



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Decision

In the Matter of

Applicant Saskatchewan Research Council

Subject Request to Remove the Hold Point for Phase 2
of the Gunnar Remediation Project

Public Hearing
Date September 22, 2016

RECORD OF DECISION

Applicant: Saskatchewan Research Council

Address/Location: 125-15 Innovation Boulevard, Saskatoon, Saskatchewan, S7N 2X8

Purpose: Request to Remove the Hold Point for Phase 2 of the Gunnar Remediation Project

Date of public hearing: September 22, 2016

Location: Canadian Nuclear Safety Commission (CNSC) Public Hearing Room, 280 Slater St., 14th. Floor, Ottawa, Ontario

Members present: M. Binder, Chair
 A. Harvey D. D. Tolgyesi
 S. McEwan R. Velshi

Secretary: M.A. Leblanc
 Recording Secretary: M. Hornof
 Senior General Counsel: L. Thiele

Applicant Represented By	Document Number		
<ul style="list-style-type: none"> • J. Muldoon, Vice-President of the Environment Division • I. Wilson, Manager of the Environmental Remediation Program • A. Klyashtorin, Chief Scientist • S. Ketilson, Site Aspects Project Manager • M. Calette, Senior Advisor for Community and Aboriginal Engagement • M. Liskowich, Principal Consultant, SRK Consulting • T. Podaima, Senior Consultant, SRK Consulting 	CMD 16-H6.1 16-H6.1A		
CNSC staff	Document Number		
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Intervenors	Document Number		
See appendix A			
Others	Document Number		
Ministry of Environment Saskatchewan: G. Bihun Saskatchewan Ministry of the Economy: C. Hughes Population Health Unit, Northern Saskatchewan: J. Irvine			

Phase 2 Hold Point: Removed

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1.0 INTRODUCTION

1. Saskatchewan Research Council (SRC) has applied to the Canadian Nuclear Safety Commission¹ for the removal of the Phase 2 regulatory hold point for the Gunnar Remediation Project (the Project). SRC holds a Waste Nuclear Substance Licence (WNSL) for the Project, which is located at the Gunnar Legacy Uranium Mine Site (Gunnar site) in Northern Saskatchewan. The current operating licence, WNSL-W5-3151.00, expires on November 30, 2024.
2. The Gunnar Site was operated by Gunnar Mining Limited from 1955 to 1963 and officially closed in 1964 with minimal decommissioning. In January 2015, the Commission approved the Environmental Assessment Report (EA Report) and issued SRC a 10-year WNSL to remediate the Gunnar site, thus reducing the risks it posed to the health and safety of the public and the environment.²
3. The WNSL includes regulatory hold points that require SRC to receive approval from the Commission before proceeding with Phases 2 and 3 of the Project. After a hearing held in September 2015, the Commission approved the partial removal of the Phase 2 hold point regarding the remediation design plan and options for the tailings deposits at the Gunnar site.³ With this decision, SRC was allowed to begin the implementation of the remediation plans for the tailings area at the Gunnar site.
4. In August 2015, SRC submitted preliminary remediation plans and supporting information to the CNSC for the remaining site components (hereafter referred to as “other site aspects”), including the
 - waste rock piles
 - open pit
 - mine shaft and openings
 - demolition debris

In response to comments from the Saskatchewan Ministry of Environment (SME), local Indigenous communities and CNSC staff, SRC updated these remediation plans and they were accepted by CNSC staff in February 2016.

5. Having submitted the required information pertaining to the design plan and remediation of the other site aspects, SRC is now requesting the full removal of the Phase 2 hold point. The removal of the remainder of this hold point would allow SRC to proceed with full remediation of the Gunnar site.

¹ 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.

² CNSC Record of Proceedings, Including Reasons for Decision – Saskatchewan Research Council, *Request for an Environmental Assessment and Licensing Decision for the Gunnar Remediation Project*, January 14, 2015.

³ CNSC Record of Proceedings, Including Reasons for Decision – Saskatchewan Research Council, *Request for the Partial Removal of a Hold Point for the Gunnar Remediation Project*, November 27, 2015.

Issue

6. In considering the application, the Commission was required to decide if SRC has submitted the necessary documentation demonstrating that it can remediate the other site aspects at the Gunnar site in compliance with the *Nuclear Safety and Control Act*⁴ (NSCA) and the EA Report objectives.

Public Hearing

7. The Commission, in making its decision, considered information presented for a hearing held on September 22, 2016 in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*.⁵ During the public hearing, the Commission considered written submissions and heard oral presentations from SRC (CMD 16-H6.1 and 16-H6.1A) and CNSC staff (CMD 16-H6 and 16-H6.A). The Commission also considered written submissions from two intervenors (see Appendix A for a list of interventions). The hearing was webcast live via the CNSC website, and video archives are available for a three-month period following the hearing.

2.0 DECISION

8. 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 SRC has submitted the necessary information to demonstrate that SRC can remediate the other site aspects including the waste rock piles, the open pit, the mine shaft and the demolition debris, at the Gunnar Legacy Uranium Mine Site in compliance with the NSCA and the EA Report objectives. The Commission is of the opinion that SRC, in proceeding with the remediation of the Gunnar site, 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 removes the Gunnar Remediation Project Phase 2 hold point.

9. With this decision, the Commission delegates the review and approval of the detailed design description report and project schedule for the remediation of the other site aspects at the Gunnar site to the Director General of the Directorate of Nuclear Cycle and Facilities Regulation or the Executive Vice-President and Chief Regulatory Operations Officer. This review and approval of the detailed design shall be completed prior to the start of remediation activities.

⁴ Statutes of Canada (S.C.) 1997, chapter (c.) 9.

⁵ Statutory Orders and Regulations (SOR)/2000-211.

10. With this decision, the Commission directs CNSC staff to report annually on SRC's and the Gunnar Remediation Project's performance, as part of an annual *Regulatory Oversight Report*. CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate.
11. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the Licence Conditions Handbook (LCH).

3.0 ISSUES AND COMMISSION FINDINGS

12. In making its licensing decision, the Commission considered a number of issues and submissions relating to SRC's response to the Commission's requirements and criteria to be met before the authorization of the Phase 2 hold point removal. 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.
13. During the Commission's consideration of this matter, the Commission examined extensive maps, engineering drawings, tables and figures submitted by SRC in support of its Phase 2 hold point removal request. The Commission expresses its appreciation for SRC's detailed submissions, including the video submitted as part of SRC's presentation, CMD 16-H6.1A. The Commission encourages the submission of such detailed documentation in future technical matters that come before the Commission as a best practice.

3.1 Background and Current Status of Gunnar Remediation Project

14. The Commission considered the purpose and endpoints of the Project, noting SRC's commitment to the long-term mitigation of residual public safety and environmental risks posed by the Gunnar site. SRC submitted that its objective for the Project was to undertake timely and effective action to address the current environmental conditions at the site, with remediation planning focused on a specific list of site aspects for major contaminant sources and/or risk areas at the Gunnar site. SRC also submitted that the Project aimed to establish an environmental monitoring program and minimize long-term care and maintenance at the site, rendering the site suitable for eventual entry into the Saskatchewan Institutional Control Program (ICP). SRC noted that the removal of the Phase 2 hold point would allow for final remediation planning, procurement and the integration of all of the Phase 2 remediation activities.

15. The Commission assessed the information submitted by SRC and CNSC staff in regard to the human and ecological risks of the other site aspects as identified in the Gunnar Environmental Impact Statement (EIS). In its submission, SRC noted that the risks posed by the other site aspects include physical hazards, chemical and possible residual soil contamination, asbestos-containing materials (ACM), and areas with elevated gamma radiation levels.⁶ CNSC staff confirmed that SRC's focus areas for remediation efforts at the Gunnar site, as identified in the EIS, was adequate.
16. SRC reported that it had submitted preliminary remediation plans for the other site aspects to CNSC staff on August 15, 2015. SRC further submitted that it addressed comments from Indigenous groups, CNSC staff, and other stakeholders on the August 2015 plans and that, in February 2016, CNSC staff confirmed that the revised preliminary remediation plans met CNSC regulatory requirements. CNSC staff noted that it would review the detailed engineering plans prior to the start of remediation work. CNSC staff also reported that its review of the plans included several detailed comments regarding cover materials and construction practices, and that SRC had confirmed that these comments would be addressed when a contractor was selected for the remediation work. The Commission is satisfied with this approach.
17. CNSC staff reported to the Commission's satisfaction that it had continued, and would continue, to review SRC's updates for each safety and control area (SCA) to ensure that SRC has the proper procedures and programs in place to carry out the Project safely and in accordance with the NSCA and associated regulations.

3.1.1 Update on the Gunnar Mine Tailings Remediation

18. The Commission considered the progress updates provided for the mine tailings. SRC submitted that the Tailings Remediation Detailed Design Report had been finalized, with the remediation contract awarded to the Fond du Lac Nuna Joint Venture. SRC also submitted that the tailings remediation site preparation was initiated in September 2016 with full remediation operations beginning in spring 2017.
19. CNSC staff provided the Commission with additional information regarding the tailings remediation plan, noting that it consisted of
 - the construction of an engineered soil cover
 - a layer of locally available waste rock
 - a layer of locally available borrow material

CNSC staff submitted that the tailings remediation work being carried out by SRC met CNSC expectations.

⁶ In the context of this hearing, "elevated gamma radiation levels" refers to radiation levels above the remediation objective of 1.14 $\mu\text{Sv/h}$ (1.0 $\mu\text{Sv/h}$ above background which was measured to be 0.14 $\mu\text{Sv/h}$).

20. Asked about the work currently being conducted at the Gunnar site, the SRC representative provided information regarding the procurement process that SRC had used to select a contractor for the tailings remediation and on the preliminary work that would be carried out during 2016. The SRC representative also stated that the majority of the heavy equipment for the tailings remediation would be mobilized during 2017, with tailings remediation work carried out over the next four to five years. The Commission is satisfied with the tailings remediation work that has been carried out, and that is planned to be carried out, at the Gunnar site.

3.2 Remediation of Other Site Aspects

21. The Commission examined SRC's preliminary remediation plans for the other site aspects at the Gunnar site as identified in the Gunnar EA Report. Through its examination of SRC's remediation plans, the Commission was required to confirm that the plans were in accordance with CNSC regulatory requirements, as well as the EA Report objectives. SRC submitted that the remediation objectives met those detailed in the Gunnar EIS and included

- reducing external radiation exposures
- improving surface water and groundwater quality
- improving air quality

CNSC staff confirmed that the remediation objectives for the Gunnar other site aspects as submitted by SRC met those detailed in the EA Report.

22. CNSC staff reported to the Commission that the licensing basis documents for Phase 2 activities had been updated in the LCH. CNSC staff provided details about its regulatory oversight throughout the Project to ensure that SRC carried out the remediation activities safely, effectively and in accordance with CNSC regulatory requirements.
23. The Commission considered the conduct of CNSC inspections at the Gunnar site. CNSC staff provided details regarding its inspections at the Gunnar site, including its inspection findings from the most recent August 2016 inspection. CNSC staff noted that inspections had been conducted annually and would increase in frequency during remediation activities. The Commission was satisfied with the inspections being conducted at the Gunnar site.

3.2.1 General Description of Preferred Remediation Options and Preliminary Remediation Plans for the Other Site Aspects

24. The Commission examined the process that SRC used for the generation and evaluation of remediation options, including EIS decision trees, multiple accounts analyses and community input. SRC submitted that safety was SRC's number one priority when evaluating remediation options and that the remediation options assessment was completed in multiple iterations using the EIS. SRC also submitted that the development of decision trees was based on the identification of known risks to human and ecological health for each of the other site aspects and that SRC also considered EIS endpoints, input from regulators and community workshops.
25. The Commission reviewed the preliminary remediation plans for the other site aspects that were submitted by SRC on July 22, 2016. These plans included
 - stainless steel caps for the mine openings
 - the covering of areas with elevated gamma rates
 - minimizing cover erosion through the placement of a 0.5-metre layer of borrow material, which would be revegetated
 - the clean-up and consolidation of incidental debris into appropriate landfills
26. In reviewing the preliminary remediation plans, the Commission considered whether these plans met the EA objectives of:
 - consolidation and permanent disposal of non-hazardous demolition debris
 - consolidation and permanent disposal of contaminated waste rock and debris
 - stabilization of waste rock slopes
 - reduction of gamma exposure through the use of an engineered cover
 - minimization of contaminant loadings to St. Mary's Channel and Zeemel Bay

SRC submitted that a CNSC staff review of the plans had determined that the preferred remediation options met EA objectives. CNSC staff confirmed this information, noting that SRC's plans included the supporting information that had been requested by CNSC staff and the SME.

27. Asked about the evolution and changes in SRC's preliminary remediation plans, the SRC representative responded that the updated preliminary remediation plans factored in the additional data that had been collected at the site over the past several years, leading to more certainty in design assumptions. The SRC representative also stated to the Commission's satisfaction that SRC's data was complete and that additional data to verify assumptions for current site conditions would not be required.
28. Upon request for comment from the Commission, the Public Health Physician and Medical Health Officer for three Northern Saskatchewan Health Authorities provided detailed information regarding the risks that the Gunnar site presented to water and marine life in its current, unremediated state, and stated that SRC's preliminary

remediation and monitoring plans were adequate to achieve the Project's objectives in this regard. The Commission expressed satisfaction with the detailed information provided.

29. Addressing the issue of the development of the detailed design plans for the other site aspects, CNSC staff provided the Commission with information on the approval process for the detailed plans. CNSC staff noted that the intent of the preliminary remediation plans presented at this hearing was for SRC to show that CNSC requirements and EA objectives could be met. CNSC staff also stated that SRC would hire a contractor to develop the detailed plans after the removal of the Phase 2 hold point and proposed to the Commission that the LCH would specify a process for SRC to obtain CNSC staff approval of these plans prior to their implementation. The SRC representative confirmed the information provided by CNSC staff and provided additional information on the development of the detailed remediation plans. The Commission is satisfied with this approach to the development of the detailed design plans.

Waste Rock Piles

30. The Commission assessed the adequacy of SRC's remediation plans for the East Waste Rock Pile (EWRP) and the South Waste Rock Pile (SWRP) which included:
- re-establishing the historic drainage channel below the EWRP
 - reducing the volume of the waste rock by using it as a tailings cover⁷
 - grading the remaining waste rock
 - revegetating graded waste rock with native plants
31. SRC reported that the SP1 seep, which originated from Catchment 3 and ran through the waste rock piles,⁸ contributed the largest portion of the uranium load to Lake Athabasca from the Gunnar site. SRC further reported that the re-establishment of the historic drainage channel below the EWRP would significantly decrease the uranium loading from the waste rock piles.
32. CNSC staff submitted that SRC's plan for the waste rock piles met the identified EA objectives to
- improve public safety
 - reduce radiation exposure
 - decrease infiltration into contaminated waste rock
 - provide a vegetated landscape

⁷ Approved by the Commission during the September 30, 2015 hearing regarding the partial removal of the Gunnar Remediation Project Phase 2 hold point.

⁸ Defined in additional detail in CMD 16-H6.1, page 12.

33. Based on the information provided by SRC and CNSC staff, the Commission is satisfied that SRC's remediation plans for the waste rock piles meet regulatory requirements and the EA objectives and that SRC adequately considered all remediation options for this site aspect.

Demolition Debris and Contaminated Materials

34. The Commission considered the adequacy of SRC's remediation plans and objectives for the non-contaminated demolition debris, which would be consolidated into one landfill in the Mill Complex area. SRC submitted that both friable and non-friable asbestos-containing materials (ACM) were classified as non-contaminated material and explained the reasons for this classification. SRC also provided details and assumptions regarding all of the materials that would be placed in the landfill, noting that non-contaminated materials were classified as Type I Waste in the *Environmental Management and Protection Act, 2010*⁹ (EMPA 2010). In regard to the landfill, SRC submitted that it would be constructed in accordance with applicable environmental codes and EMPA 2010, and would be classified as a Type 2A landfill.
35. The Commission expressed concerns in regard to the validity of the 100-year design life for the ACM remediation plan and about possible mobilization of the ACM. The SRC representative explained that the remediation plan was based on accepted ACM management methods at municipal landfills and that the ACM would be under multiple layers of other materials, reducing the possibility of mobilization. The Commission was satisfied with the information provided on this matter.
36. The Commission also examined the adequacy of SRC's remediation plans and objectives for the contaminated and pH-impacted materials at the Gunnar site. SRC reported that the contaminated materials included hydrocarbon-contaminated soil and waste rock in multiple site areas and pH-impacted material resulting from the past Acid Plant operations within the Acid Plant area. SRC explained the assumptions that were made regarding these hydrocarbon-contaminated and pH-impacted waste materials, noting that this was considered Type II waste (EMPA 2010). SRC submitted that pH-impacted material in the Acid Plant area would be placed within the Gunnar Main Tailings (GMT) area and that the remainder of the contaminated material would be placed in a second landfill in the Acid Plant area in accordance with all applicable environmental codes.
37. SRC submitted that the implementation of remediation plans for the demolition debris and contaminated materials would remove physical hazards to humans and wildlife and improve site aesthetics. SRC further noted that the remediation plan for the contaminated materials would reduce the ecological risks presented by these materials through their encapsulation in a landfill with a low permeability element. CNSC staff confirmed that SRC's planned landfills for both the demolition debris and the contaminated materials met requirements and EA objectives.

⁹ *Environmental Management and Protection Act, 2010*, Statutes of Saskatchewan, 2010, Chapter E-10.22.

38. The Commission requested additional information in regard to the concerns raised by the Saskatchewan Environmental Society about the remediation plans of the pH-impacted fill and contaminated waste rock. An SRC representative clarified that the pH-impacted material was not acid-generating on its own and that this material primarily included elemental sulphur-contaminated waste rock and fill from the Acid Plant area, causing the generation of sulphuric acid. The SRC representative further stated that studies had shown that there were likely no other contaminants, such as hydrocarbons, present in this area and that incorporating the pH-impacted material as a tailings cover in the GMT area had been assessed as an adequate remediation method for this material. The Commission was satisfied with the information provided on this matter.
39. Asked about why the remediation plans included the construction of two landfills, the SRC representative responded that a dedicated landfill for the hydrocarbon-contaminated material was required to ensure that the hydrocarbons were not liberated and that they would be contained within the landfill. The Commission was satisfied with the explanation on this point.
40. Addressing the issue of the discrepancy of the landfill cover thickness in the remediation plans submitted by SRC, the SRC representative clarified that the design thickness of the cover was 3.3 metres, including a 0.5-metre vegetated frost-protection layer. The SRC representative stated that this discrepancy in landfill cover thickness would be clarified in SRC's detailed remediation plans. The Commission directs CNSC staff to verify the resolution of this discrepancy during its review of the detailed design plans.
41. Based on the information provided, the Commission concludes that SRC's remediation plans for the demolition debris and contaminated materials remediation meet regulatory requirements and the EA objectives and that SRC adequately considered all remediation options for this site aspect.

Open Pit

42. The Commission examined the adequacy of SRC's remediation plans for the Gunnar open pit. SRC submitted that these plans included reducing the loadings to the open pit by remediating the other site aspects. SRC also submitted that the pit water would be kept isolated from St. Mary's Channel through the existing waste rock plug and the maintenance of the rock barrier.
43. CNSC staff noted that, throughout the Project, the safety of the pit walls and water quality would be monitored. CNSC staff further noted that its review showed that SRC's remediation plans for the open pit met the EA objectives of improving the open pit's water quality, thus preventing additional contamination of St. Mary's Channel.

44. Asked about the current risks presented by the open pit, the SRC representative explained that the contaminant of potential concern (COPC) loadings to the pit presented the most significant risks and that the remediation of the other site aspects would reduce these loadings, subsequently reducing the loadings to St. Mary's Channel. CNSC staff confirmed the information provided by SRC and explained that, although the pit presented minimal human health risks, the flow of contaminated water from the pit to St. Mary's Channel could present ecological risks.
45. The Commission further enquired about the volume of outflow from the pit to St. Mary's Channel. CNSC staff responded that, although the pit was at a higher elevation than Lake Athabasca, the surface water flow from the pit to St. Mary's Channel was currently minimal due to the barrier between the two bodies of water. CNSC staff also noted that a CNSC hydrologist visited the Gunnar site in 2016 and that no outflow from the pit to St. Mary's Channel was observed at that time. The Commission was satisfied with the information provided on this matter.
46. In its intervention, the Saskatchewan Environmental Society raised several concerns about the uranium and radium loadings to the pit, as well as the concentration of these contaminants at various depths in the pit. The Commission asked for information on this matter and also enquired about whether there was active water exchange between the bottom of the pit and the flooded mine workings. The SRC representative provided detailed information about uranium and radium loadings to the pit, about the stable chemocline in the pit and how the chemocline affected the concentration of COPC. The SRC representative stated that SRC's studies had not shown evidence of active water exchange between the flooded mine workings and the upper parts of the water column in the pit. The Commission is satisfied with the information provided on this matter. The Commission also commends SRC on the 3D models of the pit and its underground mine workings that were provided to Indigenous groups, members of the public and other stakeholders during consultation activities, and to the Commission during this hearing.
47. Based on the information provided by SRC and CNSC staff, the Commission is satisfied that SRC's remediation plans for the Gunnar open pit meet regulatory requirements and the EA objectives and that SRC adequately considered all remediation options for this site aspect.

General Site, Mine Shaft and Openings

48. The Commission examined SRC's remediation plans for the general site, as well as for the mine shaft and openings. SRC submitted that several areas throughout the Gunnar site, including those around the open pit, the West Town Site, the General Mine Site Area and Catchment 3, emitted gamma radiation levels of more than 1.0 $\mu\text{Sv/h}$ above background levels.¹⁰ SRC provided the Commission with the preliminary remediation

¹⁰ The EA objective for remediation of sites with elevated gamma rates was 1.0 $\mu\text{Sv/h}$, with the background radiation levels at the Gunnar site measured at 0.14 $\mu\text{Sv/h}$.

plans for these elevated gamma areas (exclusive of the Catchment 3 area) which included covering them with a minimum of 0.5 metres of borrow material that would be graded and contoured to reduce erosion and permit revegetation with native plant species.

49. SRC reported that the gamma levels in Catchment 3 (exclusive of the backspill release triangle area adjacent to the GMT), were on average 2.32 $\mu\text{Sv/h}$. However, SRC noted that, because this area was predominately wet boggy, not easily accessible, and the dose rate was very low, the potential exposure to native herbivorous species was greatly reduced. SRC provided details on remediation options for the Catchment 3 area and stated that, after evaluation of these options, no remedial actions were recommended for Catchment 3 because their drawbacks outweighed their benefits. CNSC staff confirmed these findings to the Commission.
50. The Commission noted that Catchment 3 was a very large area and requested additional information regarding its radiological characterization. The SRC representative provided additional information regarding the radiological and physical characterization of Catchment 3, as well as information supporting the decision to take no remedial actions in this area. CNSC staff confirmed the information presented by SRC and noted that a CNSC radiological survey in August 2016 confirmed that radiation levels in Catchment 3 were low.
51. Asked about whether the radiation levels in Catchment 3 were expected to decrease with time, CNSC staff responded that the vegetation in the area provided a natural cover and that, as the level of vegetation increased, the radiation levels were expected to decrease. The Commission is satisfied with the information presented in regard to the characterization of Catchment 3.
52. SRC reported that its preferred remediation option for the mine shaft and openings was to cover them with custom-made stainless steel engineered caps, secured with anchor bolts and grouting. SRC further reported that *The Mines Regulations, 2003*¹¹ and/or specifications established by the Ontario Ministry of Northern Development and Mines would be used in the detailed design plans. CNSC staff reported that it was of the opinion that the preliminary remediation plans for the mine shaft and openings were adequate and met the design objective of permanently closing the openings.
53. The Commission noted that the proposed stainless steel caps for the mine openings were not in line with subsection 407(1) of *The Mines Regulations, 2003*, which, in reference to openings to abandoned underground mines, states

“A shaft, raise, adit or other opening must be secured by covering the top of it with a bulkhead designed by a professional engineer of reinforced concrete at bedrock or at the top of the concrete collar of the shaft, raise, adit or opening.”

¹¹ Revised Regulations of Saskatchewan, *The Mines Regulations, 2003*, Chapter O-1.1 Reg. 2, effective July 16, 2003.

Addressing this issue, the SRC representative explained that SRC had approvals to use stainless steel caps at other remote historical mine sites and provided details regarding the benefits of using stainless steel instead of concrete caps at these sites. The SRC representative also confirmed to the Commission's satisfaction that, prior to any implementation and installation of the stainless steel caps, these would be inspected and approved by the appropriate Saskatchewan mine inspection authorities. The Saskatchewan Ministry of Environment (SME) representative confirmed the information provided by SRC, noting that the long-term integrity of the caps would be monitored through the ICP, if and when that program were applied to the Gunnar site.

54. Asked about the fit of the stainless steel caps over the mine openings, the SRC representative explained that the caps would be individually field-fitted to the openings, leaving a minimal gap between the bedrock and the cap. The Commission was satisfied with the explanations provided in regard to the mine opening caps.
55. Based on the information provided by SRC and CNSC staff, the Commission is satisfied that SRC's preliminary remediation plans for the general Gunnar site, the mine shaft and the mine openings meet the EA objectives and regulatory requirements and that SRC adequately considered all of the remediation options for these site aspects. Furthermore, the Commission agrees with SRC's proposed approach that no remediation actions are taken in the Catchment 3 area since the drawbacks of remediation outweigh any benefits.

3.2.2 *Project Management System*

56. The Commission examined SRC's Project Management System, which was submitted to the CNSC on May 15, 2015 and consisted of five major components:
 - Environmental Protection Program
 - Safety Program
 - Training Program
 - Quality Program
 - Communication Program

The Commission also assessed the information provided by SRC in regard to the goals of the management system.

57. SRC submitted that it was granted ISO 9001:2008 certification¹² in 2016, which further strengthened SRC's corporate approach to quality management and its Project CLEANS. SRC also reported that the management system coordinated how work was

¹² ISO 9001:2008: *Quality Management Systems – Requirements*, specifies the requirements for an organization's quality management system.

conducted at the Gunnar site.

58. The Commission examined SRC's Project Execution Plan (PEP) for both the tailings remediation project and the remediation of the other site aspects. The Commission noted that a specific PEP had been developed for the tailings remediation and that a PEP for the other site aspects remediation project will be developed upon removal of the Phase 2 hold point.
59. The Commission evaluated SRC's preliminary timeline and the supporting documentation for the Project. In its submission, SRC noted that remediation of the three Gunnar tailings deposits and of the other site aspects would be completed over a three- to six-year period following the removal of the Phase 2 hold point. CNSC staff reported that its reviews had found the proposed project timeline to be satisfactory.
60. Based on the information provided on the record for this hearing, the Commission is satisfied that SRC has an appropriate management system in place for the Project and that SRC's preliminary project timeline, as presented on the record for this hearing, is acceptable.

3.2.3 Conclusion on Remediation of Other Site Aspects

61. On the basis of the information presented on the record for this hearing, the Commission concludes that SRC appropriately considered the EA objectives and all remediation options in the development of the preliminary remediation plans for the Gunnar other site aspects. SRC also appropriately applied the multiple accounts analyses and decision tree processes for the determination of the preliminary remediation options, while taking into consideration input from regulators and community workshops. Therefore, the Commission concludes that the preferred remediation options and plans for the Gunnar site meet CNSC regulatory requirements and the EA Report objectives.
62. The Commission is satisfied that SRC's Project Management System will ensure adequate coordination of the work that will be conducted at the Gunnar site. The Commission is also satisfied that the preliminary project timeline for the remediation of the Gunnar site is adequate.
63. The Commission directs CNSC staff to verify, during CNSC staff's review of and prior to the approval of SRC's detailed design plans, that the discrepancy in landfill cover thickness, noted by the Commission in SRC's preliminary remediation plans, is resolved.

3.3 Technical Evaluation of the Preliminary Remediation Plans

64. The Commission considered the technical evaluation of the preliminary remediation plans for the other site aspects, as proposed by SRC and discussed in subsection 3.2. Specifically, the Commission examined whether SRC's plans met technical and regulatory requirements, and were consistent with good engineering practices for similar sites in terms of
- geotechnical engineering and geology
 - hydrology
 - hydrogeology and geochemistry
 - radiation exposure and radiation protection
 - maintenance and monitoring
65. The Commission examined the standards, regulations, regulatory guides and good engineering practices for similar legacy mine sites that CNSC staff used as a basis for its review. CNSC staff informed the Commission that all of its technical evaluations considered the importance of long-term performance as described in G-320, *Assessing the Long-term Safety of Radioactive Waste Management*.¹³
66. The Commission considered the SME's review of SRC's preliminary remediation plans, noting that the SME was also responsible for granting project approvals. SRC submitted that it had worked with the SME throughout the Project and had modified its plans based on the SME's feedback. CNSC staff confirmed this information, noting that the SME had carried out a technical review of the preliminary remediation plans, had found the plans acceptable and had stated that it would grant the necessary project approvals to SRC.

3.3.1 Geotechnical Engineering and Geology

67. The Commission assessed the information provided by SRC and CNSC staff in regard to the geotechnical aspects of SRC's preliminary remediation plans. Specifically, the Commission assessed the plans to determine whether they represented good engineering practices for similar sites and met the specifications of G-320.
68. SRC provided the Commission with detailed information regarding the geology and the vegetation at the Gunnar site. SRC further reported that vegetation at the site was typical of subarctic continental climates and that, although the vegetation was disturbed throughout mining operations, some of the previously disturbed areas had naturally revegetated.

¹³ CNSC Regulatory Guide G-320, *Assessing the Long-term Safety of Radioactive Waste Management*, December 2006.

69. The Commission assessed the information submitted by SRC in regard to the available borrow sources near the Gunnar site. SRC provided information on borrow source studies that had been conducted, including the areas and quantities of borrow available, its relevant geotechnical characteristics and its revegetation potential.
70. On the issue of the quantity and location of borrow material available for remediation activities, the SRC representative confirmed that sufficient borrow material would be available for both the tailings and other site aspects remediation, that the borrow material required was above the water table and that the impacted borrow areas would be revegetated. The Commission is satisfied with the information provided on this matter.
71. CNSC staff provided the Commission with information on its review of the geotechnical components of SRC's preliminary remediation plans, including the cover design for waste rock piles and long-term geotechnical and seismic stability. CNSC staff also reported that a CNSC geotechnical engineer had visited the Gunnar site and held discussions with SRC's consultants in support of its review. CNSC staff stated that it was satisfied that the geotechnical engineering and geology components of the preliminary remediation plans were developed in accordance with good engineering practices and that EA objectives and CNSC requirements were met.
72. The Commission noted that the peak ground acceleration for the site was estimated to be 0.031g,¹⁴ equal to a 1 in 2,475-year average recurrence interval, and enquired about how such a precise estimate was derived. CNSC staff stated that the peak ground acceleration estimate was very conservative and provided the Commission with detailed information on its derivation using the *National Building Code Seismic Hazard Calculation*.¹⁵ The SRC representative and CNSC staff confirmed that all aspects of the Project met seismicity parameters. The information provided by SRC and CNSC staff satisfies the Commission on this point.
73. Based on the information provided, the Commission is satisfied that the geotechnical engineering and geological aspects of SRC's preliminary remediation plans for the other site aspects are adequate, represent good engineering practices and meet the parameters of G-320. The Commission expects CNSC staff to continue its review of detailed remediation and design plans, SRC's compliance with geotechnical engineering and geological specifications, and to continue its inspections at the site.

¹⁴ Units of 'g' refer to acceleration due to gravity.

¹⁵ National Building Code of Canada Seismic Hazard Calculation, *National Building Code of Canada 2015*, National Research Council, 2015.

3.3.2 Hydrology

74. The Commission examined the hydrological information submitted by SRC and CNSC staff to evaluate whether the preliminary remediation plans reflected good engineering practices and the guidance in G-320. SRC provided the Commission with detailed information, engineering diagrams and photographs regarding the direction and volume of surface water flow at the site aspects and explained how these were considered in the development of the preliminary remediation plans. SRC also reported that, with respect to the other site aspect remediation plans, the surface water flow of concern could be broken down into the following four catchments:
- Catchment 3
 - the Acid Plant area
 - the Mill Complex/West Gunnar Pit area
 - the waste rock piles
75. The Commission considered the details of CNSC staff's review of the hydrological components of SRC's preliminary remediation plans. CNSC staff reported that a CNSC hydrologist travelled to the Gunnar site and held discussions with SRC's consultants in support of this review. CNSC staff provided its findings to the Commission and reported that the hydrological components of the preliminary remediation plans were developed in accordance with good engineering practices, satisfying EA objectives and CNSC requirements.
76. On the issue of the adequacy of the 200-year design storm raised by the Saskatchewan Environmental Society, CNSC staff provided the Commission with information on design storm selection methodology, noting that the methodology used the widely accepted approach as explained in the *Revised Universal Soil Loss Equation for Application in Canada*.¹⁶ CNSC staff also provided the Commission with soil loss calculation and historic regional climate statistical information, further explaining why CNSC staff considered SRC's selection of the 200-year design storm to be conservative. The SRC representative confirmed that additional remediation could be conducted through post-remediation monitoring and the ICP, if required. The Commission is satisfied with the information provided on this point.
77. The Commission requested additional information on the Saskatchewan Environmental Society's concerns regarding the appropriateness of the 100-year design life for the waste rock gamma cover and the associated 3.5 cm per 100 years erosion rate. An SRC representative explained that accepted engineering best practices were used for the development of the cover system and provided design criteria information. The SRC representative also stated that modelling had shown that the expected cover erosion

¹⁶ *RUSLEFAC – Revised Universal Soil Loss Equation for Application in Canada: A Handbook for Estimating Soil Loss from Water Erosion in Canada*, Agriculture and Agri-Food Canada, 2002.

would be manageable and would decrease with time as cover vegetation was re-established. The SRC representative confirmed to the Commission's satisfaction that cover erosion would be closely monitored and that plans to address erosion, should it exceed acceptable limits, would be in place.

78. Based on the information provided on the record for this hearing, the Commission is satisfied that the hydrology components of SRC's preliminary remediation plans for the other site aspects are adequate, represent good engineering practices and meet the objectives of G-320. The Commission further states that it is satisfied that the selection of the 200-year design storm is acceptable. The Commission expects CNSC staff to continue its review of detailed remediation and construction plans and to continue its inspections at the site. CNSC staff confirmed that it would continue to verify SRC's compliance with CNSC requirements for hydrology throughout the Project, including ensuring the long-term stability of the cover system and the verification that surface water drainage was operating according to design.

3.3.3 Hydrogeology and Geochemistry

79. The Commission reviewed the information provided by SRC and CNSC staff regarding contaminant loadings and transport and site geochemistry to evaluate the adequacy of the preliminary remediation plans in reducing COPC loadings to St. Mary's Channel and the open pit to below EA objectives.
80. The Commission assessed the detailed information and engineering drawings submitted by SRC regarding groundwater flows throughout the Gunnar site and how these contributed to COPC transport between site aspects. SRC provided information regarding the current COPC concentrations and migration patterns at the site. SRC noted that the waste rock and the tailings that had migrated to the Catchment 3 area were the sources of the majority of the COPC that had been detected in high concentrations in Zeemel Bay and St. Mary's Channel. SRC also provided information on the risks associated with these COPC, noting that some ecological risks, primarily associated with the presence of uranium and radium-226, had been identified.
81. CNSC staff reported that it had reviewed SRC's source term concentrations, geochemistry and COPC transport calculations and provided the Commission with details of this review. CNSC staff also reported that a CNSC engineer had visited the Gunnar site and consulted with SRC's consultants as part of this hydrogeology and geochemistry review. CNSC staff stated that its review showed that SRC's geochemistry and COPC transport calculations were conservative, used direct field measurement results and demonstrated that the remediation plans would result in surface water concentrations being reduced below EA objectives. CNSC staff noted that it would continue to verify SRC's compliance with CNSC requirements for the hydrogeology and geochemistry components throughout the Project, including the verification of the locations and methodologies for water quality monitoring.

82. On the issue of how the remediation activities would reduce the migration of COPC to Zeemel Bay and St. Mary's Channel, the SRC representative provided details about the mechanisms by which the covers would reduce COPC migration pathways, thereby decreasing loadings to Lake Athabasca and the open pit. CNSC staff also provided information about how these COPC loadings would decrease over time following remediation. The Commission was satisfied with the information provided on the reduction of COPC loadings to St. Mary's Channel and Zeemel Bay.
83. In its intervention, the Saskatchewan Environmental Society expressed concerns about post-remediation COPC concentrations in Lake Athabasca. The Commission requested additional information regarding the modelling that characterized these concentrations and the expected steady state for COPC concentrations near the site. The SRC representative responded that post-remediation COPC concentrations had been estimated in the EIS and provided the Commission with information regarding projected COPC concentrations. The SRC representative explained that the concentrations would meet EA objectives which included decreasing them below the *Guidelines for Canadian Drinking Water Quality*¹⁷ and the *Saskatchewan Surface Water Quality Objectives*.¹⁸ The SRC representative also stated that, through extensive monitoring during the remediation phase, information regarding the accuracy of EIS estimates and post-remediation COPC concentrations would be obtained. CNSC staff confirmed the information provided by SRC and that post-remediation COPC concentrations would meet EA objectives. The Commission is satisfied with the information provided on this point.
84. The Commission enquired about why the estimated reduction of uranium loadings to the Gunnar pit was significantly lower for the EWRP (reduction of 34%) than for the Mill Complex and the Acid Plant (reductions of 90% and 91%, respectively). The SRC representative provided the Commission with information about the reduction of the uranium loadings from the EWRP, noting that the majority of the current uranium loadings from the EWRP reported to Zeemel Bay, with only a small amount reporting to the pit. CNSC staff confirmed the information provided by SRC, noting that the EWRP uranium loads were already very low and that the reduction estimates were conservative.
85. Addressing the issue that projected post-remediation COPC concentrations were not included in SRC's or CNSC staff's documentation, CNSC staff confirmed that this information would be included in future documentation submitted to the Commission. The Commission was satisfied with the information provided on this matter.
86. On the basis of the information provided for this hearing, the Commission is satisfied that the hydrogeology and geochemistry at the Gunnar site have been adequately characterized. The Commission is also satisfied that these components of SRC's preliminary remediation plans for the other site aspects are adequate, represent good engineering practices and demonstrate that the COPC loadings to Lake Athabasca,

¹⁷ *Guidelines for Canadian Drinking Water Quality*, Health Canada, October 2014.

¹⁸ *Surface Water Quality Objectives*, Water Security Agency, Saskatchewan, June 2015.

Zeemel Bay and the open pit will be reduced to below EA objectives. The Commission expects CNSC staff to continue its review of SRC's detailed remediation and construction plans, to continue its inspections at the site and to verify the efficacy of the remediation plans through independent measurements and inspections.

3.3.4 Radiation Exposure

87. The Commission assessed the information submitted by SRC and CNSC staff regarding radiation exposure at the Gunnar site. The Commission evaluated the adequacy of SRC's preliminary remediation plans in reducing gamma and radon emissions to meet EA objectives. The Commission also assessed these plans to determine whether they reflected internationally accepted methods for remediating mine sites, such as those in International Atomic Energy Agency safety standards and technical series.
88. SRC submitted detailed information and diagrams regarding several gamma surveys that had been completed at the site between 1986 and 2011. SRC noted that the remediation performance criterion for gamma radiation was 1.14 $\mu\text{Sv/h}$, while the average gamma dose rates associated with the other site aspects were 1.12 to 2.47 $\mu\text{Sv/h}$, with a maximum dose rate of 11.63 $\mu\text{Sv/h}$ at the EWRP.
89. The Commission noted that, over the course of a year, the EA site dose rate objective of 1.14 $\mu\text{Sv/h}$ would lead to a significantly higher dose than the public dose limit of 1 mSv/year. CNSC staff provided site use information as detailed in the EA and stated that, based on the activities that were expected to be conducted at the site, a person was not expected to exceed the public dose limit at a dose rate of 1.14 $\mu\text{Sv/h}$. The Commission is satisfied with the information provided on this point.
90. CNSC staff reported that, in support of its radiation exposure and protection review, CNSC staff reviewed SRC's radiation protection plans and a CNSC engineer visited the Gunnar site and consulted with SRC's consultants. CNSC staff noted that radiation exposure from the waste rock piles was governed by gamma radiation and radon gas, and provided the Commission with waste rock radiological characterization results. CNSC staff also provided information regarding additional areas at the Gunnar site with elevated radiological measurements.
91. CNSC staff confirmed to the Commission that its reviews had shown that SRC's proposed composition and thickness of soil covers, of at least 0.5 metres for the waste rock piles and one metre for other areas with elevated radiological measurements, were sufficient to control radiological impacts. CNSC staff also confirmed that the proposed covers reflected good engineering practices and that CNSC staff would continue to verify reduction in radiological exposure at the site throughout the Project.

92. On the basis of the information provided for this hearing, the Commission is satisfied that radiation exposure at the Gunnar site has been adequately characterized. The Commission is also satisfied that this component of SRC's preliminary remediation plans for the other site aspects is adequate, represents internationally accepted remediation methods for decommissioned mine sites and demonstrates that the site's radiological impacts, including gamma radiation and radon exhalation, will be reduced to meet EA objectives. The Commission expects CNSC staff to verify the efficacy of the remediation plans through independent measurements and inspections.

3.3.5 Infrastructure and Project Logistics

93. The Commission considered the adequacy of SRC's plans for infrastructure and other project logistics at the Gunnar site. Specifically, the Commission assessed SRC's plans for worker accommodation, heavy equipment mobilization and the management of waste created by remediation activities.
94. SRC submitted that there were no permanent accommodations within commuting distance of the site and that the existing 85-person on-site camp would accommodate the Project's workforce, with minor modifications. SRC provided the Commission with details regarding key infrastructure at the Gunnar camp and the modifications that were required. CNSC staff reported that, based on reviews of SRC's infrastructure plans for the site, the planned accommodations were adequate in supporting the required workforce.
95. SRC provided the Commission with information regarding the mobilization of heavy equipment, fuel and other materials to the site, noting that the preferred mobilization methods were via ice road or by barge. CNSC staff submitted that SRC's plans for heavy equipment mobilization and materials transport were acceptable due to the remoteness of the site and the lack of a year-round access road.
96. SRC reported that all non-hazardous waste generated during remediation activities would be disposed of in the appropriate on-site landfill, as detailed in subsection 3.2. SRC also confirmed to the Commission's satisfaction that, should any hazardous materials be generated during remediation activities, these would be transported off-site for disposal at an appropriate facility.
97. Based on the information presented for this hearing, the Commission is satisfied that SRC has adequate plans in place for site infrastructure and project logistics such as equipment mobilization and waste management.

3.3.6 *Maintenance and Monitoring*

98. The Commission examined the information submitted by SRC and CNSC staff in regard to maintenance and monitoring programs throughout the Project to determine whether they met EA objectives and regulatory requirements.
99. SRC reported that environmental monitoring and follow-up programs were an integral component of the federal and provincial legislative and regulatory framework in support of Phase 2 of the Project and provided details about the potential environmental effects that would be assessed by the programs.
100. SRC also reported that, although the environmental monitoring program was initially designed for the purpose of the EA, additional testing that was conducted at the Gunnar site in 2015-16 resulted in the expansion of the monitoring program. SRC provided the Commission with results of this additional testing, as well as detailed information on the focus of the expanded environmental monitoring program. CNSC staff confirmed the information submitted by SRC and provided additional information on the major focuses of the monitoring and follow-up programs that would ensure that SRC's remediation of the Gunnar site would meet regulatory requirements and EA objectives.
101. SRC noted that the Gunnar EIS recommended community involvement in specific aspects of the monitoring programs and provided the Commission with details on how this recommendation was implemented. The Commission expressed satisfaction with the community initiative.
102. CNSC staff reported that SRC's monitoring and maintenance programs, and the quarterly reporting of SRC's results, would be used to evaluate SRC's performance against remediation objectives. CNSC staff also noted that it had assessed these programs and had found them to be sufficient to ensure the long-term performance of the remediation measures.
103. CNSC staff provided the Commission with details regarding its monitoring and compliance verification of the technical aspects of the Project, including the revision of the detailed design plan specifications, the conduct of inspections and ensuring the long-term integrity of remediation measures. CNSC staff also reported that the CNSC was collaborating with the SME to establish maintenance and monitoring objectives for the Gunnar site to ensure its long-term safety.
104. The Commission noted the concerns of the Saskatchewan Environmental Society regarding the long-term stability and monitoring of the Gunnar site and asked for more information on this matter. The SRC representative responded that long-term funding and a monitoring and maintenance schedule were required to be in place for a site to be accepted into the ICP and confirmed that these were available for the Gunnar site. The Commission was satisfied with the information provided on this matter.

105. Addressing the issue of future monitoring requirements at the Gunnar site, the SRC representative responded that the monitoring and maintenance schedules would be adjusted over time based on monitoring results. However, the SRC representative noted that the current plans reflected site monitoring as part of the ICP in perpetuity.
106. The Commission further enquired about whether any site use restrictions would have to be implemented at the completion of the Project. CNSC staff provided information about the site EA objectives, noting that an important component of Phase 3 of the Project was to identify site use restrictions prior to the consideration of transfer of the Gunnar site into the ICP. The SRC representative confirmed the information provided by CNSC staff, stating that the intent of the Project was to remediate the site to allow the safe conduct of traditional uses and that permanent structures would not be permitted at the site.
107. The Commission asked whether the Gunnar site could be returned to CNSC regulatory control, should it be required. CNSC staff responded that a licensing exemption for the site would be granted only on the basis that appropriate institutional controls were in place and that if these controls were no longer available, the Commission would bring the site back to CNSC oversight. The Commission is satisfied with the information provided on this matter.
108. On the issue of environmental monitoring through the CNSC's Independent Environmental Monitoring Program (IEMP) and the collection of baseline site data, CNSC staff explained that IEMP monitoring had been scheduled to be conducted primarily at operating facilities for the next several years. The SME representative added that a large amount of baseline data had been collected by SRC at the Gunnar site over the past several years.
109. The Commission further enquired about whether this baseline data had been posted on the SME's website. The SME representative responded that the SME did not have a mechanism to post this data; however, the data had been included in SRC's annual reports on its Project CLEANS website. The Commission notes the importance of public availability of baseline environmental data for the Gunnar site and instructs CNSC staff to collaborate with SRC in the posting of this data on the CNSC website.
110. Based on the information provided for this hearing, the Commission is satisfied that the maintenance and monitoring programs that are currently in place and that will be in place for the Project are adequate.

3.3.7 Conclusion on Technical Evaluation of Preliminary Remediation Plans

111. On the basis of the information presented on the record for this hearing, the Commission concludes that SRC's preliminary remediation plans for the Gunnar Project meet technical and regulatory requirements, meet EA objectives, and are consistent with good engineering practices for similar sites, including the guidance in G-320.
112. The Commission is satisfied that SRC and CNSC staff have collaborated with the SME and that they will continue to collaborate with the SME.
113. The Commission concludes that the maintenance and monitoring programs that are, or will be, in place for the Project are adequate to ensure long-term integrity of remediation measures.
114. The Commission notes the importance of public availability of baseline environmental data for the Gunnar site and instructs CNSC staff to collaborate with SRC in the posting of this data on the CNSC website.

3.4 Aboriginal Engagement and Public Information

3.4.1 Participant Funding Program

115. The Commission assessed the information provided by CNSC staff regarding public engagement in the licensing process provided for by the CNSC's Participant Funding Program (PFP). CNSC staff submitted that, in 2015, the CNSC made available up to \$20,000 through its PFP to assist Indigenous groups, members of the public and other stakeholders to review and participate in both SRC Phase 2 hold point removal applications. CNSC staff further submitted that, based on recommendations from a Funding Review Committee independent of the CNSC, the CNSC exceeded the PFP ceiling of \$20,000 and awarded \$47,790.43 for the review of all Phase 2 remediation plans to four participants in 2015 who, by virtue of receiving participant funding, were required to submit a written intervention to the Commission. More information on this funding is found in the November 2015 *Record of Decision*.¹⁹
116. CNSC reported that Indigenous community representatives were awarded additional funding through the PFP to participate in the April 26, 2016 Gunnar Remediation Options Workshop in Saskatoon, SK. More information on the Gunnar Workshop is provided in subsection 3.4.2.

¹⁹ CNSC Record of Proceedings, Including Reasons for Decision – Saskatchewan Research Council, *Request for the Partial Removal of a Hold Point for the Gunnar Remediation Project*, November 27, 2015.

3.4.2 *Aboriginal Engagement*

117. The common law duty to consult with Aboriginal peoples applies when the Crown contemplates action that may adversely affect established or potential Aboriginal 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 Aboriginal peoples. The CNSC ensures that all of its licensing decisions under the NSCA uphold the honour of the Crown and consider Aboriginal peoples' potential or established Aboriginal and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.²⁰
118. The Commission examined the information submitted by SRC regarding its ongoing engagement with Aboriginal groups in the Athabasca Region. SRC provided details and specific goals of its Aboriginal engagement program, noting that community meetings were held three times per year with participation from the CNSC, the SME and the Northern Saskatchewan Environmental Quality Committee. SRC submitted that it had involved community members in revegetation workshops to ensure meaningful consultations with respect to traditional knowledge.
119. SRC also informed the Commission that it frequently communicated with Aboriginal communities through various types of media, and that SRC was committed to employing Aboriginal group members for this Project and involving communities through programs such as the Student Environmental Monitoring Program.
120. SRC submitted information regarding the issues and concerns that were raised by participants throughout engagement activities such as public meetings, open houses, the April 2016 Gunnar Workshop and traditional knowledge study interviews. SRC noted that local communities highlighted the need for the Project to support traditional land use and the participation of Athabasca Basin community members, and to consider traditional knowledge and feedback from Elders. SRC also submitted that it had conducted an additional Gunnar site tour and follow-up workshop on August 22-23, 2016. SRC affirmed its commitment to ongoing consultation with identified Aboriginal groups throughout Phases 2 and 3 of the Project. The Commission expressed satisfaction with the Aboriginal engagement activities that SRC has conducted to date.
121. The Commission considered SRC's disposition of participants' questions from the April 2016 Gunnar Remediation Options Workshop. SRC reported that community questions and concerns included the need for community involvement in the Project, the return of the Gunnar site to a natural state, the reduction of COPC at the site and the basis for the selection of remediation methods. SRC informed the Commission that it had committed to addressing a number of the concerns raised. CNSC confirmed the information provided by SRC, noting that this workshop was a follow-up to those held in June and July 2015, and that it was successful in meeting its intended goals.

²⁰ *Constitution Act, 1982*, Schedule B to the *Canada Act 1982*, 1982, c. 11 (U.K.).

122. The Commission reviewed the detailed information submitted by CNSC staff regarding the Aboriginal consultation conducted by the CNSC for the Project. CNSC staff submitted that Aboriginal groups with potential interest in the project were:

- identified early in the review process
- provided information about the Project
- given an opportunity to comment on key documents throughout Phases 1 and 2 of the Project, including all of SRC's remediation option plans
- encouraged to participate in the Commission's public hearing process

CNSC staff further submitted that, based on the Project's objective to remediate the Gunnar site, CNSC staff was not aware of any adverse impacts that the Project may have on potential or established Aboriginal and/or treaty rights.

123. CNSC staff informed the Commission that, since the September 30, 2015 hearing, CNSC staff had undertaken consultation activities including project updates to all identified Aboriginal groups, participation in SRC's annual tour of northern Saskatchewan communities, and the organization of, and participation in, the April 2016 Gunnar Workshop. CNSC staff reported that the CNSC was committed to ongoing consultation with the identified Aboriginal groups throughout the Project, including on-going environmental monitoring activities and regular community updates.
124. Asked about remediation plan consultations that SRC and CNSC staff conducted with Aboriginal groups and local communities, the SRC representative stated that SRC had gotten very good support from local communities and provided the Commission with additional details on SRC's consultation process, noting that SRC was committed to ensuring that this process was open and transparent. CNSC staff noted that a primary concern raised in the consultation activities was the timely start of remediation work at the site.
125. On the issue of the procurement process for the Project that was raised in the Prince Albert Grand Council's intervention, the SRC representative provided information about local labour inclusion in SRC's procurement processes. The SRC representative explained that SRC had an Aboriginal labour inclusion rate of over 50% for all of its projects and that local labour inclusion was part of SRC's contractual obligations. The Commission is satisfied that SRC's procurement processes ensure a high level of local Aboriginal labour inclusion.
126. The Commission enquired about how traditional land uses at the Gunnar site, such as trapping, would be impacted by the Project. The SRC representative acknowledged that the owners of trap lines at the site may experience short-term disruptions during the remediation work. The SRC representative stated, however, that SRC had begun discussions with the trap line owners to minimize disruptions and to provide them with appropriate compensation for these disruptions.

127. The Commission expects SRC and CNSC staff to continue engagement and consultation activities with identified Aboriginal groups. The Commission also encourages Aboriginal groups to continue their participation in this project and consultation activities.
128. In response to the Prince Albert Grand Council's intervention, President Binder stated that he would be happy to meet with the Prince Albert Grand Council representatives and invited the Prince Albert Grand Council representatives to set up a meeting with him at their convenience.

3.4.3 Public Information

129. The Commission examined SRC's public information program. For this proceeding, the Commission considered whether SRC's public information program met the specifications of RD/GD-99.3, *Public Information and Disclosure*,²¹ a compliance verification criterion for SRC's licence noted in SRC's LCH, which states that

“The primary goal of the public information program, as it relates to the licensed activities, is to ensure that information related to the health, safety and security of persons and the environment, and other issues associated with the lifecycle of nuclear facilities are effectively communicated to the public.”
130. SRC provided the Commission with information regarding its community engagement program, noting that SRC and the Government of Saskatchewan had made significant efforts in communicating with residents of the Athabasca Basin region. SRC noted that more than 135 meetings had been held with local community members since the start of the Project and that SRC communicated with local communities on a regular basis through various modes. SRC also provided the Commission with detailed information regarding its community engagement activities since August 2015 in preparation for this hearing.
131. CNSC staff confirmed the information provided by SRC and reported that SRC had an effective public consultation program and had considered input from local communities in the development of the preliminary remediation plans for the other site aspects. CNSC staff further submitted that the remediation plans for the other site aspects were posted on SRC's website for review in August 2015 and that the plans were updated in February 2016, incorporating comments from Indigenous groups, members of the public, the SME and CNSC staff.
132. In regard to the overall concerns raised in the Saskatchewan Environmental Society's intervention, CNSC staff responded that it had examined all of the intervenor's concerns and had confirmed that the preliminary remediation plans adequately addressed EA objectives and that there were no outstanding issues. CNSC staff also stated that it had had the opportunity to discuss many of these concerns with the

²¹ CNSC Regulatory Document RD/GD-99.3, *Public Information and Disclosure*, March 2012.

intervenor, as well as with community members, during the April 2016 Gunnar Workshop. The SRC representative confirmed that this intervenor had participated in SRC's public consultation activities and confirmed SRC's commitment to consult with the Saskatchewan Environmental Society throughout the Project. The SRC representative also noted that best practices had been implemented throughout the Project and that SRC was committed to undertake all of the work required to meet the EA objectives. The Commission is satisfied that, based on the information provided by the licensee and CNSC staff, the intervenor's concerns were adequately considered by SRC and CNSC during the development of remediation plans for the Project and for this hearing.

3.4.4 *Conclusions on Aboriginal Engagement and Public Information*

133. In the Commission's September 2015 decision on the partial removal of the Phase 2 hold point, the Commission directed that intervenors be given the opportunity to participate in the review of SRC's application for the full removal of the Phase 2 regulatory hold point for the Project, including the review of the preliminary remediation plans for the other site aspects. The Commission concludes that, based on the information provided on the record for this hearing, Indigenous groups, members of the public and other stakeholders have been encouraged to participate in the review of SRC's application and preliminary remediation plans for the other site aspects. Furthermore, assistance has been offered to prepare for, and participate in, the Commission's public hearing through the CNSC's PFP.
134. The Commission acknowledges the efforts and commitments made by SRC in relation to Aboriginal engagement and CNSC staff in relation to Aboriginal consultation. The Commission also acknowledges the efforts made by CNSC staff in relation to the legal duty to consult. Based on the information provided on the record for this hearing, the Commission is satisfied that the proposed Phase 2 hold point removal for the Gunnar Remediation Project will not cause any adverse impacts to any potential or established Aboriginal and/or treaty rights and that the engagement activities taken for the review of the Phase 2 other site aspects remediation activities were adequate.²²
135. On the basis of the information provided for this hearing, the Commission is satisfied that SRC's public information program meets regulatory requirements and is effective in keeping Indigenous communities and the public informed of facility plans and operations. The Commission encourages SRC to continue to maintain and improve its dialogue with Indigenous groups and the neighbouring communities.
136. The Commission notes that Indigenous groups, members of the public and other stakeholders will have an opportunity to participate and raise any concerns during the presentation of the annual *Regulatory Oversight Report* on the performance of SRC and the Gunnar Remediation Project, as well as during future public proceedings.

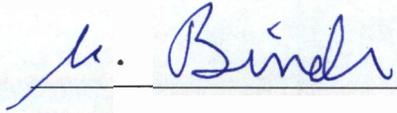
²² *Rio Tinto Alcan v. Carrier Sekani Tribal Council*, 2010 SCC 43[2010] 2 S.C.R. 650 at paras 45 and 49.

137. The Commission commends SRC on its Aboriginal engagement and public consultation activities and considers SRC's efforts in this area to be a best practice.

4.0 CONCLUSION

138. The Commission has considered the information and submissions from SRC, CNSC staff and all participants as set out in the material available for reference on the record, as well as the oral and written submissions provided by the participants at the hearing.
139. The Commission is satisfied that SRC has provided the necessary information to demonstrate that it can remediate the other site aspects at the Gunnar Legacy Uranium Mine Site in compliance with the NSCA. Based on its consideration of the matter, the Commission is satisfied that SRC, as it proceeds with the remediation of the Gunnar site, will continue to 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.
140. Therefore, the Commission removes the Gunnar Remediation Project Phase 2 regulatory hold point to allow SRC to proceed with the remaining remediation activities at the Gunnar Legacy Uranium Mine Site.
141. With this decision, the Commission delegates the review and approval of the detailed design description report and project schedule for the remediation of the other site aspects at the Gunnar site to the Director General of the Directorate of Nuclear Cycle and Facilities Regulation or the Executive Vice-President and Chief Regulatory Operations Officer. This review and approval of the detailed design shall be completed prior to the start of remediation activities.
142. The Commission acknowledges and is satisfied with SRC's and CNSC staff's engagement of Aboriginal groups and Athabasca Basin communities in this Project and encourages its continuation throughout the remediation and monitoring phases of the Project.
143. With this decision, the Commission directs CNSC staff to report annually on SRC's and the Gunnar Remediation Project's performance, as part of an annual *Regulatory Oversight Report*. CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate.
144. The Commission encourages Indigenous groups, members of the public and other stakeholders, to intervene during the annual *Regulatory Oversight Report* on SRC's and the Gunnar Remediation Project's performance, which will provide an additional opportunity for comments from intervenors.

145. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the LCH.

A handwritten signature in blue ink that reads "M. Binder". The signature is written in a cursive style and is positioned above a horizontal line.

NOV 29 2016

Michael Binder
President,
Canadian Nuclear Safety Commission

Date

Appendix A – Intervenors

Intervenors	Document Number
Saskatchewan Environmental Society	16-H6.2
Prince Albert Grand Council	16-H6.3