, the adequate protection of the health and safety of persons and the environment throughout the proposed licence period.
107. The Commission is satisfied that CNL's radiation protection program at the WL meets the requirements of the *Radiation Protection Regulations*.
108. The Commission notes the proposed improvements to CNL's radiation protection program for WL and anticipates that these will be carried out in the renewed licence period as presented in the materials submitted for this hearing.

#### 4.8 Conventional Health and Safety

109. The Commission examined the implementation of a conventional health and safety program at WL, which covers the management of workplace safety hazards. The conventional health and safety program is mandated by provincial statutes for all employers and employees to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. This program includes compliance with applicable labour codes and conventional safety training. Throughout the current licence period, CNSC staff rated the CNL's performance in this SCA as "satisfactory."
110. CNL reported that the WL Site Safety and Health Committee was the principal forum for joint employee/management consultation and development of solutions for safety and health concerns. CNL added that the activities conducted by the committee included the inspection of all WL work locations and participation in incident investigations.
111. CNSC staff submitted that CNL's activities must comply with Part II of the *Canada Labour Code*,<sup>30</sup> its associated regulations,<sup>31</sup> and other applicable federal and provincial health and safety acts and regulations. CNSC staff added that CNSC staff verified CNL safety practices during compliance inspections and that CNSC staff was satisfied with CNL's performance at the WL site in the aspects related to conventional

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<sup>30</sup> R.S.C, 1985, c. L-2

<sup>31</sup> SOR/86-304

health and safety.

112. CNL provided the Commission with detailed information regarding its Occupational Health and Safety (OHS) program at WL. CNL reported that contractors hired by CNL in Manitoba were subject to the *Manitoba Workplace Safety & Health Act and Regulation*<sup>32</sup> and that the CNL OHS program also provided oversight of contractors when they were on CNL property and that the contractors were governed by the CNL work permit process. CNL also provided the Commission with details regarding improvement initiatives that had been carried out in respect of the OHS program since 2009 such as a near-miss reporting initiative.
113. CNSC staff reported that CNL actively promoted conventional health and safety to its workforce through the provision of information, training, instructions, and supervision. CNSC staff also reported that CNL's employees were encouraged to report concerns, unsafe conditions, non-compliances or events in order to identify hazards and ensure measures were put in place to prevent injury and illness.
114. CNL reported to the Commission that there had been an overall improvement in the frequency of recordable lost-time injuries for WL site workers, as well as an improvement in the trend for the severity of lost-time accidents.
115. Based on the information presented, the Commission concludes that CNL's conventional health and safety program at WL satisfies regulatory requirements. The Commission also concludes that the health and safety of workers and the public was adequately protected during the operation of the facility for the current licence period and that the health and safety of persons will continue be adequately protected during throughout the proposed licence period.

#### **4.9 Environmental Protection**

116. The Commission examined CNL's environmental protection programs at WL, which are intended to identify, control and monitor all releases of radioactive and hazardous substances, and aim to minimize the effects on the environment which may result from the licensed activities. These programs include effluent and emissions control, environmental monitoring and estimated doses to the public. CNSC staff rated CNL's performance in this SCA as "satisfactory" throughout the current licence period.
117. The Commission considered whether the CNL's environmental protection programs adequately met the specifications of REGDOC-2.9.1.

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<sup>32</sup> M.R. 217/2006

#### 4.9.1 Effluent and Emissions Control (Releases)

118. The Commission considered CNL's programs to control the release of effluent and emissions from the WL site to the environment during the current licence period. CNL submitted that its program documentation was being updated to align with CSA N288.4-10, *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills*,<sup>33</sup> CSA N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*,<sup>34</sup> CSA N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*<sup>35</sup> and CSA N288.8-17, *Establishing and Implementing Action Levels for Releases to the Environment from Nuclear Facilities*.<sup>36</sup> CNL also submitted information about radiological emissions from WL, including airborne emissions and liquid releases, noting that they were below derived release limits<sup>37</sup> (DRL) and regulatory limits. CNL also reported that the DRLs for WL had been updated in 2016 and that these were calculated in accordance with CSA N288.1-08, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*.<sup>38</sup>
119. CNSC staff indicated that it accepted CNL's plan and schedule for the implementation of these standards and that it was tracking and monitoring CNL's compliance with its commitments.
120. CNSC staff reported that CNL's environmental monitoring results presented in CNL's annual report demonstrated that radiological releases to the atmosphere and to the Winnipeg River were below their respective DRLs. CNSC staff added that, with the exception of chlorine, hazardous releases to the Winnipeg River were below release limits. CNSC staff explained that total residual chlorine released by WL was not a concern to the health of the Winnipeg River ecosystem because of the river's water flow rate.
121. CNL informed the Commission that federal requirements for the total residual chlorine in wastewater will come into force in 2021 for CNL's lagoon at WL. CNL added that WL will continue to adjust the site's chlorination practices to meet the new requirements.

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<sup>33</sup> N288.4-10, *Environmental monitoring programs at class I nuclear facilities and uranium mines and mills*, CSA Group, 2010 (Reaffirmed 2015).

<sup>34</sup> N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2011 (Reaffirmed 2016).

<sup>35</sup> N288.7-15, *Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA Group, 2015.

<sup>36</sup> N288.8-17, *Establishing and Implementing Action Levels for Releases to the Environment from Nuclear Facilities*, CSA Group, 2017.

<sup>37</sup> The "derived release limit" (DRL) for a particular radionuclide is the release rate that would result in an annual committed effective radiation dose of 1 mSv to the most exposed group of the public (also known as the critical receptor) for that nuclear substance.

<sup>38</sup> N288.1-08, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, CSA Group, 2008.

122. CNL submitted to the Commission detailed information regarding monitoring results and stated that the levels of radiation and radioactive contaminants in the environment outside the WL site remained low throughout the licence period. CNL added that liquid and airborne effluents were below the DRL and that all emissions of radioactive material from WL throughout the licence period were below CNL's Administrative Levels and Action Levels and well below regulatory limits.
123. CNSC staff reported to the Commission that CNL's monitoring results and CNL's Effluent Verification Monitoring Program, provided through the issuance of CNL's annual report, complied with the applicable regulations and continued to protect the public and the environment.
124. Noting the questions about the former experimental cesium pond raised in the intervention from the Concerned Citizens of Renfrew County and Area (CCRCA), the Commission asked for information. The CNL representative explained that this was a man-made pond injected with cesium-137 in order to study the effects of this radioisotope on microorganisms and to the natural environment. Asked about whether the pond contained any other radioisotopes, the CNL representative added that the pond strictly contained cesium-137. The Commission was satisfied with the information provided.
125. On the basis of the information provided for this hearing, the Commission is satisfied that the CNL has and will continue to have adequate programs in place for the control of effluent and emissions at WL to protect the environment and meet regulatory requirements.

#### *4.9.2 Environmental Management System*

126. The Commission assessed the information provided by CNL and CNSC staff about the WL Environmental Management System (EMS). CNL submitted that its EMS was ISO 14001:2015<sup>39</sup> certified and that annual EMS audits were performed to verify the effectiveness of the system and for the promotion of continuous improvement of CNL's environmental performance.
127. CNSC staff submitted that the WL EMS met the specifications of REGDOC-2.9.1 and added that CNL was updating its program to meet REGDOC-2.9.1, version 1.1<sup>40</sup> for implementation in the proposed licence period.
128. Based on the information provided, the Commission is satisfied that CNL has maintained, and will continue to maintain, an adequate EMS at WL.

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<sup>39</sup> CAN/CSA-ISO 14001:2015, Environmental Management Systems – Requirements with Guidance for Use, CSA Group, 2015.

<sup>40</sup> CNSC Regulatory Document REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, version 1.1, 2017.

#### 4.9.3 Environmental Monitoring

129. The Commission considered information submitted by CNL about the CNL's environmental monitoring program that is designed to demonstrate that emissions from WL are properly controlled. CNL submitted that liquid effluents from WL were monitored for non-radioactive contaminants in order to measure conformance with CNL's internal guidelines for chemical substances in liquid effluents. CNL added that non-radiological monitoring results of liquid effluents and groundwater had been consistent over the licence period and levels of non-radiological contaminant releases from operations at the WL site did not negatively affect the quality of water on-site or on the local environment.
130. Further on CNL's environmental monitoring activities, CNL reported that it complied with the *Species at Risk Act*<sup>41</sup> and the *Migratory Bird Convention Act*<sup>42</sup> and that CNL performed identification of species at risk on the WL site over the current licence period, including acoustic songbird and bat recording studies as well as field sightings identification. CNL added that it completed an alternative habitat project in 2018 to provide barn swallows with an alternative nesting spot as buildings were removed on the WL site.
131. CNSC staff informed that CNSC staff review of CNL's environmental monitoring results for the licence period of 2009 to 2018 showed that monitoring of potential atmospheric effluent exposure pathways did not indicate any significant dose contributions from the operations of the WL site. CNSC staff also informed that the monitoring results indicated that radioactive contaminants in Winnipeg River water remained below allowable levels defined in the *Canadian Drinking Water Guidelines*<sup>43</sup> and that the groundwater monitoring program had demonstrated that there was no significant radioactive parameters (gross beta, gross alpha, tritium and uranium) migration from the waste management facilities.
132. Asked whether CNL adjusted the environmental monitoring frequency based on the onsite activities, the CNL representative explained that CNL performed routine environmental monitoring activities and also conducted enhanced monitoring when specific activities were occurring.
133. Based on the information provided, the Commission is satisfied that CNL has maintained, and will continue to maintain, adequate environmental monitoring at WL.

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<sup>41</sup> SI/2004-48

<sup>42</sup> S.C. 1994, c. 22

<sup>43</sup> *Canadian Drinking Water Guidelines*, <https://www.canada.ca/en/healthcanada/services/environmental-workplace-health/water-quality/drinkingwater/canadian-drinking-water-guidelines.html>

Independent Environmental Monitoring Program (IEMP)

134. The Commission examined the information provided by CNSC staff in regard to the IEMP. CNSC staff provided detailed results from monitoring carried out in 2017 in publicly accessible areas outside the perimeter of the WL site of collected air, soil, sediment, vegetation, food and water samples. CNSC staff noted that the measured radioactivity in all samples were below CNSC reference levels.<sup>44</sup>
135. The Commission notes the interest of the Sagkeeng First Nation and the Manitoba Metis Federation (MMF) to participate more fully in the IEMP and encourage CNSC staff to consider the benefits of the increased participation.
136. CNSC staff submitted that the IEMP results confirmed that the public and the environment around WL were protected and that there should be no health impacts as a result of WL operations. Furthermore, CNSC staff reported that the IEMP results were consistent with the WL environmental monitoring results.
137. The Commission enquired about the seemingly elevated results of an IEMP sampling at location WL03, located 15 kilometers east of WL. CNSC staff noted that the results were below screening levels which are set well below levels that would be of regulatory concern and, although an outlier, CNSC staff did not investigate this result further. The CNL representative added that the gross alpha reading most likely arose from the natural uranium in the granite of the Canadian Shield.
138. Based on the information submitted by CNSC staff, the Commission is satisfied that that environmental monitoring both within and outside the perimeter of the WL site shows that CNL has and will continue to make adequate provision for the protection of the environment, workers and the public.

*4.9.4 Environmental Risk Assessment*

139. The Commission examined the information provided by CNSC staff in regard to the Environmental Risk Assessment (ERA) of WL. CNSC staff reported that an updated ERA for the lagoon and landfill areas on the WL site was currently underway for future decommissioning activities. CNSC staff added that, based on the available information from CNL's environmental monitoring results, safety reports submitted annually for the WL site and the CNSC IEMP results, CNSC staff is of the view that risk to human health and the environment at WL could be characterized as low, with an overall trend indicating stable performance.
140. CNSC staff reported that radioactive contaminants in the Winnipeg River were well below the Canadian drinking water guidelines and that dose to members of the public

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<sup>44</sup> CNSC reference levels are established based on conservative assumptions about the exposure scenario and using CSA N288.1-14. On this basis, the reference level for a particular radionuclide in a particular medium represents the activity concentration that would result in a dose of 0.1 mSv per year.

from liquid effluents at WL was calculated to be low, at 0.048  $\mu\text{Sv}/\text{yr}$ . CNSC staff also reported that airborne emissions were negligible, with an estimated public dose of 0.002  $\mu\text{Sv}/\text{yr}$ .

141. CNSC staff informed the Commission that CNL will conduct a site wide ERA in accordance with REGDOC-2.9.1, version 1.1 and CSA N288.6-12 during the proposed licensing period.
142. Based on the information submitted by CNSC staff, the Commission is satisfied that that environmental monitoring both within and outside the perimeter of the WL site shows that CNL has and will continue to make adequate provision for the protection of the environment, workers and the public.

#### *4.9.5 Protection of the Public*

143. The Commission assessed CNL's programs to mitigate risk to members of the public from hazardous substances discharged from WL. CNL submitted that its monitoring activities included the monitoring of airborne and liquid effluent as well as groundwater. CNL informed the Commission that radiation monitoring results verified that the level of contamination outside the WL site due to its operations did not exceed the annual dose limit of 1 mSv per year for any member of the public. Regarding non-radiological contaminants, CNL submitted that monitoring results for those contaminants were consistent over the licence period and did not negatively affect the quality of water on-site or on the local environment.
144. CNL informed the Commission that non-radiological emissions to air dropped significantly, starting in 2013, with the conversion from centralized, fuel oil heating operations to localized electrical or propane heating and the continuing shut-down and demolition of site buildings.
145. Based on the information provided, the Commission is satisfied that CNL's programs to mitigate risk to members of the public from WL operations are adequate.

#### *4.9.6 Conclusion on Environmental Protection*

146. Based on the assessment of the application and the information provided on the record at the hearing, the Commission is satisfied that, given the mitigation measures and safety programs that are in place to control hazards, CNL will provide adequate protection to the health and safety of persons and the environment throughout the proposed licence period.
147. The Commission is satisfied that the CNL environmental protection programs adequately meet the specifications of REGDOC-2.9.1 and that CNL is expected to meet the specifications of REGDOC-2.9.1, version 1.1 in the proposed licence period.

148. The Commission notes the interest of the Sagkeeng First Nation and the Manitoba Metis Federation to participate more fully in the IEMP and direct CNSC staff to consider greater participation by interested Indigenous groups, where appropriate.

#### **4.10 Emergency Management and Fire Protection**

149. The Commission considered CNL's emergency management and fire protection programs which cover the measures for preparedness and response capabilities implemented by CNL in the event of emergencies and non-routine conditions at WL. This includes nuclear emergency management, conventional emergency response, and fire protection and response. Throughout the current licence period, CNSC staff rated CNL's performance in this SCA as "satisfactory."
150. CNL submitted that the WL Emergency Services Operations Branch fulfilled the Emergency Preparedness and Fire Protection requirements at WL, as well as the Security Program requirements.

##### *4.10.1 Conventional Emergency Management*

151. The Commission considered the adequacy of CNL's conventional (non-nuclear) emergency management programs at WL. CNL submitted that all required annual drills and exercises were completed as required during the current licence period with the exception of a major exercise scheduled for 2012 that was deferred to and completed in 2013. CNL added that all emergency preparedness plans and procedures had been updated during the current licence period. CNL further submitted that it was working with the Royal Canadian Mounted Police (RCMP) and that RCMP staff were going to the WL site for familiarisation tours and joint training exercises.
152. CNL reported that WL implemented a new organizational Emergency Operations Centre (EOC) and Incident Management Framework in 2015, adding that this framework was consistent with the industry standard Incident Command System (ICS).
153. CNSC staff informed the Commission that CNL maintained an effective conventional emergency response program and that emergency response personnel were available on site 24 hours a day to respond to any type of emergency. CNSC staff added that training and equipment were maintained for medical response, hazardous materials and other conventional hazards that may be present at WL.
154. Based on the information provided on the record for this hearing, the Commission is satisfied with CNL's programs to manage conventional emergencies at WL.

#### 4.10.2 Nuclear Emergency Management

155. The Commission considered the information submitted by CNL and CNSC staff about nuclear emergency management at WL. CNL informed the Commission regarding nuclear emergency preparedness measures at WL. CNL also provided details regarding the performance of a gap analysis with REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*.<sup>45</sup> CNL added that the corrective actions were agreed upon by WL and the CNSC, and had been completed.
156. CNL reported that the WL Source Term Report had been revised, documenting the current radiological source terms of nuclear facilities at WL and the calculation of on-site and off-site radiation doses to individuals resulting from a hypothetical, accidental release of radioactive material. CNL added that the analysis documented in this report demonstrated that there was no longer a radiological requirement to have a site stay-in siren for the main WL campus and that this finding was accepted by CNSC staff.
157. CNSC staff informed that the WL Site Emergency Response Plan outlined the interfaces with the Manitoba Emergency Plan. CNSC staff evaluated CNL's emergency preparedness by assessing the emergency plan and preparedness program as well as the results of emergency exercises. CNSC staff submitted that CNL has sufficient provisions in place for emergency preparedness and response capabilities to mitigate the effects of accidental releases of nuclear and hazardous substances on the environment and the health and safety of persons.
158. CNL told the Commission that WL was provided a fully stocked Mobile Nuclear Laboratory on behalf of the federal Chemical, Biological, Radiological-Nuclear, and Explosives Research and Technology Initiative headed up by Health Canada. CNL added that the Mobile Nuclear Laboratory and its equipment were maintained in a state of readiness to respond to any off-site emergencies.
159. Asked about CNL's ability to manage medical emergencies at WL, the CNL representative reported that CNL has an onsite medical facility staffed by a registered nurse five days a week during normal shift hours. The CNL representative added that CNL works closely with the Pinawa Hospital during emergency drills and exercises. The CNL representative further added that the regional ambulance service provides transport for injured workers to the local Pinawa Hospital.
160. Further on this topic and in consideration of the interventions from the Local Government District of Pinawa and Northwatch, the Commission enquired whether the town of Pinawa was prepared to manage injuries to workers at WL involving radiological exposure or contamination. The Mayor of Pinawa explained that he had ongoing dialogue with CNL about the radiation protection of employees. The Mayor of Pinawa added that he was satisfied that CNL had the capability of managing radiation-related events. The CNL representative reported that CNL's emergency preparedness organization was working with the local hospitals and authorities to

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<sup>45</sup> CNSC Regulatory Document REGDOC-2.10.1, *Emergency Preparedness and Response*, 2014.

ensure that they are aware of the radiation hazards.

161. Based on the information submitted for this hearing, the Commission is satisfied that CNL has appropriate emergency plans in place to protect the health and safety of persons and the environment in the event of a nuclear emergency at WL.

#### *4.10.3 Fire Protection*

162. The Commission examined the adequacy of the WL fire protection program. CNL submitted detailed information regarding fire response improvements and achievements that CNL had implemented since 2009 at WL. CNL reported that improvements included a gap analysis performed in 2016 against the operational requirements of CSA N393-13, *Fire protection for facilities that process, handle, or store nuclear substances*<sup>46</sup> followed by a corrective action plan that was developed and implemented to address the gaps identified. CNL added that third-party reviews were conducted on inspections, testing and maintenance operations and practices of WL facilities to ensure compliance with the *National Fire Code of Canada 2010* and CSA N393-13.
163. CNSC staff submitted that it would verify the implementation of the corrective action plan, resulting from the CSA N393-13 gap analysis, during upcoming inspections. CNSC staff added that CNL's fire response program at the WL site was still meeting regulatory requirements.
164. Based on the information provided, the Commission is satisfied that CNL has an adequate fire protection program in place at WL that meets regulatory requirements.

#### *4.10.4 Conclusion on Emergency Management and Fire Protection*

165. Based on the above information provided on the record for this hearing, the Commission concludes that WL nuclear and conventional emergency management preparedness programs and the fire protection measures in place, and that will be in place during the proposed licence period, are adequate to protect the health and safety of persons and the environment.

### **4.11 Waste Management**

166. The Commission assessed CNL's WL site-wide Waste Management Program. Throughout the current licence period, CNSC staff assessed CNL's performance in this SCA, including waste minimization, segregation, characterization and storage programs, as "satisfactory."

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<sup>46</sup> N293-13, *Fire protection for facilities that process, handle, or store nuclear substances*, CSA Group, 2013.

167. CNL reported that its waste management program ensured the continued availability of waste storage facilities and storage capacity for waste generated and stored temporarily at WL, and for the capability of the Chalk River Laboratories (CRL) to receive waste from WL.
168. CNL informed the Commission about the achievements and improvements made in the Waste Management Program during the current licence period such as the creation of the WL Waste Management Division and the operation of the Shielded Modular Above-Ground Storage (SMAGS) building to store LLW and ILW.
169. CNSC staff reported that wastes were generated at WL from operational activities and decommissioning projects and that radiologically contaminated waste was either decontaminated to meet clearance criteria where feasible or characterized and sent to the WMA for processing or storage. CNSC staff added that CNL was segregating, packaging, storing, reusing or recycling radioactive, hazardous and conventional wastes in accordance with its Waste Management Program.
170. CNSC staff reported that it evaluated CNL's compliance in the waste management SCA through oversight activities such as desktop reviews and compliance inspections and concluded that CNL's waste management SCA at the WL site met all applicable regulatory requirements.
171. In considering the intervention from CELA, the Commission asked about the characteristics and contents of the WMA standpipes. The CNL representative explained that the standpipes were of various ages of design with different dimensions. The CNL representative added that the 171 standpipes were all around five metres in length with a diameter ranging from a little less than half a metre to a metre. The CNL representative explained that the standpipes contained various materials including cut fuel elements, high efficiency particulate air (HEPA) filters or material coming from the hot cells. On the potential hazards from the standpipes, the CNL representative stated that there exists a potential for flammable gas generation and pyrophoric substances inside the standpipes and that remote-controlled operation of the remediation equipment had been proposed to mitigate these hazards.
172. The Commission asked whether any of the standpipes were under pressure and, if so, how was CNL containing or characterizing the radiological hazard when the standpipes were open. The CNL representative indicated that CNL had characterization data from previous years, as CNL had previously opened 20 of the standpipes and noted very little pressurization. The CNL representative added that a multi-part system with robotic arms was being designed to address possible hazards, including the worst-case hazard of a deflagration within one of the standpipes, and that the system would be designed to contain any releases without offsite impact.
173. In considering the intervention from the MMF, CELA and the CCRCA, the Commission enquired about space availability at CRL for the decommissioning waste coming from WL. CNSC staff submitted that CRL's operating licence allowed CRL

to accept waste from off-site clients providing that there was an identified storage or disposal facility in place.

174. The Commission asked for information on waste characterization and segregation at WL. CNSC staff stated that CNL had established clearance levels of waste in their program documents, aligned with the *Nuclear Substance and Radiation Devices Regulations*.<sup>47</sup> CNSC staff added that the waste was released as clean material if the characterization indicated that the material was below the screening levels.
175. Further on the waste characterization and segregation, the Commission asked for information concerning processes and how it was performed. The CNL representative explained that the waste characterization informed about the appropriate package to use depending on the quantity of radioactivity and other hazardous constituents. The CNL representative added that the quantity of radioactivity determined the level of inspections that happen with that particular package. The Commission was satisfied with the information provided.
176. The Commission enquired about the presence of enriched uranium at the CCSF. The CNL representative stated that most of the fuel at the CCSF was natural uranium, but added that a small quantity was enriched uranium. The CNL representative further stated that CNL performed criticality safety analysis before retrieving, moving, loading and shipping casks containing enriched uranium.
177. Commenting on the absence of a safety analysis report for the LLW trenches in CNL's and CNSC staff submissions, as noted in the interventions from CELA and the CCRCa, the Commission enquired about the reason for including the LLW trenches in the decision-making process when information to determine the adequacy of the safety case was not submitted. CNSC staff explained that *in situ* management for the LLW trenches, included in the safety analysis for the waste management area A, had been approved by the Commission in the 2002 licencing hearing<sup>48</sup> and that an updated safety analysis report needed to be presented to CNSC staff before any further work started on the LLW trenches. The CNL representative indicated that a safety assessment for the LLW trenches will be presented to CNSC staff for approval by 2023.
178. Further on the LLW trenches safety analysis report, the CNL representative stated that CNL would completely remove the contents of the trenches and transfer the content to CRL in the eventuality of CNSC staff not approving the LLW trenches safety analysis report.

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<sup>47</sup> SOR/2000-207

<sup>48</sup> Record of Proceedings, Including Reasons for Decision, *Application for a licence to decommission Whiteshell Laboratories*, issued December 2002.

179. The Commission enquired about the possible implications of the new IAA's requirements when considering the *in situ* decommissioning of the LLW trenches. CNSC staff responded that the *in situ* decommissioning of the LLW trenches was not considered a new activity since it was presented to the Commission at the 2002 WL licence renewal hearing with an EA performed under CEEA 1992.<sup>49</sup> CNSC staff added that CNSC staff would review CNL's safety assessment for the LLW trenches during the proposed licence period and determine what type of environmental review, if needed, would be required.
180. Further on the *in situ* decommissioning of the LLW trenches, the Commission noted that the 2002 WL decommissioning licence application decision stated that the licensee was "... *proposing that some of the low-level radioactive waste currently stored in trenches in the WMF, and a limited area of radioactive contaminated sediment in the Winnipeg River, will remain in place after completion of Phase 3.*"
181. The Commission noted the concern raised by Northwatch about waste inventory and asked for clarification about the level of radioactive waste in the LLW trenches. The CNL representative reported that, as identified in the 2001 *Whiteshell Laboratories Decommissioning Project Comprehensive Study Report*<sup>50</sup> (Comprehensive Study Report), a number of trenches contained material not suitable for *in situ* decommissioning, including WR-1 reactor pressure tubes, and would need to be remediated.
182. Further on the LLW trenches safety analysis, the Commission enquired about whether CNL had a complete characterization of the content of the trenches. The CNL representative informed the Commission that CNL had detailed records of the contents of the trenches and that CNL was currently reviewing the data as part of the safety analysis to identify the trenches that required remediation or were not acceptable for *in situ* decommissioning. The Commission is satisfied that CNL is working on the completion of a safety analysis for the LLW trenches.
183. The Commission invited the Sagkeeng First Nation to describe how it had been engaged by CNL in regard to the LLW trenches decommissioning project. The Sagkeeng First Nation representative explained that the Sagkeeng First Nation had had general discussions with CNL on the *in situ* decommissioning of the LLW trenches and communicated to CNL that the Sagkeeng First Nation was opposed to having radioactive waste left in the ground on its territory. The Sagkeeng First Nation representative added that the Sagkeeng First Nation wanted to be involved in the preparation of the safety analysis for the LLW trenches and not only to review and comment it.

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<sup>49</sup> S.C. 1992, c. 37 (repealed).

<sup>50</sup> AECL, *Draft Whiteshell Laboratories Decommissioning Project Comprehensive Study Report Volume 1: Main Report*, Revision 2, March 2001.

184. On the Indigenous engagement for the LLW trenches decommissioning, CNSC staff indicated that the LLW trenches safety analysis was the subject of engagement activities.
185. The Commission enquired about the possible impact the safety assessment for the LLW trenches could have on the proposed licence and the LCH. CNSC staff confirmed that the current licence would be adequate as long as the safety assessment for the LLW trenches determined that it remained within the licensing basis and that CNL would have to propose a new action course if the safety assessment for the LLW trenches was outside the licensing basis. CNSC staff added that CNSC staff will report to the Commission on changes to the LCH via a ROR, if there was a need for any changes.
186. Based on the above information and consideration of the hearing materials, the Commission is satisfied that CNL has appropriate programs in place to safely manage waste at WL. However, the Commission expects to receive more information concerning the safety analysis for the LLW trenches at the next licence renewal or through other means.
187. The Commission understands that following the submission by CNL of a safety analysis for *in situ* decommissioning of the LLW trenches, CNSC staff will review the documentation against applicable regulatory requirements and the licensing basis. It also understands that should the *in situ* decommissioning safety analysis demonstrates that it is outside the licensing basis, approval by the Commission of any other option would be required.

#### 4.12 Security

188. The Commission examined CNL's security program at WL, which is required to implement and support the security requirements stipulated in the relevant regulations and the licence. This includes compliance with the applicable provisions of the *General Nuclear Safety and Control Regulations*<sup>51</sup> and the *Nuclear Security Regulations*.<sup>52</sup> During the current licence period, CNSC staff rated CNL's performance in this SCA as "satisfactory" for 2009 and 2010, "fully satisfactory" from 2011 to 2013, "satisfactory" from 2014 to 2017 and "below expectations" in 2018.
189. CNL provided the Commission with information on security exercises involving the RCMP carried out by the WL Emergency Services Operations as well as security improvements completed since 2009 such as vehicle denial barriers and card access-authentication at pedestrian access points. CNL added that Nuclear Security Officer

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<sup>51</sup> SOR/2000-202.

<sup>52</sup> SOR/2000-209.

fitness-for-duty was managed in accordance with RD-363, *Nuclear Security Officer Medical, Physical and Psychological Fitness*.<sup>53</sup>

190. CNL informed the Commission about security improvements completed since 2009, such as upgrades to the physical security system and security lighting equipment and intrusion systems included in the expansion of the WMA protected area.
191. CNL presented security improvements to be implemented during the next licence period including upgrades to the WL Protected Areas to improve infrastructure and security posture, as well as improvement on communication and security culture.
192. The Commission enquired about the actions taken by CNL as a result of the 2018 “below expectations” rating. CNSC staff stated that it identified the issues to CNL and that CNL had responded appropriately by submitting a corrective action plan to CNSC staff. CNSC staff added that once CNL fully implements the corrective action plan, it will meet all of the regulatory requirements to ensure a satisfactory security program meeting the regulatory requirements.
193. CNSC staff submitted that, in 2018, it identified issues in the security arrangements at WL. CNSC staff added that these issues have been the subject of enforcement actions, including an order, and that CNSC staff accepted CNL proposed corrective actions which aligns with the requirements stated in the order. CNSC staff indicated that it continued to monitor the implementation of these corrective actions.
194. The Commission asked whether CNL would be able to implement the corrective action plan according to schedule. The CNL representative stated that CNL was confident that the security program at WL will achieve a satisfactory rating as anticipated by the corrective action plan. The CNL representative emphasized that the below expectation rating was not as a result of any breach of security at the WL site, nor a result of an attempted breach of security.
195. CNSC staff recommended the addition of a licence condition to the WL licence to strengthen regulatory compliance in the security SCA and to ensure a timely implementation of the security corrective action plan. CNSC staff proposed the following licence condition 12.2: “*The licensee shall complete the implementation of all security arrangements as outlined in the corrective action plan Implementation Plan: Tiered Response Force (TRF) 119-508710-PLA-010, no later than May 1, 2020.*”
196. Asked for how a design basis threat could be defined, the CNL representative explained that design basis threats were the definitions of the different threat profiles that a nuclear facility may encounter. CNSC staff indicated that the definition in the *Nuclear Security Regulations* for a design basis threat was “the characteristics of a potential adversary in respect of which countermeasures are incorporated into the

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<sup>53</sup> Canadian Nuclear Safety Commission, *Nuclear Security Officer Medical, Physical, and Psychological Fitness*, RD-363, 2008.

design and evaluation of a physical protection system.”

197. Upon enquiry on the inspection frequency related to security, CNSC staff responded that high-security sites, such as WL, were required to conduct a security exercise every two years to test the contingency plan, which is intended to demonstrate the plan’s effectiveness to counter the design basis threat. CNSC staff added that the next scheduled security exercise was scheduled to take place on November 28, 2019.
198. Based on the information provided for this hearing, together with the specific licence condition, the Commission is satisfied that CNL will provide for the implementation of adequate measures in the area of security at WL.

#### **4.13 Safeguards and Non-Proliferation**

199. The Commission examined the adequacy of CNL’s safeguards program at WL. The CNSC’s regulatory mandate includes ensuring conformity with measures required to implement Canada’s international obligations under the *Treaty on the Non-Proliferation of Nuclear Weapons*<sup>54</sup> (NPT). Pursuant to the NPT, Canada has entered into a Comprehensive Safeguards Agreement and an Additional Protocol (safeguards agreements) with the International Atomic Energy Agency (IAEA). The objective of these agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activities in this country. CNSC staff rated CNL’s performance in this SCA as “satisfactory” throughout the current licence period.
200. CNL provided the Commission with information about its Nuclear Materials and Safeguards Management (NM&SM) program, which was designed to meet the specifications of REGDOC- 2.13.1, *Safeguards and Nuclear Material Accountancy*<sup>55</sup> and to be applied to all nuclear material and safeguards management activities performed at CNL facilities. CNL also informed the Commission that classified confidential inventory of nuclear material was placed on a stand-alone server to provide the adequate care and control of information associated with nuclear material inventories. CNL further provided details on how it had implemented Nuclear Materials Accountancy Reporting (NMAR) at WL and how it was submitting reports through the NMAR portal to ensure accurate and efficient nuclear materials reporting and security verification.
201. CNL informed the Commission that it was using a new reporting tool introduced by the IAEA and added that the current plan to retrieve all irradiated fissionable materials from the CCSF and the WMA standpipes and to transfer the materials to CRL for storage will increase the NM&SM workload at WL over the next licensing period.

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<sup>54</sup>*Treaty on the Non-Proliferation of Nuclear Weapons* (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 March 1970 (NPT).

<sup>55</sup> CNSC Regulatory Document REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*, 2018.

202. CNSC staff reported that CNL had an effective safeguards program that conformed to measures required by the CNSC to meet Canada's international safeguards obligations as well as other measures arising from the NPT. CNSC staff also reported that nuclear material accountancy information submitted by CNL met regulatory requirements and that CNL continued to grant access and assistance to the IAEA for inspection activities at WL.
203. Based on the above information, the Commission is satisfied that CNL has provided for, and will continue to implement adequate measures in the areas of safeguards and non-proliferation at WL that are necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed.

#### 4.14 Packaging and Transport

204. The Commission examined CNL's packaging and transport program at WL. Packaging and transport covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility. The licensee must adhere to the *Packaging and Transport of Nuclear Substances Regulations, 2015*<sup>56</sup> and Transport Canada's *Transportation of Dangerous Goods Regulations*<sup>57</sup> (TDG Regulations) for all shipments. During the current licence period, CNSC staff rated CNL's performance in this SCA as "satisfactory."
205. CNL provided information about its Transportation of Dangerous Goods (TDG) program and reported that this program provided an operational framework for the safe transport of all nine classes of dangerous goods in conformance with all applicable legislations, CNL procedures and international standards. CNL added that CNL will implement the new edition of the IAEA safety standard, *Regulations for the Safe Transport of Radioactive Material*,<sup>58</sup> that was released in 2018 and that CNL also planned to implement the new edition of the TDG Regulations expected to be released in the near future by Transport Canada.
206. CNL informed the Commission about recent activities such as the procurement of certified transportation/storage packages, waste handling equipment and associated equipment to facilitate LLW transfer operations and the large-scale waste shipping campaign, resulting in the transportation of approximately 1,500 m<sup>3</sup> of contaminated soil to CRL in 2017, and the remaining 866 m<sup>3</sup> in 2018. CNL also provided information about the continued collaboration with the Nuclear Waste Management Organization for the use of the used fuel transportation package to facilitate high-level waste transportation operations.

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<sup>56</sup> SOR/2015-145.

<sup>57</sup> SOR/2001-286.

<sup>58</sup> International Atomic Energy Agency, SSR-6, *Regulations for the Safe Transport of Radioactive Material*, 2018.

207. CNSC staff submitted that CNSC inspections had shown that CNL's TDG program was effectively implemented and that the transport of nuclear substances to CRL was regularly performed in a safe manner and met regulatory requirements. CNSC staff also noted that CNSC inspectors verified that CNL's personnel involved in transport held valid training certificates.
208. In relation to the intervention from Northwatch, the Commission enquired whether the transportation of nuclear substances was part of the scope of CNSC staff's environmental protection review report. CNSC staff answered that the transportation of radioactive material was not in the scope of the environmental protection review but was reviewed as part of the Comprehensive Study Report conducted in 2001 and in the Packaging and Transport SCA section of CMD 19-H4. CNSC staff added that the Comprehensive Study Report reviewed the transportation of radioactive material in terms of accidents and malfunctions and concluded that they would not result in any significant adverse environmental effects.
209. Upon request for comment about the CCRCA's assertion on radioactive waste shipments made "with no formal governmental approval or consultation", the Atomic Energy of Canada Limited (AECL) representative reported that CNL's decommissioning plans have been reviewed by AECL and accepted by AECL, a crown corporation.
210. In considering the intervention from Northwatch regarding the monitoring activities of the transport of radioactive material, CNSC staff explained that the fundamental concept of safety in the transportation of radioactive material lied within the packaging, and added that the requirements for the performance and the robustness of the package increased with the levels of risk posed by the nuclear substances being transported. CNSC staff also explained that the packaging required certification from the CNSC for the highest level of risk of material being transported.
211. In regard to the intervention from Northwatch, the Commission enquired about statistics on the number of accidents in relation to the transport of nuclear substances. CNSC staff informed that the regulations required to report any dangerous occurrence to the CNSC related to transportation of radioactive material. CNSC staff added that the events were listed in the ROR on the use of nuclear substances and that the number of reportable events was in the tens per year but that packages were not damaged. As an example, CNSC staff stated that it previously happened that a truck carrying a high-risk source caught on fire and the truck melted, however there was no safety-significant impact on the package or to the source.
212. The Commission enquired about how CNSC staff was being informed of road infractions committed by nuclear substance carriers. CNSC staff reported that it had mechanisms in place to discuss issues with regards to transport with provincial authorities. CNSC staff added that CNSC staff was part of a working group committee along with Transport Canada and provincial and territorial transportation committees, which met twice a year to discuss transportation issues. CNSC staff further added that

the citations issued for trucks that were transporting Class 7 material, mentioned in the intervention from Northwatch, had been reviewed by CNSC staff and that after following up with the Ontario's Ministry of Transportation, CNSC staff was of the view that they did not represent a risk to the environment or the health and safety of persons.

213. Asked about the safety and risk analysis based on the mode of transportation, the CNL representative provided that the usability of rail was assessed by CNL but was deemed not financially feasible compared to road transportation.
214. Further on risk assessment analysis of transportation activities, the Commission enquired about whether the proposed accelerated decommissioning timeline, compared to the original decommissioning plan assessed in the Comprehensive Study Report, would increase health and safety risks of radioactive waste transportation compared to the original decommissioning plan. The CNL representative indicated that risk analysis was part of CNL's operating procedures and that the risk for the proposed accelerated decommissioning plan on transportation was determined to be minimal. CNSC staff explained that the *Radiation Protection Regulations* had to be followed regardless of the radioactivity of the material being shipped, and that the dose limits still had to be respected.
215. In relation to a concern raised by Northwatch about driver training and vehicle maintenance, the CNL representative submitted that CNL was using subcontractors for transportation and that CNL assessed transport carriers' safety record as part of CNL's procurement process. The CNL representative added that CNL inspects every trucks and packages before they leave WL and that a more rigorous inspection corresponding with the radiological hazard would be performed on the vehicles before they leave.
216. From a concern raised in the intervention from CCRC, the Commission enquired about whether it was possible to publicly release information about radioactive shipments made by CNL, taking security considerations into account. The CNL representative stated that CNL had to consider some documents on a case-by-case basis and that CNL was actively trying to add more documents to its external web site.
217. In relation to the intervention from Northwatch, the Commission asked about the public's involvement in the certification of packages. CNSC staff indicated that certification decisions were carried out by designated officers with no public participation. CNSC staff added that the IAEA provided the CNSC with an independent review of the packaging design.
218. Asked about whether any intermediate-level liquid waste was to be shipped from WL, the CNL representative answered that CNL did not anticipate any intermediate-level liquid waste shipment. The CNL representative added that CNL intended to stabilize and solidify, in a concrete-like matrix, any liquid waste that would be generated before shipment. The Commission was satisfied with the information provided.

219. The Commission asked about whether CNL would be shipping radioactive waste to facilities other than CRL. The CNL representative stated that CNL used several commercial facilities, both in Canada and the U.S., for the treatment of its waste, adding that those facilities were generally restricted to mixed waste such as organic volatile, organic compounds mixed with tritium or other types of LLW. The CNL representative also stated that the waste were either incinerated, stabilized or macro-encapsulated before being sent back to CNL. The CNL representative further added that the resultant treated waste would be certified to meet Ontario Regulation 347 *General - Waste Management*<sup>59</sup> which allows for shallow land disposal. The Commission was satisfied with the information provided on this matter.
220. Based on the information presented on the record for this hearing, the Commission is satisfied that CNL is meeting, and will continue to meet, regulatory requirements regarding packaging and transport.

#### **4.15 Indigenous Engagement and Public Information**

##### *4.15.1 Participant Funding Program*

221. The Commission assessed the information provided by CNSC staff regarding public engagement in the licensing process as enhanced by the CNSC's Participant Funding Program (PFP). CNSC staff submitted that, in February 2019, up to \$50,000 in funding to participate in this licensing process was made available to Indigenous groups, members of the public and other stakeholders to review CNL's licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions.
222. A Funding Review Committee, independent of the CNSC, recommended that 5 applicants be provided with up to \$63,300 in participant funding. These applicants were required, by virtue of being awarded participant funding, to submit a written intervention and make an oral presentation at the public hearing commenting on CNL's licence renewal application. As such, participant funding was awarded to the following recipients:
- Canadian Environmental Law Association
  - Concerned Citizens of Renfrew County and Area
  - Manitoba Metis Federation
  - Northwatch
  - Sagkeeng First Nation

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<sup>59</sup> R.R.O. 1990, Reg. 347: *General - Waste Management*.

223. Based on the information submitted for this hearing, the Commission is satisfied that Indigenous peoples, members of the public and other stakeholders were properly notified of CNL's application and were provided with sufficient information on how to participate in this licence amendment process.

#### 4.15.2 Indigenous Engagement

224. The common law duty to consult with Indigenous peoples applies when the Crown contemplates action that may adversely affect established or potential Indigenous and/or treaty rights. The CNSC, as an agent of the Crown and as Canada's nuclear regulator, recognizes and understands the importance of building relationships and engaging with Canada's Indigenous peoples. The CNSC ensures that its licensing decisions under the NSCA uphold the honour of the Crown and considers Indigenous peoples' potential or established Indigenous and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.<sup>60</sup> The Crown has discretion as to how it structures consultation, and must prioritize fairness. It is the CNSC's practice to use both the work by CNSC staff and the Commission hearing to fulfil the requirements of the duty to consult.
225. CNL described its ongoing engagement with local Indigenous communities in accordance with REGDOC-3.2.2, *Indigenous Engagement*,<sup>61</sup> noting that CNL was seeking feedback from communities regarding traditional and current uses of the lands surrounding the WL site.
226. CNSC staff provided the Commission with information about ten Indigenous groups that were identified as having a potential interest in WL licence renewal and the CNSC engagement activities that were carried out with the identified groups. CNSC staff submitted that it encouraged communities' participation in this hearing process and also noted that CNL continued to engage with interested Indigenous communities on the licence application and ongoing activities of interest to the communities.
227. CNSC staff submitted that, since the proposed licence renewal did not include any significant modifications to WL, this renewal would not cause adverse impacts to any potential or established Indigenous and/or treaty rights. While CNSC staff expressed the view that no formal duty to consult was engaged by the licence renewal, CNSC staff further submitted that continued engagement with interested Indigenous groups was, and would continue to be a priority for CNSC staff and would be continued throughout the proposed licence period to ensure that the groups received all information requested and to establish, maintain and enhance relationships with the groups.
228. The Commission asked whether CNL and CNSC staff were actively tracking the

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<sup>60</sup> *Constitution Act, 1982*, Schedule B to the *Canada Act 1982*, 1982, c. 11 (U.K.).

<sup>61</sup> CNSC Regulatory Document REGDOC-3.2.2, *Indigenous Engagement*, 2016.

engagement activities with the Sagkeeng First Nation, the MMF and other Indigenous peoples. The CNL representative stated that CNL was tracking and reporting annually to the CNSC on its engagement activities, such as First Nations and Métis engagement, public inquiries and website traffic, in order to improve CNL's communications and future engagements. CNSC staff answered that CNSC staff tracked all interactions with Indigenous and Métis communities.

### Sagkeeng First Nation

229. The Commission expressed appreciation for the information provided by the Sagkeeng First Nation, and asked about how the Sagkeeng First Nation saw its role and responsibility as a steward of the lands. The Sagkeeng First Nation representative explained that stewards of the land needed to protect the land, the ground and also the water, for hunters to be able to live off the land. The Sagkeeng First Nation representative added that the obligation to be stewards of the land and to protect the land was reflected in their law, their Onakonigawin.
230. The Commission noted that in reading the submission from the Sagkeeng First Nation, the Commission sensed frustration in the engagement process and enquired about how the Sagkeeng First Nation saw engagement occurring for the WL decommissioning. The Sagkeeng First Nation representative explained that the Sagkeeng First Nation would like to be meaningfully engaged in the planning process for activities related to the decommissioning project, in the environmental monitoring during the institutional control period of 200 years or the end-states of the land, as the Sagkeeng First Nation will be using the site after its release.
231. Asked to provide additional information on how CNL engages and plans to engage the Sagkeeng First Nation in the WL decommissioning project and beyond, the CNL representative stated that different opportunities for further engagement would be available for CNL to interact with Indigenous groups during the development of specific execution plans to perform the activities described in the WL detailed decommissioning plan. The CNL representative added that this further engagement would enable CNL to understand and interact with the Indigenous groups and to look for a solution to influence the final implementation of the detailed decommissioning plan (DDP) to alleviate concerns. CNSC staff communicated that regulatory requirements were in place to require CNL to consult during the implementation of the DDP.
232. The Commission considered the recommendations submitted by the Sagkeeng First Nation in its intervention and enquired about whether CNL would engage with the Sagkeeng First Nation in regard to these recommendations. The CNL representative indicated that, prior to this Commission hearing, CNL sent a letter to the Sagkeeng First Nation to proactively address some of its concerns and added that CNL would continue to work with the Sagkeeng First Nation, as needed, to address all of its concerns.

233. Upon request for comment on the Sagkeeng First Nation's assertion about the practice of leaving LLW on-site being inconsistent with international standards, the Sagkeeng First Nation representative stated that leaving irradiated materials of any sorts on the WL site could not be the preferred option when the option of safely transporting the radioactive materials to a purpose-built facility was available. The Sagkeeng First Nation representative added that removal of the radioactive material could be performed safely and that the waste should go to a storage area designed for that purpose, whether in the interim or the long term.
234. In its closing remarks, the Sagkeeng First Nation representative noted that the engagement done by CNL and CNSC staff for this hearing was satisfactory. The Sagkeeng First Nation representative added that CNL and CNSC staff visited the community at numerous occasions as it should have been done in the past. The Commission thanked the Sagkeeng First Nation for their participation at this public hearing.

#### Manitoba Metis Federation

235. The Commission enquired about the MMF's current involvement in the monitoring of air, land, food and wildlife at WL as well as the MMF's recommendation on the creation of a working group to assist with the design and oversight of a monitoring plan. The MMF representative explained that, through an arrangement with CNL, the MMF had the opportunity to have a Métis monitor on the WL site undertaking work in cooperation with CNL. The MMF representative added that MMF recommended the creation of a Métis technical working group, where the MMF could assist with the design and oversight of the monitoring plan, to increase the MMF's involvement.
236. On the MMF's inclusion in the environmental monitoring process, CNSC staff recognized that the CNSC did not have a structured program for the inclusion of Indigenous groups in its inspections. CNSC staff added that it will look at the feasibility and how to implement a program across all regulated facilities. The CNL representative stated that CNL was currently working on aligning and implementing CSA N288.4, which requires the licensee to consult with and get input from impacted Indigenous groups into its environmental monitoring program.
237. Asked about the MMF's vision of the end-state of WL, the MMF representative told the Commission that the land should allow Métis citizens to eat unlimited amount of non-contaminated food. The MMF representative added that Métis citizens should be able to freely practice traditional harvesting activities in the WL area without fear of contamination, including hunting, fishing and gathering.
238. In its closing remarks, the MMF representative noted that the MMF was concerned about contamination spreading outside WL, due to its location beside the Winnipeg River. The MMF representative also encouraged the Commission to consider the recommendations made by the MMF in its submissions.

239. The Commission wishes to thank MMF for participating in this hearing and for submitting information.

#### Assessment of Indigenous Engagement

240. The Commission notes that CNL committed to dialogue with all Indigenous groups and was looking forward to sitting down with them face to face and further addressing their concerns and developing a plan and a path forward. The Commission expects CNL to engage with Indigenous groups on the end-state of WL. The Commission also requests that CNSC staff continue to engage and develop relationships with Sagkeeng First Nation, the MMF and other Indigenous groups in Manitoba, and report on progress in the context of the ROR or through other means. The Commission noted that Indigenous traditional knowledge is a type of science and should be taken into consideration to help reduce the fear surrounding the WL decommissioning.
241. Based on the information provided for this hearing, the Commission is satisfied that Indigenous engagement activities carried out for the renewal of the existing licence were adequate.

#### *4.15.3 Public Information*

242. The Commission assessed CNL's public information and disclosure program (PIDP) for WL. A public information program is a regulatory requirement for licence applicants and licensed operators of Class I nuclear facilities. Paragraph 3(j) of the *Class I Nuclear Facilities Regulations*<sup>62</sup> requires that licence applications include

“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.”

243. The Commission assessed how CNL's PIDP met the specifications of RD/GD-99.3, *Public Information and Disclosure*.<sup>63</sup> CNL provided the Commission with information regarding its Whiteshell Public Liaison Committee and the WL Economic Regeneration Partnership, formed in 2015. CNSC staff submitted that its review of CNL's PIDP found that it met regulatory requirements. CNSC staff also submitted that CNL was encouraged to refine and update its PIDP on a regular basis to meet the changing information needs of CNL's target audiences.
244. In considering the interventions from the Sagkeeng First Nation, the MMF and the CCRC, the Commission recognized that there was a significant level of concern about the risk from the WL site and the waste generated. The Commission requested

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<sup>62</sup> SOR/2000-204.

<sup>63</sup> CNSC Regulatory/Guidance Document RD/GD-99.3, *Public Information and Disclosure*, 2012.

details from CNL on how it was communicating with Indigenous groups and stakeholders about this risk. The CNL representative told the Commission that the first step was to listen and understand the perspective from the Indigenous groups and that this was followed by explaining in simple terms the clean-up program and the benefits for future generations.

245. On the subject of risk perception and the psychosocial issues for the persons living around WL, CNSC staff explained that, under the NSCA, subsection 9(b), the CNSC had to disseminate objective scientific and regulatory information to the public. CNSC staff added that typical engagement activities focussed on understanding what radiation and background radiation were and the effects of the licensee activities. CNSC staff further added that CNL was required to establish communications with its community and address those needs.
246. The Commission asked whether a psychosocial impact assessment had been completed or was contemplated by CNL for the decommissioning of WL. CNSC staff stated that psychosocial impacts of the WL decommissioning project was to be further explored as part of the environmental assessment for the WR-1 reactor *in situ* decommissioning project. The Commission suggests that the psychosocial impact assessment of the WL decommissioning project includes the whole WL site and not be limited to the WR-1 reactor.
247. Based on the information presented for this hearing, the Commission is satisfied that CNL, through the PIDP and engagement activities, has adequately communicated and will continue to communicate to the public information about the health, safety and security of persons and the environment and other issues related to WL.

#### *4.15.4 Conclusion on Indigenous Engagement and Public Information*

248. Based on the information presented, the Commission is satisfied that, overall, CNL's PIDP meets regulatory requirements and commitments made by CNL will increase the effectiveness of its program and engagement activities in keeping Indigenous groups and the public informed of WL operations. The Commission acknowledges the many best practices already implemented by CNL and encourages its efforts in creating, maintaining and improving its dialogue with the neighbouring communities.
249. The Commission acknowledges the current efforts and commitments made by CNL in relation to Indigenous engagement and CNSC staff's efforts in this regard on behalf of the Commission that go beyond the context of the licence renewal proceeding. Based on the information presented on the record for this hearing, the Commission is satisfied that this licence renewal will not result in changes to WL operations that would cause adverse or new impacts to any potential or established Indigenous and/or treaty rights. The Commission is also of the opinion that the engagement activities taken for the review of the WL licence renewal application have been adequate.<sup>64</sup>

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<sup>64</sup> *Rio Tinto Alcan v. Carrier Sekani Tribal Council*, 2010 SCC 43[2010] 2 S.C.R. 650 at paras 45 and 49.

250. The Commission notes that CNL committed to dialogue with all Indigenous groups and was looking forward to sitting down with them face to face and understanding their concerns and developing a plan and a path forward. Therefore, the Commission expects CNL to engage accordingly with First Nations and Métis groups on the end-state of WL.
251. The Commission request that CNSC staff report on progress made in its engagement activities in Manitoba in the context of future RORs or through other means. The Commission also suggests that the upcoming psychosocial impact assessment of the WL decommissioning project includes the whole WL site and not be limited to the WR-1 reactor.

#### **4.16 Decommissioning Plans and Financial Guarantee**

252. The Commission requires that CNL has operational plans for the decommissioning and long-term management of waste produced during the lifespan of WL. In order to ensure that adequate resources are available for safe and secure future decommissioning of the WL site, the Commission requires that an adequate financial guarantee for realization of the planned activities is put in place and maintained in a form acceptable to the Commission throughout the licence period.
253. CNSC staff indicated that CNL's DDP was to contain 12 volumes and that CNL was updating their Volume 1, Program Overview DDP to align with CSA N294-09, *Decommissioning of Facilities Containing Nuclear Substances*<sup>65</sup> and G-219, *Decommissioning Planning for Licensed Activities*.<sup>66</sup>
254. The Commission enquired about how many of the 12 volumes of DDP had already been developed. The CNL representative described the outstanding DDPs, such as one volume for Building 402 and the three parts of the WMA volume. The CNL representative added that CNL submitted one of those volumes to the CNSC for review and was currently working on comment disposition. The CNL representative also mentioned that the two volumes related to the standpipes and the ILW waste needed the design of the remediation equipment and the safety analysis in order to be complete.
255. The Commission enquired about a concern raised by CELA about whether the DDP could be made readily available to members of the public. The CNL representative stated that the document could be provided to the public, if requested, adding that commercially sensitive information would have to be redacted. The Commission noted CELA's recommendation of a public repository of documents to allow public access to documents without having to request them.

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<sup>65</sup> N294-09 (Reaffirmed 2014), *Decommissioning of Facilities Containing Nuclear Substances, Update No.1*, CSA Group, 2014.

<sup>66</sup> CNSC Regulatory Document, G-219, *Decommissioning Planning for Licensed Activities*, Guidance Document, 2000.

256. In relation to the CCRCA's intervention, the Commission enquired about the reasons to proceed with the proposed accelerated decommissioning compared to the original decommissioning plan assessed in the Comprehensive Study Report. The CNL representative explained that lessons learned from the decommissioning industry around the world demonstrated that it was beneficial to take some action in the near term, which can all be achieved safely within the arrangements in place. The CNL representative added that radioactive waste can be retrieved from its less optimal current storage and then sorted, characterized and repackaged. The CNL representative further added that having the radioactive waste concentrated in one location allowed for a concentration of trained personnel in radioactive waste handling.
257. Further on the accelerated decommissioning of WL, CNSC staff stated that the reduced deferment period was still in line with the decommissioning strategy that CNL outlined in their DDP. Concerning the double handling of the radioactive waste required to transfer the waste to a permanent repository once one available, CNSC staff indicated that it was CNSC staff's view that CNL applied ALARA measures for any handling of radioactive waste in a robust manner.
258. The Commission enquired about the safety implications of an accelerated decommissioning compared to the deferred decommissioning assessed in the original Comprehensive Study Report. CNSC staff explained that the irradiated WR-1 reactor components had been placed in the waste areas 30 years ago, reducing the external dose rates from short-lived isotopes by several half-lives. CNSC staff added that a delay of 5 to 10 additional years would not have a significant impact on those dose rates.
259. Further on the risk assessment of the accelerated decommissioning, CNSC staff submitted that in addition to the site-wide decommissioning plan, CNL was required to produce a DDP for each individual building or facility detailing the end-state objectives, an assessment of the doses to workers, as well as assessment of any hazard present on that site. CNSC staff added that CNSC staff reviewed and assessed every DDP before giving an approval.
260. To better understand the effects of the accelerated decommissioning, the Commission requests that CNSC staff provide a systematic assessment of the potential effects on the collective occupational dose of the proposed accelerated decommissioning compared to the deferred decommissioning assessed in the original Comprehensive Study Report. The assessment could be provided during a future ROR or other means.
261. Asked about the scenario where CNL did not decommission the WR-1 reactor within the next 10 years and a proposed licence not allowing decommissioning, CNSC staff indicated that the current licensing basis authorizes the dismantlement and complete decommissioning of the WL site and that it is the *in situ* decommissioning of WR-1 reactor that is not authorized in the proposed licence. CNSC staff added that the responsibility for managing the activities related to decommissioning was on the

licensee and that CNL would have to come to the Commission to propose a different plan.

262. The Commission asked for information about the kind of Institutional Control Program that is or would be in place for the WL site. The CNL representative explained that the program was administered by CNL and not by the province of Manitoba.
263. The Commission considered whether the financial guarantees maintained by CNL for WL were in accordance with G-219 and G-206, *Financial Guarantees for Decommissioning of Licensed Activities*.<sup>67</sup> CNSC staff informed that the CNSC received from the Federal Minister of Natural Resources an expressed commitment stating that AECL will retain ownership of the lands, assets and liabilities associated with CNL's licences, including the WL Licence, and stated that the liabilities of AECL were the liabilities of Her Majesty in Right of Canada.
264. Based on the information considered at this hearing, the Commission concludes that the detailed decommissioning plan and related financial guarantee for WL are acceptable for the purpose of the current application for licence renewal.

#### **4.17 Cost Recovery**

265. The Commission examined CNL's standing under the *Cost Recovery Fees Regulations*<sup>68</sup> (CRFR) requirements for WL. Paragraph 24(2)(c) of the NSCA requires that a licence application is accompanied by the prescribed fee, as set out by the CRFR and based on the activities to be licensed.
266. CNL informed the Commission that it was in good standing with regards to the provision of CNSC licensing fees and would continue to pay all fees, as required. CNSC staff reported that after conducting a thorough review of CNL records, CNSC staff had verified that CNL was in good standing with respect to the CRFR requirements, and had paid their cost recovery fees in full.
267. Based on the information submitted by CNL and CNSC staff, the Commission is satisfied that CNL has satisfied the requirements of the CRFR for the purpose of this licence renewal.

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<sup>67</sup> Canadian Nuclear Safety Commission, Regulatory Guide G-206, *Financial Guarantees for Decommissioning of Licensed Activities*, 2000.

<sup>68</sup> SOR/2003-212.

#### 4.18 Nuclear Liability Insurance

268. The Commission notes that CNL is required to maintain nuclear liability insurance for WL. CNCS staff submitted that CNL maintained nuclear liability insurance in accordance with the *Nuclear Liability Act*<sup>69</sup> (NLA) during the current licence period until December 31, 2016 and since then, under the *Nuclear Liability and Compensation Act*<sup>70</sup> (NLCA) that came into force on January 1, 2017. CNSC staff reported to the Commission that Natural Resources Canada, the federal department responsible for the administration of the NLCA, had confirmed that CNL had satisfied and should continue to satisfy its obligation under the NLCA during the balance of the current licence period and throughout the proposed licence period.
269. Based on the information provided on the record for this hearing, the Commission is satisfied that CNL has satisfied, and will continue to satisfy, the requirements for the maintenance of nuclear liability insurance under the NLCA. The Commission expects annual updates on CNL's status in regard to its requirements under the NLCA in the context of an annual ROR.

#### 4.19 Licence Length and Conditions

270. The Commission considered CNL's application for the renewal of the current WL licence for a period of 10 years. CNSC staff recommended the renewal of the licence for a period of 10 years, until December 31, 2029, submitting that CNL is qualified to carry on the licensed activities authorized by the licence. Several intervenors recommended shorter licence periods, as low as a one-year term.
271. The Commission asked about the rationale for recommending a 10-year licence, compared to the 1-year licence extension granted a year ago and also what had changed during the last year to justify a 10-year licence. The CNL representative explained that, at the time of the last licence renewal, CNL wanted to keep the WR-1 reactor *in situ* decommissioning linked with the licence renewal for efficiency purposes and that CNL believed, at that time, that CNL could disposition CNSC staff's comments on the Environmental Impact Statement for the WR-1 reactor *in situ* decommissioning in a short period of time justifying a one-year renewal. The CNL representative added that as the timeline had been longer than expected, CNL decided to proceed with a 10-year licence renewal request and would seek a licence amendment for the WR-1 reactor *in situ* decommissioning.
272. Further on the rationale for recommending a 10-year licence, CNSC staff indicated that, should a licence amendment for the WR-1 reactor *in situ* decommissioning be granted, CNSC staff would review the Licence Conditions Handbook to look at all the processes and procedures that need to be changed in order to allow for that activity to be conducted safely. CNSC staff added that a licence amendment would be required in

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<sup>69</sup> R.S.C., 1985, c. N-28 (repealed).

<sup>70</sup> S.C. 2015, c. 4, s. 120.

the case of a deviation from what had been approved by the Commission under the licensing basis and the safety case. The Commission noted that several intervenors had concerns about granting a 10-year licence to CNL.

273. In considering the licence period, the Commission enquired about the planned submission date of the Environmental Impact Statement for the *in situ* decommissioning of WR-1 reactor. The CNL representative stated that CNL was in the final stages of preparing the Environmental Impact Statement, responding to information requests, and that CNL anticipated a formal submission to the CNSC around March of 2020.
274. The Commission enquired whether the environmental assessment for the WR-1 reactor *in situ* decommissioning would have an impact on the licence and the Licence Conditions Handbook. CNSC staff stated that the first step would be for the Commission to make decisions under subsection 52(1) of CEAA 2012. CNSC staff added that, should the Commission issue a positive decision allowing the project to move forward, a licence amendment would be required to include the *in situ* decommissioning of WR-1 reactor in the licensing basis. CNSC staff further added that the Licence Conditions Handbook would then be updated to include a section on the *in situ* decommissioning of WR-1 reactor, including compliance verification criteria.
275. In order to provide adequate regulatory oversight of changes that are administrative in nature or less significant and do not require a licence amendment nor Commission approval, CNSC staff recommended that the Commission delegate authority for certain approval or consent, as contemplated in licence condition 3.2, to the following CNSC staff:
- Director, Canadian Nuclear Laboratories Regulatory Program Division
  - Director General, Directorate of Nuclear Cycle and Facilities Regulation
  - Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch
276. Based on the information examined by the Commission during the course of this hearing, the Commission considers that a 5-year licence is more appropriate for WL. Unavailable information on decommissioning approach is to be completed and submitted in the next few years and therefore, the Commission considers that a 5-year licence is justified on the basis of CNL's past performance, the time required to complete the Environmental Impact Statement for the *in situ* decommissioning of the WR-1 reactor, the need for CNSC staff to review the Safety Analysis Report for the underground LLW trenches, and opportunities for Indigenous groups and the public to be involved during the renewed 5-year licence period through RORs or other means.
277. The Commission accepts the licence conditions as recommended by CNSC staff. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority, and notes that it can bring any matter to the Commission as required.

## 5.0 CONCLUSION

278. The Commission has considered the licence renewal application submitted by the CNL. Based on its consideration of the information submitted, the Commission is satisfied that the application submitted by CNL meets the requirements of the NSCA, the GNSCR and other applicable regulations made under the NSCA.
279. The Commission has also considered the information and submissions of the applicant, CNSC staff and all participants as set out in the material available for reference on the record, as well as the oral and written interventions provided or made by the participants at the hearing.
280. The Commission is satisfied that CNL meets the test set out in subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that CNL is qualified to carry on the activity that the proposed licence will authorize and that it will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
281. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Nuclear Research and Test Establishment Licence issued to Canadian Nuclear Laboratories for its Whiteshell Laboratories located in Pinawa, Manitoba. The renewed licence, NRTEL-W5-8.00/2024, is valid from January 1, 2020 until December 31, 2024.
282. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 19-H4, CMD 19-H4.A, CMD 19-H4.B, CMD 19-H4.C and CMD 19-H4.D, including licence condition 12.2. The Commission also delegates authority for the purposes of licence conditions 3.2, as recommended by CNSC staff.
283. The Commission considers the environmental protection review that was conducted by CNSC staff to be acceptable and thorough. The Commission is satisfied that an EA under CEAA 2012 was not required for the WL licence renewal application and notes that the NSCA provides a strong regulatory framework for environmental protection. Further, the Commission is satisfied that CNL has made, and will continue to make, adequate provision for the protection of the environment and the health of persons throughout the proposed licence period.
284. The Commission wishes to make clear that the proposed licence does not provide for the *in situ* decommissioning of the WR-1 reactor. The Commission states that the concerns raised by Indigenous peoples, members of the public and other government regulators regarding the decommissioning of the WR-1 reactor, as well as the EA for the proposed decommissioning method, will be considered by the Commission at a future public Commission hearing(s).

285. To better understand the effects of the accelerated decommissioning, the Commission request CNSC staff to provide a systematic assessment of the potential effects on the collective occupational dose of the proposed accelerated decommissioning compared to the deferred decommissioning assessed in the original Comprehensive Study Report. The assessment could be provided during a ROR or through other means.
286. The Commission requests that CNSC staff report on progress made in its engagement activities in Manitoba in the context of future RORs or through other means. The Commission also suggests that the psychosocial impact assessment of the WL decommissioning project includes the whole WL site and not be limited to the WR-1 reactor.
287. The Commission notes that CNL committed to dialogue with all Indigenous groups and was looking forward to sitting down with them face to face and understanding their concerns and developing a plan and a path forward. Therefore, the Commission expects CNL to engage with Indigenous groups on the end-state of WL. The Commission also requests that CNSC staff continue to engage and develop relationships with Sagkeeng First Nation, the MMF and other Indigenous groups in Manitoba, and report on progress in the context of the ROR or through other means.
288. The Commission notes that CNSC staff can bring any matter to the Commission that merits its attention. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the Licence Conditions Handbook (LCH).
289. With this decision, the Commission directs CNSC staff to report on the performance of CNL and WL, as part of a ROR. CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate.



DEC 19 2019

Rumina Velshi  
President,  
Canadian Nuclear Safety Commission

Date

## Appendix A – Intervenors

Intervenors – Oral Presentations	Document Number
Local Government District of Pinawa, represented by B. Skinner	CMD 19-H4.8
Canadian Environmental Law Association, represented by K. Blaise	CMD 19-H4.5 CMD 19-H4.5A
Sagkeen First Nation, represented by D. Henderson, A. Macdonald and C. Shefman	CMD 19-H4.4 CMD 19-H4.4A
Manitoba Métis Federation, represented by M. Riel and J. Langan	CMD 19-H4.12 CMD 19-H4.12A CMD 19-H4.12B CMD 19-H4.12C
Concerned Citizens of Renfrew County and Area, represented by O. Hendrickson	CMD 19-H4.6 CMD 19-H4.6A
Nortwatch, represented by B. Lloyd	CMD 19-H4.11 CMD 19-H4.11A

  

Intervenors – Written Interventions	Document Number
Rural Municipality of Alexander	CMD 19-H4.2
R Public Liaison Committee	CMD 19-H4.3
Unions	CMD 19-H4.7
Canadian Nuclear Society	CMD 19-H4.9
North Forge East	CMD 19-H4.10