



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Decision

In the Matter of

Applicant Orano Canada Inc.

Subject Application for the Renewal of the Uranium Mine
Licence for Cluff Lake Project

Public Hearing
Date May 15, 2019

RECORD OF DECISION

Applicant: Orano Canada Inc.

Address/Location: 817 – 45th Street West
Saskatoon, SK S7L 5X2

Purpose: Application for the Renewal of the Uranium Mine Licence for Cluff Lake Project

Application received: September 17, 2018

Date of public hearing: May 15, 2019

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

Members present: R. Velshi, President
T. Berube S. Demeter
K. Penney M. Lacroix

Assistant Secretary: K. McGee
Recording Secretary : C. Moreau
Senior General Counsel: L. Thiele

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P. Fundarek	Director, Uranium Mines and Mills Division	
K. Sauvé	Director, Health Sciences and Environmental Compliance Division	
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See appendix A		
T. Moulding	Manager, Uranium and Northern Operations, Environmental Protection Branch, Ministry of Environment	
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Licence: Renewed

Table of Contents

1.0	INTRODUCTION	1
2.0	DECISION	2
3.0	ENVIRONMENTAL ASSESSMENT	3
3.1	Application of the Canadian Environmental Assessment Act, 2012	3
3.2	CNSC Environmental Protection Review	4
3.3	Conclusion on Environmental Assessment	5
4.0	ISSUES AND COMMISSION FINDINGS	5
4.1	Management System	5
4.2	Radiation Protection	7
4.2.1	<i>Conclusion on Radiation Protection</i>	8
4.3	Conventional Health and Safety	8
4.4	Environmental Protection	9
4.4.1	<i>Environmental Monitoring</i>	13
4.4.2	<i>Independent Environmental Monitoring Program</i>	16
4.4.3	<i>Conclusion on Environmental Protection</i>	16
4.5	Safeguards and Non-Proliferation	17
4.6	Indigenous Engagement and Public Information	17
4.6.1	<i>Participant Funding Program</i>	17
4.6.2	<i>Indigenous Engagement</i>	19
4.6.3	<i>Public Information</i>	23
4.6.4	<i>Conclusion on Indigenous Engagement and Public Information</i>	24
4.7	Decommissioning Plans and Financial Guarantee	24
4.8	Cost Recovery	25
4.9	Licence Length and Conditions	26
5.0	CONCLUSION	27
	Appendix A – Intervenors	A

1.0 INTRODUCTION

1. Orano Canada Inc. (Orano), formerly AREVA Resources Canada Inc., has applied to the Canadian Nuclear Safety Commission¹ (CNSC) for the renewal of the Uranium Mine Decommissioning Licence (UMDL) for its Cluff Lake Project, located in northwestern Saskatchewan. The current licence, UMDL-MINEMILL-CLUFF.01/2019, which expires on July 31, 2019, allows Orano to decommission the Cluff Lake Project site, possess, manage and store nuclear substances. Orano requested a licence renewal for a period of 5 years.
2. The Cluff Lake Project site consisted of two underground mines, four open pit mines, an above ground tailings management facility (TMA), a mill and other support facilities. Mining activity commenced at the Cluff Lake Project site in 1979 and ceased in 2002, while decommissioning activities began at the site in 2004 and was completed in 2006.
3. With its licence renewal application, Orano requested to:
 - modify the licensed area and only include parcels of land on which CNSC licensable activities will continue;
 - replace the Detailed Decommissioning Plan (DDP) with a Detailed Post-Decommissioning Plan (DPDP); and
 - reduce the financial guarantee amount to reflect the completion of decommissioning activities.
4. In December 2018, up to \$75,000 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 (FRC), independent of the CNSC, recommended that up to \$135,724 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 respecting on Orano's application.

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;
 - b) whether Orano is qualified to carry on the activity that the licence would authorize; and

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.

- c) whether, in carrying on that activity, Orano 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.

Public Hearing

6. The Commission, in making its decision, considered information presented for a one-part public hearing held on May 15, 2019 in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*.² During the hearing, the Commission considered written submissions and heard oral presentations from Orano (CMD 19-H3.1, CMD 19-H3.1A) and CNSC staff (CMD 19-H3, CMD 19-H3.A). The Commission also considered oral and written submissions from 12 intervenors (see Appendix A for a list of interventions) and heard from other governmental officials on matters within their knowledge. The hearing was webcast live via the CNSC website, and video archives are available on the CNSC's website.

2.0 DECISION

7. 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 Orano is qualified to carry on the activity that the licence will authorize. The Commission is of the opinion that, in carrying on that activity, Orano 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 Uranium Mine Licence issued to Orano Canada Inc. for its Cluff Lake Project located in northern Saskatchewan. The renewed licence, UML-MINEMILL-CLUFF.00/2024, is valid from August 1, 2019 until July 31, 2024.

8. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 19-H3.
9. The Commission notes that, with this decision, the standardized licence type for Orano's licence is amended to be a "Uranium Mine Licence," rather than a Uranium Mine Decommissioning Licence. It is the licensed activities as defined in Part IV) of the licence, rather than the licence type, that provide for the activities that Orano is

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

authorized to carry out at the Cluff Lake Project.

10. The Commission is satisfied that an environmental assessment (EA) under the *Canadian Environmental Assessment Act, 2012*³ was not required in this matter and considers the environmental protection review that was conducted by CNSC staff to be acceptable and thorough.
11. The Commission accepts the modified licensed area of the Cluff Lake Project site as presented in CMDs 19-H3 and CMD 19-H3.1 and remove Island Lake and Cluff Lake from the licensed area.
12. The Commission accepts Orano's DPDP and the associated revised financial guarantee to reflect the completion of active decommissioning activities.
13. With this decision, the Commission directs CNSC staff to report periodically on the performance of Orano and the Cluff Lake Project as part of a *Regulatory Oversight Report* (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 in the proceedings considering the ROR.
14. 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 a regular basis of any changes made to the Licence Conditions Handbook (LCH).

3.0 ENVIRONMENTAL ASSESSMENT

3.1 Application of the Canadian Environmental Assessment Act, 2012

15. In coming to its decision, the Commission was first required to determine whether an EA under the *Canadian Environmental Assessment Act, 2012*⁴ (CEAA 2012), was required.
16. The application submitted by Orano is for a licence renewal and Orano is not requesting authorization to conduct any new activities. The Commission notes that a licence renewal is not a designated project under CEAA 2012.
17. 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.
18. CNSC staff submitted that a Comprehensive Study Report (CSR) was developed by the CNSC in 2003 under the *Canadian Environmental Assessment Act*⁵ and that the

³ S.C. 2012, c. 19, s. 52

⁴ Statutes of Canada (S.C.) 2012, chapter (c.) 19, section (s.) 52

report included long-term water quality predictions and proposed Decommissioning Surface Water Quality Objectives (DWSQO) and Decommissioning Sediment Quality Objectives (DSQO) for several water bodies in both the Island Lake and Cluff Lake watersheds. CNSC staff reminded the Commission that it accepted these long-term predictions and decommissioning objectives in 2004.⁶ CNSC staff reported to the Commission that Orano had achieved or was adequately achieving CSR long-term decommissioning objective at the Cluff Lake Project site.

3.2 CNSC Environmental Protection Review

19. The Commission considered the completeness and adequacy of the environmental protection review under the *Nuclear Safety and Control Act*,⁷ (NSCA) and its regulations that CNSC staff conducted for this licence renewal. CNSC staff findings included that:
 - Orano's environmental protection programs met CNSC regulatory requirements and results from Orano's and from other regional monitoring programs carried out by other levels of government confirmed that the environment and health of persons around the Cluff Lake Project site remained protected.
 - Orano's 2015 environmental risk assessment (ERA), which assessed the environmental (ecological and human health) risks from radiological, non-radiological and physical stressors associated with current facility operations, was carried out in accordance with CSA N288.6-12, *Environmental risk assessment at Class I nuclear facilities and uranium mines and mills*.⁸
 - The 2017 sampling results from CNSC's Independent Environmental Monitoring Program (IEMP) confirmed that the environment and health of persons around the Cluff Lake Project site were protected.
20. CNSC staff reported to the Commission that models predicted that the contaminant concentrations in the environment around the Cluff Lake Project would remain below the DSWQO for the long-term.
21. 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 Cluff Lake Project 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.

⁵ S.C. 1992, c.37 (repealed)

⁶ CNSC *Record of Proceedings* – COGEMA Resources Inc., *Application by COGEMA Resources Inc. for a Decommissioning Licence for the Cluff Lake Uranium Mine Project*, Date of Decision: June 9, 2004.

⁷ Statutes of Canada (S.C.) 1997, chapter (c.) 9.

⁸ N288.6-12, *Environmental risk assessment at Class I nuclear facilities and uranium mines and mills*, CSA Group, 2012.

3.3 Conclusion on Environmental Assessment

22. Based on the information provided for this hearing, the Commission concludes that the licence renewal is not a designated project under CEEA 2012 and that an EA under CEEA 2012 is not required. Further, the Commission is satisfied that Orano has made, and will continue to make, adequate provision for the protection of the environment throughout the proposed renewed licence period.
23. 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

24. In making its licensing decision, the Commission considered a number of issues and submissions relating to Orano's qualification to carry out the 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.
25. Orano submitted a licence renewal application for the Cluff Lake Project on September 17, 2018. In its consideration of this matter, the Commission examined the completeness of the application and the adequacy of the information submitted by Orano, as required by the NSCA, the *General Nuclear Safety and Control Regulations*⁹ (GNSCR) and other applicable regulations made under the NSCA. The Commission also examined CNSC staff's assessment of Orano's performance in each applicable safety and control areas (SCAs) and in relation to several other matters of regulatory interest over the current licence period. CNSC staff began using the current rating system for decommissioned mines in the *Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2015*.¹⁰

4.1 Management System

26. The Commission examined Orano's management system which covers the framework that establishes the processes and programs required to ensure that the Cluff Lake Project achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture. CNSC staff rated Orano's performance in this SCA as "satisfactory" from 2016 to 2018.
27. The Commission assessed the information submitted by Orano and CNSC staff

⁹ SOR/2000-202.

¹⁰ Commission Member Document: 16-M49, *Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2015, 2016*.

regarding the Cluff Lake Project's Integrated Management System (IMS), which provides the operating practices and procedures for the Project. The Commission notes that CSA N286-12,¹¹ *Management system requirements for nuclear facilities*, was included as a compliance verification criterion in the proposed Cluff Lake Project Licence Conditions Handbook.

28. Orano submitted that the revised IMS accounting for the reduced project activities included campaign monitoring activities, as well as environmental, health and safety, and emergency preparedness and response requirements. CNSC staff submitted to the Commission that, over the licence period, Orano had maintained an appropriate management system with respect to the decreasing risks associated with the Cluff Lake Project.
29. In considering the concerns about the tailings management as raised by the ACFN in its intervention, the Commission enquired about the decommissioning options that had been available with regard to mine waste from open pits and underground developments. The Orano representative explained that Orano had considered a number of tailings management options at the beginning of the mining operation. The Orano representative added that the mining method used at Cluff Lake was the cut-and-fill method for the underground mines whereby, as a section was mined out, it was backfilled with a cemented rock fill. The Orano representative further added that the Claude pit and a section of the DJX pit were backfilled with waste rock that had been assessed as having the potential for acid rock drainage. The Commission was satisfied with the information provided on this point.
30. Addressing the purpose of concrete containers present at the Cluff Lake Project site during the early days of operation, as mentioned by the ACFN in its intervention, the Orano representative explained that, since the tailings from the first ore mined at the D pit at Cluff Lake contained not only uranium but also gold, the tailings was put into concrete containers until the mill had the capacity to extract the gold. The Orano representative added that the concrete containers were broken down and disposed of in the TMA after the gold-containing tailings were processed. The Commission is satisfied that these concrete containers were appropriately disposed of and do not present any unreasonable risk at the site.
31. Noting the concerns expressed by the Métis Nation of Saskatchewan, Northern Region 2, Local 62 in regard to ensuring the decommissioning work at the Cluff Lake Project site was done to the required level, the Commission enquired about compliance verification during the proposed licence period. CNSC staff indicated that it was the role of the CNSC to carry out compliance verification activities and to ensure that Orano met the decommissioning objectives as proposed by its licence renewal application. Based on the information provided by CNSC staff in regard to its compliance verification activities during the current licence period, the Commission is satisfied that these activities will continue during the proposed renewed licence period.

¹¹ N286-12, *Management system requirements for nuclear facilities*, CSA Group, 2012.

32. The Commission assessed Orano's waste management for the Cluff Lake Project. Orano submitted that its waste management practices were included in the Cluff Lake Project IMS and that wastes generated during monitoring activities were removed from the Cluff Lake Project site after each monitoring campaign for disposal in the appropriate recycling or waste facilities. The Commission is satisfied that the management of waste produced at the Cluff Lake Project site is adequately integrated into the Orano's IMS.
33. On the basis of the information provided on the record for this hearing, the Commission concludes that Orano has appropriate organization and management structures in place for the Cluff Lake Project. Orano's performance in the current licence period provides a positive indication of Orano's ability to adequately carry out the activities under the proposed renewed licence.

4.2 Radiation Protection

34. 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 Orano in the area of radiation protection. The Commission also considered how the Cluff Lake Project 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. CNSC staff rated Orano's performance in this SCA as "satisfactory" from 2016 to 2018.
35. The Commission considered the information provided by Orano and CNSC staff to assess whether the Cluff Lake Project radiation protection program satisfied the requirements of the *Radiation Protection Regulations*¹² (RPR). CNSC staff submitted that, throughout the current licence period, Orano implemented an appropriate and effective radiation program at the Cluff Lake Project that satisfied regulatory requirements.
36. Orano submitted to the Commission that radiation sources that once existed on the Cluff Lake Project site have either been removed or managed as part of the decommissioning activities, and that the Cluff Lake Project site was now at background levels of radiation exposure. Orano also submitted that worker exposure to radiation had been at background levels for several years before personnel monitoring for radon and long-lived radioactive dust ceased in 2006, and gamma dosimetry ceased in 2013. Orano also provided the Commission with results of annual incremental gamma dose summary from 2009 to 2012 which showed that doses were well below the threshold for monitoring.
37. CNSC staff reported that for the time period between 2009 and 2012, quarterly gamma exposures for the Cluff Lake project workers were typically at the 0.1 mSv

¹² SOR/2000-203.

detection limit of dosimeters. CNSC staff also reported that Orano was continuing radiological monitoring of the remediated areas throughout the site to demonstrate that post-decommissioning radiological conditions for gamma and radon were stable and levels of airborne contaminants remained at background levels and radiation doses to the public were below the annual public dose limit of 1 mSv.

38. CNSC staff told the Commission that a series of gamma clearance surveys were conducted of various land parcels at Cluff Lake to measure the effectiveness of the remediation activities. CNSC staff added that the end-state radiological conditions for all areas proposed to be removed from the licensed area met the approved cleanup criteria and ALARA objectives established for the Cluff Lake Project.
39. Noting the concerns expressed by the CRDN and SES about the radiation warning signs at the exploration core sample storage location, the Commission requested information on the hazards associated with the site. The Orano representative stated that warning signs were on the fences indicating that this was a radiation area but added that Orano recognized that the area would not meet the criteria for radiation signs under the NSCA and its regulations. In response, CNSC staff indicated that section 23 of the RPR referring to the “frivolous posting of signs” was intended to discourage people from posting signs that indicated the presence of radiation fields or radioactive nuclear substances where there were not any or the levels were not sufficient to warrant to have the signs posted. CNSC staff added that, however, Orano's perspective indicated to people not to take core samples. The Commission recommends that Orano reassess its usage of radiation warning signs in this area, with a member noting that this was an example of risk communication that was perhaps not having its intended purpose.

4.2.1 Conclusion on Radiation Protection

40. 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, Orano provides, and will continue to provide, adequate radiation protection to the health and safety of persons and the environment throughout the renewed licence period.
41. The Commission is satisfied that Orano's radiation protection program at the Cluff Lake Project meets the requirements of the *Radiation Protection Regulations*.

4.3 Conventional Health and Safety

42. The Commission examined the implementation of a conventional health and safety program for the Cluff Lake Project, 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. CNSC staff rated the Orano's performance in this SCA as "satisfactory" from 2016 to 2018.

43. Orano provided the Commission with information regarding its conventional health and safety program activities for the Cluff Lake Project monitoring campaigns, such as a health and safety orientation at the start of the work, pre-campaign drug and alcohol testing, accident prevention and emergency response plans.
44. Orano provided details about the reported injuries and the occupational lost time injuries over the licence period. Orano informed that the total reported injuries were between 6 and 9 injuries per year between 2009 and 2012, none between 2013 and 2018 and that no occupational lost time injuries occurred at the Cluff Lake Project site since 2009.
45. CNSC staff reported that, although not a focus of its inspections, Orano's conventional health and safety program was observed during all CNSC staff site visits and inspections, and that Orano met CNSC staff's expectations with respect to the conventional health and safety SCA.
46. Orano indicated that the Cluff Lake Project site had unrestricted access and that controlling human behaviours using fences, signs or fish advisories was not required.
47. Based on the information presented, the Commission concludes that Orano's conventional health and safety program at the Cluff Lake Project site satisfies CNSC requirements. The Commission concludes that the health and safety of workers at the Cluff Lake Project site was adequately protected during the current licence period, and that the health and safety of persons will continue to be adequately protected throughout the proposed renewed licence period.

4.4 Environmental Protection

48. The Commission examined Orano's environmental protection programs at the Cluff Lake Project, which are intended to identify, control and monitor all releases of radioactive and hazardous substances, and aim to minimize any negative effects on the environment which may result from the licensed activities. These programs include environmental sampling and monitoring. CNSC staff rated Orano's performance in this SCA as "satisfactory" from 2016 to 2018.
49. Orano submitted that environmental sampling and monitoring data for the Cluff Lake Project were collected in accordance with the environmental monitoring programs included in the Saskatchewan Ministry of Environment (SMOE) project approval. Orano added that sampling locations, parameters, and frequencies were outlined in the Environmental Monitoring Locations and Schedule program document.

50. Orano provided the Commission with information regarding the reportable and non-reportable environmental incidents that occurred over the current licence period. Orano explained that, in response to incidents involving hydrocarbon contamination, contaminated soil was taken to the hydrocarbon landfarm until it was closed in 2013 and that, since 2013, contaminated soil has been taken to appropriate offsite facilities. The Commission notes that Orano has not had any reportable spills since 2009, as defined in provincial statutes and that no environmental incidents were reported from 2013 to 2017.
51. Orano submitted to the Commission that a comprehensive ecological and human health risk assessment for the Island Creek and Cluff Creek watersheds was submitted to the CNSC in 2015 and that the assessment met the specifications of CSA N288.6-12, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*.¹³ CNSC staff submitted that its review of the risk assessment showed that it met CNSC staff's expectations and the specifications of CSA N288.6-12.
52. The Commission considered the site-specific decommissioning objectives at the Cluff Lake Project site that were established to evaluate the success of the decommissioning program for the Cluff Lake Project. Orano stated that monitoring data were used to evaluate the achievement of objectives in the short-term and numerical modelling was used to predict future, sustained achievement of the objectives. Orano also stated that revised numerical modelling had improved confidence that the decommissioning objectives would be sustainably achieved in the future.
53. CNSC staff submitted that Orano has demonstrated compliance with the surface water criteria based on the Saskatchewan Surface Water Quality Guidelines listed in the Cluff Lake Project Detailed Decommissioning Plan (DDP). CNSC staff added that, for future Cluff Lake Project Environmental Risk Assessment (ERA), CNSC staff have requested that Orano adopt the 2011 Canadian Council of Ministers of the Environment (CCME) guidelines for uranium of 15 µg/L.¹⁴ The Commission notes that this guideline for uranium is lower than the DSWQO for the Cluff Lake Project site that was accepted in 2003.¹⁵
54. The Commission noted the recommendation about extreme weather events made in the intervention by the MN-S and enquired about whether extreme weather event effects had been evaluated in respect of the stability of the Cluff Lake Project. The Orano representative stated that both short-term events and climate change-related extreme weather events had been considered in the modelling, and that the TMA and the waste rock pile were designed to withstand an extreme event. The Orano

¹³ N288.6-12, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*, CSA Group, 2012.

¹⁴ Canadian Council of Ministers of the Environment, *Uranium, Water Quality for the Protection of Aquatic Life*, CASRN 7440-61-1, <http://st-ts.ccme.ca/en/index.html?lang=en&factsheet=225> (accessed 7 June 2019).

¹⁵ For the Cluff Lake Project, the DSWQO for uranium was calculated as 0.002 * hardness (hardness in mg/L).

representative added that forest fires were expected to occur on a 40-year frequency in the Cluff Lake area and that the vegetation was expected to re-establish itself after such an event due to the high level of nutrients in the area. CNSC staff explained to the Commission that it had assessed the occurrence of extreme events during the design planning phase of the decommissioning. CNSC staff added that provisions were and would remain in place to ensure the long-term integrity of the engineered structures should there be a need for repairs. The Commission is satisfied that extreme weather events were and continue to be adequately considered by Orano to ensure the continued stability of the Cluff Lake Project site.

55. Noting the questions raised about historical climate data and future climate projections in the interventions from the SES, the Commission requested comments in this regard. The SES representative stated that the questions raised were indicative of the uncertainties that exist when dealing with climate predictions. CNSC staff indicated that there was continuous regulatory oversight and monitoring at the Cluff Lake Project site, regardless of uncertainties and that this would continue throughout the proposed licence period. CNSC staff added that these uncertainties were taken into account by the conservatism of the data, such as the probable maximum precipitation and the probable maximum flooding.
56. The Commission noted the concerns of the MN-S, Northern Region 2, Local 62 regarding a mound of dirt on the TMA's cover and requested information from Orano. The Orano representative explained that the small mound of dirt present on the TMA was excess material that was left in place after the cover was completed and did not present any safety concerns. The Commission is satisfied with the information provided on this matter.
57. Further on the uncertainty of climate predictions, CNSC staff emphasized that, as the percolation and the water balance values were site-specific, the industry best practice to deal with uncertainty was to do sensitivity analyses in respect of the models through the modification of parameters to see what impact that may have. CNSC staff added that Orano was doing, and would continue to do, those analyses throughout the proposed renewed licence period. The Orano representative explained that Orano was using a method of calculating the probable maximum precipitation that was conservative and not sensitive to change in climate.
58. The Commission asked for comments regarding the concerns expressed by the ACFN and R. Gardiner about the unlined design of the TMA. CNSC staff explained that there had been a long evolution of different tailings management practices, particularly in Saskatchewan, and that an important consideration was the design's performance at protecting the environment. CNSC staff added that the CNSC approved this TMA design for the Cluff Lake Project site following an environmental assessment which considered different tailings management options.
59. The Orano representative explained to the Commission that the current preferred approach for tailings management was that of in-pit tailings management, noting that

this was the method in use at Orano's McClean Lake and added that the need of a liner depended on the material properties of the tailings and the geology of the area. Based on the information provided, the Commission remains satisfied that, as designed, the TMAs at the Cluff Lake Project site remain adequate for management of tailings at the Cluff Lake Project site.

60. Asked by the Commission about the composition of the tailings at the Cluff Lake Project site, the Orano representative indicated that the tailings were primarily ground rock material that did not have uranium in it, as well as the waste chemicals that were used in the extraction process. The Orano representative added that the tailings were typically a very fine ground material that was deposited in the TMA as a slurry, noting that the tailings were largely insoluble and that migrating chemicals from the tailings were the primary concern as opposed to the radiological risks. The Commission was satisfied with the information provided on this point.
61. The Commission noted the concerns raised by R. Gardiner in his intervention about the thickness of the TMA cover and asked the licensee to address how the required thickness was determined. The Orano representative explained that multiple factors were taken into account in determining the cover thickness such as limiting root penetration into the tailings, limiting net percolation and radiation shielding. The Orano representative added that the tailings had a low hydraulic conductivity and were relatively impermeable. The Orano representative added that the primary purposes of the cover were to protect the surface of the tailings, to set up a medium for vegetation growth, to protect from animal intrusion and to provide a shield from radiation. The Commission is satisfied with the information provided on this point.
62. The Commission asked about the concerns expressed by R. Gardiner in his intervention about the water level in the TMA and the likelihood of animals burrowing into the tailings. The Orano representative stated that the groundwater penetrated the entirety of the TMA and that the cover on the TMA was wet a good portion of the time, limiting the activity of burrowing animals. The Commission is satisfied with the information provided on this point.
63. Asked whether the till forming the TMA cover should have been packed, the Orano representative explained to the Commission that it had never been the intention to pack the material on the TMA as the material acted as a cover and not a cap. The Orano representative added that packing was used for the waste rock on the waste rock pile to try to make it less permeable, but not on the TMA cover. The Commission is satisfied with the information provided on this point.
64. Noting the concern expressed in the intervention from the SES in respect of the levels of uranium contamination that exceeded the DSWQO in Island Lake and its effect on the health of fish in that lake, the Commission asked Orano to address this issue. The Orano representative indicated that the fish from Island Lake were and will remain safe to eat despite the uranium concentration presently exceeding today's standard for

surface water quality. The Orano representative added that this conclusion was demonstrated by a site-specific risk assessment. The Commission is satisfied with the information provided on this point.

65. The Commission enquired about the selection of plants and trees that were planted at the Cluff Lake Project site and Orano's plan to return the site to a natural state. The Orano representative responded that all of the grasses, forbs, trees and shrubs across the site were native species. The Orano representative added that the TMA covers were planted with grass to quickly establish sod formation, which would help prevent erosion. The Orano representative also stated that the former location of the DJN waste rock pile was flat and did not have an engineered structure so it was easier to plant trees and shrubs there. The Orano representative further added that, after fertilization was stopped by Orano, there was a shift in the vegetation before it reached equilibrium and that the vegetation presently at the site indicated that it was now on a trajectory to becoming a boreal forest.
66. The Commission noted the information request made by V. Drummond in her intervention concerning the vegetation growth on top of the TMA and enquired about whether the information was available to the public. The Orano representative explained that, due to some public concerns, water, sediment and vegetation were sampled on the TMA cover to assess the risk and that the information was submitted to CNSC staff. The Commission is satisfied with the information provided about the vegetation selected for planting at the Cluff Lake Project site and with the vegetation sampling being carried out on the TMA cover. The Commission would ask Orano to provide the sampling information to the intervenor and any other interested member of the public.

4.4.1 Environmental Monitoring

67. Orano indicated that environmental monitoring demonstrated that the Cluff Lake DSWQO had been achieved. Orano also indicated that surface water quality at key waterbodies would continue to be monitored by Orano and that, following successful transfer of the property into the Provincial Institutional Control Program, the long-term monitoring of surface water quality would be administered by the Province of Saskatchewan. Orano stated that on-going environmental monitoring would also be used to validate the ground and surface water modelling.
68. Upon review of the intervention from the MN-S, the Commission enquired about lake sediment collection and analysis at the Cluff Lake Project site. The Orano representative explained that sediment information was useful in modelling efforts and was therefore collected and analyzed by Orano. The Orano representative added that the analysis of Claude Lake sediments was documented in Orano's follow-up study program document. CNSC staff indicated to the Commission that CNSC staff had reviewed Orano's monitoring results and compared them to previous predictions, and also used the data to update models. The Commission was satisfied with the

information provided on this topic.

69. In relation to comments made by the SES, the Commission asked for details about the increasing concentration of contaminants in Island Lake and Island Lake Fen. The Orano representative explained that the contaminants that had accumulated in Island Lake and Island Lake Fen were the result of effluent releases during mine operations, noting that the releases had met regulatory limits. The Orano representative added that the contaminants present in Island Lake's sediments were below a regulatory threshold of interest and that the greatest impacts for these areas were in the past as Island Lake and Island Lake Fen were now recovering. The Orano representative also explained that the risk assessment was based on water quality, sediment quality and benthic organisms as well as fish samples from Island Lake.
70. Further on this subject, CNSC staff informed the Commission that the monitoring information was in alignment with modelling predictions. CNSC staff added that, moving forward, monitoring would continue in Island Lake to help update the models as well as the risk assessments. Orano added that recent quality objectives for uranium was adopted by Orano as a trigger for risk assessment. Based on the information provided, the Commission is satisfied with the modelling carried out in respect of the impacts of the contaminants in Island Lake.
71. Noting the questions raised by the SES in regard to water quality objectives, the Commission enquired about the difference between the DSWQO and the Saskatchewan Surface Water Quality Objectives (SSWQO) for uranium. The Orano representative explained that, at the time of the decommissioning EA carried out in 1999, Orano developed its own quality objective for uranium, the DSWQO, since no surface water quality objectives existed at the time. The Orano representative added that water quality objectives had since evolved and that the SSWQO introduced an objective for uranium. The Orano representative further added that the risk associated with exceeding the new quality objective was reviewed in the Ecological and Human Health Risk Assessment, submitted in 2015.
72. Regarding the surface water quality objectives, the SMOE representative explained that the 15 µg/L SSWQO for uranium was set to a level low enough as to be protective in 99 per cent of situations. The SMOE representative added that Orano would be required to carry out additional studies should the uranium concentrations be above the guideline, but that the SMOE was of the view that Orano's decommissioning objectives were appropriate for the Cluff Lake project site. The Commission was satisfied with the information provided on this point.
73. Noting the concerns raised by the SES about the concentration of selenium in Island Lake's fish tissue, the Commission asked the licensee to provide an explanation. The Orano representative indicated that selenium in fish tissue was a specific research item of the environmental monitoring follow-up program performed at the Cluff Lake Project site in 2002, 2004 and 2014. The Orano representative added that those studies showed that, due to the effluent release, there had been measurable effect in white

sucker due to selenium related to fish reproduction, that it was measurable in the early years and had since disappeared. The Orano representative also reported to the Commission's satisfaction, that there was no longer risk to fish due to selenium in Island Lake.

74. The Commission noted the concerns raised by R. Gardiner in his intervention concerning animal welfare and well-being on the Cluff Lake Project site and enquired about how this was assessed. The Orano representative indicated that an Ecological and Human Health Risk Assessment of the Cluff Lake Project had been completed in 2015 and added that the analysis of a moose harvested on the Cluff Lake Project site by the intervenor showed that the moose was healthy. The Saskatchewan Health Authority representative confirmed Orano's information and added that the moose harvested at Cluff Lake was very similar to moose in other parts of the province. The Saskatchewan Health Authority representative further added that the Cluff Lake moose was healthy to eat and even healthier than other types of meat available in a grocery store. The Commission is satisfied that the health of animals at the Cluff Lake Project site is, and will continue to be, adequately assessed to ensure that the harvesting of animals at the site remains safe.
75. Addressing the long-term monitoring of the Cluff Lake Project site, as raised by V. Drummond in her intervention, CNSC staff explained that the current monitoring would continue as long as Orano and the site was regulated by the CNSC. CNSC staff added that funds would be in place for long-term monitoring and maintenance if the Cluff Lake Project site were to be transferred to the Saskatchewan Institutional Control Program in the future.
76. The Commission further enquired about CNSC staff's compliance review plans for environmental monitoring at the Cluff Lake Project site over the proposed licence period. CNSC staff answered that CNSC staff would continue to perform annual reviews of the monitoring information provided by Orano to ensure that the environmental parameters were being met, in addition to site inspections every second year. The Commission is satisfied that the compliance verification activities for the Cluff Lake Project submitted by CNSC staff during this hearing will be adequate for the proposed licence period.
77. In considering the intervention from the Saskatchewan Mining Association, the Commission enquired about the information that would be contained in the revised hydrogeology and groundwater modelling, and risk assessment technical information documents that were to be submitted by Orano. CNSC staff indicated that the revised report would provide answers to CNSC staff's comments and questions on the original report, which requested additional clarity and a reduction in the uncertainty involved in some of the long-term modelling and some of the assumptions that Orano had made in creating the models and their predictions.
78. The Commission further asked CNSC staff how the models concerning contaminant mobility over a long period of time were validated. CNSC staff explained that the

earlier model predictions were compared to actual measurements to build confidence in the model. The Commission is satisfied with the information provided on this topic.

4.4.2 Independent Environmental Monitoring Program

79. The Commission examined the information provided by CNSC staff in regard to the CNSC's Independent Environmental Monitoring Program (IEMP). CNSC staff provided detailed results from the CNSC's independent monitoring that was carried out in 2017 in publicly accessible areas in the vicinity of the Cluff Lake Project, noting that CNSC staff took samples of fish, surface water, blueberries, Labrador tea, and radon in ambient air. CNSC staff added that the IEMP results were consistent with the results submitted by Orano confirming that the licensee's environmental protection program protected the health of persons and the environment.
80. Asked about the frequency of IEMP sampling in the Cluff Lake Project area, CNSC staff indicated that, for the moment, there was no plan for another IEMP campaign at the Cluff Lake Project since the sampling conducted in 2017 confirmed that the public and the environment around the Cluff Lake Project were protected.
81. The Commission is satisfied that Orano's and the CNSC's IEMP shows that the public and the environment around the Cluff Lake Project site remain protected.

4.4.3 Conclusion on Environmental Protection

82. Based on the assessment of the application and the information provided on the record for the hearing, the Commission is satisfied that, given the mitigation measures and safety programs that are in place to control hazards, Orano will provide adequate protection to the health and safety of persons and the environment throughout the proposed licence period.
83. The Commission is satisfied that the environmental protection review conducted by CNSC staff and included in CMD 19-H3 was adequate for the Commission's consideration of environmental protection for this licence renewal application.
84. The Commission is satisfied that Island Lake and Island Lake Fen are now recovering after being impacted by the Cluff Lake Project operation.
85. The Commission notes that Orano is required to continue environmental monitoring activities at the Cluff Lake Project site, including the areas being removed as CNSC-licensable areas such as Cluff Lake and Island Lake, as detailed during this hearing. The Commission also notes that any changes made to the schedule and location of the environmental monitoring shall be brought to the attention of the Commission.

4.5 Safeguards and Non-Proliferation

86. The Commission examined the adequacy of Orano’s safeguards program for the Cluff Lake Project. 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*¹⁶ (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 Canada.
87. CNSC staff submitted that there was no Category I, II or III nuclear material¹⁷ at the Cluff Lake Project site and that nuclear substances were limited to natural uranium and its decay products. CNSC staff also submitted that, as part of Canada’s international obligations under the safeguards agreements, CNSC staff reported to the IAEA the nature of the Cluff Lake Project site as a waste management location. Under the Additional Protocol, the IAEA may request complementary access¹⁸ to this location.
88. Orano submitted to the Commission that Orano was required to provide reasonable services and assistance to the IAEA inspectors to carry out their duties and functions. CNSC staff stated that, based on past experience and the general accessibility of the Cluff Lake Project site, the licence renewal being proposed would not result in a failure to achieve conformity with international obligations to which Canada has agreed in relation to IAEA safeguards.
89. Based on the above information, the Commission is satisfied that Orano has provided and will continue to provide adequate measures in the areas of safeguards and non-proliferation at the Cluff Lake Project that are necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed.

4.6 Indigenous Engagement and Public Information

4.6.1 Participant Funding Program

90. The Commission assessed the information provided by CNSC staff regarding public

¹⁶*Treaty on the Non-Proliferation of Nuclear Weapons* (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 March 1970 (NPT).

¹⁷ As defined in the *Nuclear Security Regulations*, SOR/2000-209

¹⁸ “Complementary access” as defined by the *Protocol Additional to the Agreement Between Canada and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*, 2000.

engagement in the licensing process as enhanced by the CNSC's Participant Funding Program (PFP). CNSC staff submitted that, in December 2018, up to \$75,000 in funding to participate in this licensing process was made available to Indigenous groups, members of the public and other stakeholders to review Orano's licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions.

91. A Funding Review Committee (FRC), independent of the CNSC, recommended that five applicants be provided with up to \$135,724 in participant funding. These applicants were required, by virtue of being in receipt of participant funding, to submit a written intervention and make an oral presentation at the public hearing commenting on Orano's licence renewal application. As such, \$135,724 in participant funding was awarded to the following recipients:
 - Ya'thi Néné Lands and Resource Office
 - Saskatchewan Environmental Society
 - Athabasca Chipewyan First Nation
 - Clearwater River Dene Nation
 - Métis Nation of Saskatchewan

92. The Commission noted the concerns of intervenors, such as the MNS and the Ya'thi Néné Lands and Resource Office (Ya'thi Néné), concerning the time allocated to prepare interventions for groups receiving participant funding. CNSC staff explained the timeline for PFP applications, noting that CNSC staff ensured that it communicated directly with Indigenous groups when PFP is announced for a proceeding. CNSC staff also noted that the work for an intervention could start well before the CMDs were submitted to the Commission and that that intervenors could start reviewing licence application information as soon as it was submitted by the licensees. CNSC staff further stated that other engagement activities were carried out throughout the licence application period to ensure that Indigenous groups had the opportunity to meaningfully participate in the proceedings. The Commission was satisfied with the information provided on this point and encourages intervenors to begin preparing their interventions early in the licensing process.

93. Based on the information submitted for this hearing, the Commission is satisfied that Indigenous groups, members of the public and other stakeholders were encouraged to participate in this licence renewal process and could apply for PFP. On the matter of the time allocated to prepare for interventions, the Commission notes that an extension was provided to the intervenors who so requested.

4.6.2 Indigenous Engagement

94. 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 reconciliation, building relationships and engaging with Canada's Indigenous peoples. The CNSC ensures that all of its licensing decisions under the NSCA uphold the honour of the Crown and consider Indigenous peoples' potential or established Indigenous and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.¹⁹
95. The Commission examined the information submitted by Orano regarding its ongoing engagement with Indigenous groups near the Cluff Lake Project site. Orano provided the Commission with detail on the ongoing engagement activities stating that communication methods may be oral, written, or video-based, and disseminated using a variety of media including online channels. Orano also provided information about the primary Indigenous communities that Orano engaged with over the licence period. Orano further added that the focus of the communication and engagement changed with the status of the site over the licence term; from a focus on the end of an onsite presence, to the achievement of a stable, safe end-state and preparation for institutional control. CNSC staff noted that Orano was meeting the expectations of REGDOC-3.2.2, *Aboriginal Engagement*.²⁰
96. Orano provided the Commission with the status of Orano's relationship with cabin owners and frequent local land users of the Cluff Lake Project site including the Flett family, the Lone Wolf Lodge owner at Carswell Lake and the Furblock N22 trappers. Orano also provided the proposed mitigation measures in response to their concerns.
97. CNSC staff provided the Commission with information about the First Nation and Métis groups who may have an interest in the Cluff Lake Project licence renewal and about the consultation activities that were carried out with the identified groups. CNSC staff submitted that, following the assessment of Orano's licence application and information from Indigenous groups, CNSC staff determined that the proposed licence renewal would not cause adverse impacts to any potential or established Indigenous and/or treaty rights. CNSC staff also submitted that that there were no new activities or changes proposed in the licence renewal application that could reasonably be anticipated to have any novel off-site impacts and that, based on its assessment of this licence renewal application, no formal duty to consult was triggered. CNSC staff also submitted that it recognized the CNSC's responsibilities as a lifecycle regulator and that CNSC staff would continue, as a priority, communication with interested Indigenous groups throughout the renewed licence period to ensure that the groups received all information requested and to establish, maintain and enhance relationships with the groups.

¹⁹ *Constitution Act, 1982*, Schedule B to the *Canada Act 1982*, 1982, c. 11 (U.K.).

²⁰ CNSC Regulatory Document REGDOC-3.2.2, *Aboriginal Engagement*, 2016.

98. The Commission asked the MN-S if the anticipated site visit of the Cluff Lake Project mentioned in its intervention had been done and what the results were. The MN-S representative told the Commission that 11 members of the MN-S did a short site visit on May 8, 2019 and that the site looked generally decommissioned with the exception of the exploration core sample storage area, regulated by the province. The Commission encourages Orano to offer such site visits to interested Indigenous groups.
99. The Saskatchewan Environmental Society (SES), the Métis Nation of Saskatchewan (MN-S), the Clearwater River Dene Nation (CRDN), R. Gardiner and the Athabasca Chipewyan First Nation (ACFN), provided the Commission with information and comments about the exploration core sample storage located on the Cluff Lake Project site. The Commission notes that the Saskatchewan Ministry of Energy and Resources requires exploration companies to maintain core samples near the areas where they were taken.
100. In relation to the inclusion of traditional Indigenous knowledge into the environmental monitoring plans for the Cluff Lake Project, the Commission asked what the MN-S would consider adequate in this regard. The MN-S representative explained to the Commission that the MN-S would like to work in partnership with Orano on the environmental monitoring to ensure that traditional knowledge was captured, noting that no evidence was presented of such consideration in the decommissioning plans or current monitoring activities. The Orano representative explained that the environmental monitoring was performed once a year by a contractor and that the contract bids typically included Indigenous people to perform the sampling.
101. Further on the consideration of traditional Indigenous knowledge in environmental monitoring, the Commission enquired about whether Orano had gathered any traditional Indigenous knowledge in the making of the Comprehensive Study Report (CSR) for the Cluff Lake Project. The Orano representative indicated that Orano consulted at the time of the CSR and surveyed a collection of local stakeholders and Indigenous groups including the Northern Saskatchewan Environmental Quality Committee (NSEQC), the ACFN, First Nations communities in the Cluff Lake Project site vicinity and directly with people that used the land. The Orano representative added that Orano surveyed and interviewed Indigenous groups, collected traditional Indigenous knowledge, and did workshops with Indigenous groups to inform the decommissioning EA. The Orano representative also added that, during the decommissioning process, Orano held a workshop with the NSEQC and local Indigenous peoples to talk about what the Cluff Lake Project site should look like after the decommissioning and what the land use and the fishing habits might be. Though the Commission recognizes the efforts made by Orano in regard to the inclusion of Indigenous traditional knowledge in its monitoring programs, it is of the view that, based on the interventions submitted for this hearing, additional efforts must be made. The Commission requests that Orano work with Indigenous groups during the proposed licence period to ensure that Indigenous traditional knowledge for the Cluff Lake Project site is appropriately considered.

102. In regard to the concerns raised by the MN-S regarding the degree of engagement activities carried out and public information provided by Orano for the Cluff Lake Project, the Orano representative commented that Orano had a strong engagement history stemming back 40 years on activities at the Cluff Lake Project site. The Orano representative added that Orano engaged with Indigenous groups on the decommissioning of the Cluff Lake Project since the decommissioning environmental assessment in 1999 and that the public information program for decommissioning was updated periodically. The Orano representative also stated that engagement continued as decommissioning was carried out and that the NSEQC was the primary link for feedback and disseminating information on the Cluff Lake Project.
103. In regard to Orano's communication with the MN-S prior to this hearing, the Orano representative stated that Orano had been in contact with the MN-S through the provision of documentation, an engagement tour and other activities. The Orano representative acknowledged, however, that perhaps Orano's communication methods were not effective with some of the MN-S members.
104. Addressing Orano's comment about the NSEQC being Orano's primary vehicle for disseminating information about environmental protection and monitoring at the Cluff Lake Project site, the Commission enquired about whether the MN-S was a member of the NSEQC. The MN-S representative stated that the MN-S was not a member of the NSEQC but that some representation was provided in the NSEQC through Métis settlements not directly connected with the MN-S.
105. On the adequacy of Indigenous engagement for the Cluff Lake Project, CNSC staff stated that Orano had been open, transparent and ready to respond to questions about the Cluff Lake Project, including from the MN-S.
106. Responding to the Commission's enquiring about the representation of Métis peoples on the NSEQC, the NSEQC representative explained that Métis residents of the North were part of the NSEQC, but not specifically Métis local representatives of the political organization that is the Métis Nation of Saskatchewan.
107. Asked about its future involvement with the NSEQC over the next five years, the Orano representative stated that Orano will continue its regular involvement with the NSEQC and will continue to provide the NSEQC with reports. The Orano representative indicated that Orano was looking forward to being invited to participate in NSEQC meetings and to give presentations. CNSC staff stated that the CNSC staff did not rely only on the NSEQC to engage with the community and added that CNSC staff needed to enhance communication and dialogue with communities of interest as mine sites start going through decommissioning.
108. The Commission asked the NSEQC for its view on how to improve the communication with Indigenous communities. The NSEQC representative explained that, since many members of the NSEQC were volunteers from their communities,

licensees and CNSC staff were encouraged to continue engaging directly with the Indigenous communities to ensure that it was not just these volunteers disseminating information.

109. The Commission asked the CRDN for recommendations on how Orano could better provide factual information to try to dispel some of its community members' concerns. The CRDN representative recommended that Orano provide more detailed information, improve its visibility and engage more with the members of the communities. The CRDN representative recommended that Orano and the CRDN co-develop a public information campaign that was focused on the issues important to CRDN.
110. On the education about site risks provided by Orano to community members, the CRDN representative recognized that there had been a lot of involvement from Orano in the past but that more was needed in the form of a partnership. The CRDN representative added that, as the users of these traditional areas, the CRDN wanted to help develop the policies and regulations for the activities affecting its traditional area.
111. Noting the concerns expressed by the Ya'thi Néné about its communications with Orano, the Commission asked what better engagement would look like to them. The Ya'thi Néné representative responded that Indigenous peoples would like to work as partners with the industry on topics such as environmental monitoring. As an example of such partnership, the Orano representative described the collaborative agreement that Orano had signed with the Ya'thi Néné resulting in the creation of the Athabasca Joint Environment and Engagement Committee.
112. Asked about the environmental monitoring performed by the ACFN at the Cluff Lake Project site, the ACFN representative told the Commission that it would be good to monitor what was coming up into Old Fort River from Douglas River. The ACFN representative added that CNSC staff's presentations in the community would also provide more certainty and more understanding. CNSC staff told the Commission that it was pleased that the ACFN had taken the initiative to have their own community monitors and it would work toward the organization of a meeting with the ACFN community.
113. In regard to the dissemination of information to Indigenous groups, CNSC staff informed the Commission that CNSC staff would take the concerns raised in these interventions and collaborate with the Indigenous groups to find ways to better disseminate information to the communities. CNSC staff reaffirmed its commitment to this dissemination of information, and to build trust and relationships with Indigenous communities. CNSC staff added that, every year, CNSC staff would invite key leadership, elders, youth and other Indigenous community members to a meeting in Saskatoon to provide the Indigenous groups with information about Regulatory Oversight Report findings and compliance work that was done over the year, and to have a discussion with Indigenous groups in this regard.

114. The Commission enquired about the kind of benchmarking used by CNSC staff in order to validate the effectiveness of its communication model. CNSC staff indicated that it took feedback from the Indigenous communities to inform its Indigenous engagement and communication model. CNSC staff gave an example of receiving help from Elders and community members to revise CNSC presentations to better communicate scientific information to Indigenous communities.
115. Based on the information provided for this hearing, the Commission is satisfied that Indigenous engagement activities carried out for this licence renewal were adequate and finds that the hearing process provided a means for it to consider Indigenous interest in the renewal. The Commission expresses its appreciation for the participation of Indigenous groups in this proceeding.
116. Although the Commission is satisfied that Orano's engagement activities with Indigenous groups in the vicinity of the Cluff Lake Project meet the expectations of REGDOC-3.2.2, the Commission recognizes the concerns about the Cluff Lake Project submitted by Indigenous groups for this hearing. The Commission recognizes that some of Orano's communication methods could have been more effective with some of the groups and asks Orano to review its Indigenous engagement program in this regard.
117. The Commission asks that Orano continue to enhance its Indigenous engagement activities as proposed during this hearing and notes that Indigenous engagement is not limited to the provision of information. The Commission expects Orano to work with Indigenous groups in forums that allow for the mutual sharing of information. The Commission also directs CNSC staff to continue its engagement activities with Indigenous groups in the vicinity of the Cluff Lake Project to ensure that any questions and concerns are addressed as soon as possible.

4.6.3 *Public Information*

118. The Commission assessed Orano's public information and disclosure program (PIDP) for the Cluff Lake Project. The Commission assessed how Orano's PIDP met the specifications of REGDOC-3.2.1, *Public Information and Disclosure*.²¹ Orano provided the Commission with information regarding its public and stakeholder engagement as well as its communication activities and methods. Orano submitted that, with changes in project status at the Cluff Lake Project site, Orano had adapted its communication and engagement strategies to ensure that the focus met the public's expectations for information.
119. CNSC staff informed the Commission that Orano's PIDP satisfied the specifications of REGDOC-3.2.1, that the PIDP was found in Orano's annual reports and that Orano's communication activities included site tours, social media interaction and public opinion surveys.

²¹ CNSC Regulatory Document REGDOC-3.2.1, *Public Information and Disclosure*, 2018.

120. Based on the information presented for this hearing, the Commission is satisfied that Orano's Cluff Lake Project PIDP has communicated and will continue to communicate information to the public about the health, safety and security of persons and the environment and other issues related to the Cluff Lake Project.

4.6.4 Conclusion on Indigenous Engagement and Public Information

121. Based on the information presented, the Commission is satisfied that, overall, Orano's PIDP meets regulatory requirements and is effective in keeping Indigenous groups and the public informed about the Cluff Lake Project. The Commission acknowledges the good practices already implemented by Orano and encourages its efforts in creating, maintaining and improving its dialogue with the neighbouring communities.
122. Based on the information presented on the record for this hearing, the Commission is satisfied that this licence renewal will not result in changes at the Cluff Lake Project site that would cause adverse 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 Cluff Lake Project licence renewal application were adequate.
123. The Commission is satisfied that meaningful engagement efforts have been made by CNSC staff on behalf of the Commission. The Commission finds that these efforts, together with the valuable discussion in the hearing process, suggestions for collaboration and the good faith efforts to come, adequately address the Indigenous rights and interests with respect to the Cluff Lake Project.

4.7 Decommissioning Plans and Financial Guarantee

124. The Commission requires that there be operational plans for the decommissioning of the facility, including the long-term management of waste produced during the lifespan of the Cluff Lake Project. In order to ensure that adequate resources are available for safe and secure monitoring of the Cluff Lake Project 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.
125. CNSC staff submitted that it had assessed Orano's current Detailed Decommissioning Plan (DDP) as well as Orano's proposed Detailed Post-Decommissioning Plan (DPDP) and determined that the objectives of the DDP had been met and that the DPDP met the specifications of CSA N294-09, *Decommissioning of facilities*

containing nuclear substances,²² and G-219, *Decommissioning Planning for Licensed Activities*.²³

126. The Commission enquired about the regulatory requirements for mine cover materials, as raised by the SES. The Commission notes that mine opening covers fall under Provincial regulation, in this case Saskatchewan's *The Mines Regulations, 2003*²⁴ which required mine operator to cover mine openings with a reinforced concrete cover. The Commission also notes that the use of any other type of cover, such as steel covers, required an exemption from subsection 407 (2) of *The Mines Regulations, 2003*.
127. CNSC staff reported that it had assessed the financial guarantee of \$3.5 million for the Cluff Lake Project and was satisfied that it met the guidance set out in G-206, *Financial Guarantees for the Decommissioning of Licensed Activities*.²⁵ The Commission notes that the financial guarantee was reduced from \$26.8 million to \$3.5 million to reflect the completion of decommissioning activities.
128. Based on the information provided, the Commission is satisfied that Orano's DPDP for the Cluff Lake Project site meets licensing and regulatory requirements and accepts the DPDP. The Commission also accepts the associated revised financial guarantee of \$3.5 million for the Cluff Lake project, which reflects the completion of decommissioning activities. The Commission notes that the Saskatchewan government indicated its satisfaction with the amount of the revised financial guarantee.

4.8 Cost Recovery

129. The Commission examined Orano's standing under the CNSC *Cost Recovery Fees Regulations*²⁶ (CRFR) requirements for the Cluff Lake Project. 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.
130. CNSC staff submitted to the Commission that Orano was in good standing with respect to CRFR requirements for the Cluff Lake Project.
131. Based on the information submitted by Orano and CNSC staff, the Commission is satisfied that Orano is in good standing with the CRFR.

²² N294-09, *Decommissioning of facilities containing nuclear substances*, CSA Group, 2009; Update 1, 2014.

²³ CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities*, June 2000.

²⁴ cO-1.1 Reg 2, *The Mines Regulations, 2003*, 2003.

²⁵ CNSC Regulatory Guide G-206, *Financial Guarantees for the Decommissioning of Licensed Activities*, June 2000.

²⁶ SOR/2003-212.

4.9 Licence Length and Conditions

132. The Commission considered Orano's application for the renewal of the current Orano decommissioning licence for a period of 5 years. CNSC staff recommended the renewal of the licence for a period of 5 years submitting that Orano is qualified to carry on the licensed activities authorized by the licence.
133. The Commission assessed Orano's request for a reduction of the licensed area for the Cluff Lake Project. While noting that Snake Lake was draining into Island Lake, the Commission enquired about the justification for leaving Snake Lake in and removing Island Lake from the proposed licensed area. The Orano representative stated that the Snake Lake sediments attenuating the contaminant coming from the TMA was an important part of the decommissioning strategy as there was a long-term contaminant transport expected from the TMA. The Orano representative added that the assessed risk presented by Island Lake was believed by Orano to be low, and that the sediments did not require the same protection from disturbance as was required in Snake Lake.
134. Commenting on the contaminants concentration in the surface water of Island Lake, the Commission asked for details about the risk analysis used by Orano to request that Island Lake should be removed from the licensed area. The Orano representative explained that Island Lake was presently recovering, despite the relatively elevated contaminant concentrations, and added that its sediments were not a factor in the long-term protection of the environment. CNSC staff indicated that the source of contaminant in Island Lake disappeared at the end of the mine operation and that the lake was now recovering. CNSC staff added that the predictions showed that Island Lake would continue to recover.
135. Further on the Island Lake sediment, CNSC staff indicated, in their written submission, that with the end of liquid effluent discharge in Island Lake due to the end of operations, the contaminated sediments were predicted to recover, as clean sediments accumulated on top of the contaminated sediments. CNSC staff added that recovery was predicted within 100 years for molybdenum and nickel, and within 150 years for uranium and selenium. CNSC staff reported that its assessment showed that Island Lake did not pose an unreasonable risk to persons or the environment.
136. Asked by the Commission about the future monitoring of Island Lake if Island Lake was to be removed from the licensed area, the Orano representative indicated that Island Lake would be monitored as part of the long-term monitoring program, whether it was in the licensed area or not. The Orano representative added that Orano did not believe that Island Lake needed the protection of institutional control in the future. CNSC staff stated that, moving forward, CNSC staff anticipated Orano to continue the environmental monitoring at different points in the two watersheds at the Cluff Lake Project site.
137. The Commission considered Orano's proposal to remove the Authorized Effluent Discharge Limits from the Cluff Lake Project licence. The Commission recognizes

that the Cluff Lake Project site has no effluent discharges and no longer produces any contaminants or waste and accepts the removal of a licence condition for Effluent Discharge Limits.


138. Based on the information examined by the Commission during the course of this hearing, the Commission is satisfied that a 5-year licence is appropriate for the Cluff Lake Project.
139. The Commission accepts the licence conditions as recommended by CNSC staff in CMD 19-H3. Based on the information presented for this hearing, the Commission also accepts the modified licensed area as presented in CMD 19-H3 and CMD 19-H3.1, and detailed in Appendix A of the renewed licence.

5.0 CONCLUSION

140. The Commission has 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.
141. The Commission is satisfied that Orano 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 Orano 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.
142. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Uranium Mine Licence (UML) for the Cluff Lake Project located northwestern Saskatchewan. The renewed licence, UML-MINEMILL-CLUFF.00/2024, is valid from August 1, 2019 until July 31, 2024.
143. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 19-H3. The Commission also accepts the revised licensed area as proposed in CMD 19-H3 and reflected in Appendix A of UML-MINEMILL-CLUFF.00/2024.
144. The Commission concludes that Orano has met the objectives of the Cluff Lake Project DDP and accepts the DPDP as proposed during this hearing. The Commission also accepts the revised financial guarantee of \$3.5 million for the Cluff Lake Project, noting that its reduced financial guarantee reflects the decommissioned state of the site.
145. 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 Cluff Lake Project licence renewal application and notes that the NSCA provides a strong regulatory framework for environmental protection.

146. With this decision, the Commission directs CNSC staff to report periodically on the performance of Orano and the Cluff Lake Project as part of a *Regulatory Oversight Report* (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 in the proceedings considering the ROR.
147. 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 a regular basis of any changes made to the Licence Conditions Handbook (LCH).
148. The Commission notes that Orano is required to continue environmental monitoring activities at the Cluff Lake Project site, including the areas being removed as CNSC-licensable areas such as Cluff Lake and Island Lake, as detailed during this hearing. The Commission also notes that any changes made to the schedule and location of the environmental monitoring shall be brought to the attention of the Commission.



Rumina Velshi
President,
Canadian Nuclear Safety Commission



Date

Appendix A – Intervenors

Intervenors – Oral Presentations	Document Number
Métis Nation of Saskatchewan, represented by L. Montgrand, S. Barnes, R. Sinclair and M. Hansen	CMD 19-H3.2
Saskatchewan Environmental Society, represented by A. Coxworth	CMD 19-H3.4
Ya'thi Néné Land and Resource Office, represented by G. Schmidt and L. Mercredi	CMD 19-H3.5 CMD 19-H3.5A
Rodney Gardiner	CMD 19-H3.6
Val Drummond	CMD 19-H3.7
Northern Saskatchewan Environmental Quality Committee, represented by N. Wolverine and D. Thomas	CMD 19-H3.9
Métis Nation of Saskatchewan, represented by M. Hansen	CMD 19-H3.10
Clearwater River Dene Nation, represented by J. Langlois, T. Clarke, L. Herman and K. Janvier	CMD 19-H3.12
Athabasca Chipewyan First Nation, represented by J. Telegdi and J. Fleet	CMD 19-H3.13

Intervenors – Written Interventions	Document Number
Cameco Corporation	CMD 19-H3.3
Saskatchewan Mining Association	CMD 19-H3.8
Emile Burnouf	CMD 19-H3.11