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Oral Presentation

Written submission from the English River First Nation

In the Matter of the

**Cameco Corporation,
Cigar Lake Operation**

Application for the renewal of Cameco's uranium mine licence for the Cigar Lake Operation

Commission Public Hearing

April 28-29, 2021

Exposé oral

Mémoire de la Première Nation d'English River

À l'égard de

**Cameco Corporation,
établissement de Cigar Lake**

Demande de renouvellement du permis de mine d'uranium de Cameco pour l'établissement de Cigar Lake

Audience publique de la Commission

28 et 29 avril 2021

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March 22, 2021

Canadian Nuclear Safety Commission
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"VIA EMAIL cnsc.interventions.ccsn@canada.ca"

Review of Cameco's Application for 10-year term licence renewal for Cigar Lake Mine

This submission is made on behalf of the English River First Nation (ERFN).

English River First Nation is made up of 19 reserves, most of which are located around Cree Lake in Northern Saskatchewan. ERFN has a population of approximately 1650 people. The on - reserve members of the First Nation reside at two small remote Northern Saskatchewan reserves called Patuanak and La Plonge. These reserves are located approximately 600 km North of Saskatoon. Approximately half of ERFN's population resides off reserve.

The Canadian Nuclear Safety Commission (CNSC) is currently reviewing the licence renewal application, wherein Cameco is requesting a 10-year renewal of the CNSC licence for Cigar Lake, with no proposed changes to the scope of the planned activities described in the current CNSC licence issued to Cameco.

This topic is of great importance to the people of the ERFN, as the Cigar Lake Mine is located within English River First Nation Ancestral Territory.

The people of ERFN have subsisted on this land for generations- fishing, hunting, gathering, and living on these lands. ERFN has enjoyed a positive relationship with Cameco regarding the Cigar Lake Mine. As a result, ERFN supports the renewal of Cameco's Cigar Lake Operating License. However, ERFN does object to the license term being 10 years.

Historically, the English River First Nation has opposed a 10-year term for Uranium Mine Operating Licenses, as 10 years is a considerable amount of time for ERFN to go without being able to provide direct feedback on the existence of the mine with ERFN Ancestral Territory.

Traditional land use is ever evolving. It is affected by the real and perceived risk of contamination around and downstream of uranium mine sites, as well as cumulative effects of "lands taken up and inhabited". Any changes to traditional land use – that may be affected by the existence of the Cigar Lake mine can be communicated to Cameco and to the CNSC as quickly as possible through engagement efforts. We do not want to be limited to relying on the proponent and/or regulators to advocate for us. However, ERFN does not have the ability to refuse continued operation of the mine, should it infringe on the Treaty and Aboriginal rights of the people of the ERFN.

ERFN understands that the CNSC continues to monitor the Cigar Lake Mine site, and trusts that it will ensure the safe function of same. We recognize the opportunity provided annually through the Regulatory Oversight Report for Uranium and Mills in Canada, as it allows ERFN to intervene on issues arising each year, but it does not allow ERFN the opportunity to refuse continued operation of the mine itself.

ERFN is a sovereign Nation. We have existed on these lands for generations. The land and its health are integral to our culture. Consultation on a licence renewal results in more than a lack of objection to the continued existence of the Cigar Lake mine on ERFN ancestral territory; it is the granting of permission for the Cigar Lake mine to remain on ERFN ancestral territory.

Ten years is a long period of time to grant permission, given the evolution of traditional land use, and the opportunity for change that can occur. For this reason, ERFN voices our opposition to the 10-year term and recommends instead that the CNSC grant a 5-year term.

Sincerely,

Cheyenna Campbell B.A., LL.B.
English River First Nation
Lands & Resources Manager

Technical Memorandum

Review of CMD 21-H2: License Renewal – Cameco Corporation Cigar Lake Operation

March 22, 2021

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Background Information

This technical memorandum has been prepared for the English River First Nation (ERFN), and provides a review of CMD 21-H2 document: License Renewal – Cameco Corporation Cigar Lake Operation (CDM 21-H2), as well as the written submission from Cameco. The intent of this review is to inform the ERFN's Intervener Submission.

English River First Nation

ERFN is a Dene and Cree First Nation located in Northern Saskatchewan. ERFN's two largest reserves are La Plonge Reserve and Wapachewunak, located approximately 600 km north of Saskatoon, Saskatchewan. The ERFN is a signatory to Treaty 10 and is comprised of nineteen different reserves:

- La Plonge 192,
- Elak Dase 192A,
- Knee Lake 192B,
- Dipper Rapids 192C,
- Wapachewunak 192D,
- Ile a la Crosse 192 E,
- Primeau Lake 192F,
- Cree Lake 192G,
- Grasswoods 192J,
- Leaf Rapids 192P,
- English River (Porter Lake) 192H,
- English River FN Barkwell Bay No. 192I,
- English River FN Haultain Lake No. 192K,
- English River FN Flatstone Lake No. 192L,
- English River FN Cable Bay Cree Lake No. 192M,
- English River First Nation Cable Bay Cree Lake192N,
- English River FN Beauval Forks No. 192O,
- Slush Lake Reserve No. 192Q, and
- Mawdsley Lake Reserve No.192R.

The ERFN is rising to the challenge of ensuring sustainable development in the vicinity of their communities and within ERFN Ancestral Territory, and recognizes the unique and important role they have to play in Northern Saskatchewan. While remaining true to traditional values as "keepers of the land," members also pursue opportunities to participate in the development of ERFN's resources (e.g., forestry, industry and workforce).

ERFN established Des Nedhe Development LP in 1991 to create sustainable employment and business opportunities for English River members. Since its inception, Des Nedhe Development has invested in established companies that are leaders in Saskatchewan's mining and construction industry and expanded its portfolio into the areas of retail and real estate development and management. The company takes pride in its strong focus on growth through investment, experienced management team and history of delivering solid financial results. Looking forward, Des Nedhe is exploring new opportunities

across the Country, in multiple sectors, and is positioned to play an important role in Canada's economic future.

Saskatchewan Uranium Industry

The Athabasca Basin of northern Saskatchewan has been the site of several major uranium discoveries and Saskatchewan is recognized as a world leader in uranium production. The uranium is exclusively used for electricity generation at nuclear power plants, which is a non-carbon emitting energy source and provides about 15% of Canada's electricity needs. The uranium industry is a significant economic driver in northern Saskatchewan.

Collaboration Agreement

All of the uranium mines and mills in northern Saskatchewan are considered of interest to the communities of ERFN, including the Cigar Lake Mine, which is within ERFN's Ancestral Territory. In northern Saskatchewan, the industry leaders Cameco Corporation and Orano Canada Inc. have entered into formal agreements with Indigenous communities, including ERFN (referred to as collaboration agreement (CAs) or impact benefit agreements (IBAs). These agreements provide Indigenous communities with workforce and business development programs, dedicated community engagement programs, community investment monies and mechanisms to collaborate around environmental stewardship. These industry leaders have also entered into several trapper compensation agreements with individual land users who are affected by their activities.

These agreements are part of the effort undertaken in recent history to engage and respect local communities, First Nations, Metis Nations and local land users during the planning and execution of industrial developments. Execution of these agreements ensures that engagement occurs with the intent to minimize the potential and perceived negative impacts from a development, as well as optimize potential positive impacts. Signing of these agreements conveys a general trust in the industry's performance and is recognition of a positive working relationship with the industry leaders; however, they do not convey free and prior consent or guaranteed support for all proposed activities.

Leadership Role

In 2018, members of ERFN gained a heightened awareness of the external factors that can affect the mining industry and that life-of-mine estimates based on resource delineation are just projections. As such, the communities have started to shift their engagement focus from operational performance and economic benefits to the long-term environmental effects of closure and associated reclamation uncertainties. Key concerns of the ERFN communities, as reported in 2017, are the:

- operation and ultimate closure of the Key Lake Operations, due to the long-term (1000s of year) management of tailings and linkages to Wheeler River system that is an area of heightened value; and
- operation and ultimate closure of McArthur River Operation and Key Lake Operations, due to potential for cumulative effects on the Wheeler River system.

The Wheeler River region is recognized as an important cultural, ecological, and sustainability resources (i.e., drinking water, food and air) area for the communities of ERFN. The prevalence of the importance of the resources (clean air, water, soil, and country foods) in this area is likely to only increase in value to local land users following closure of local operations.

Findings from Report Review

Introduction

In 2018, participating in the review of recent Regulatory Oversight Reports (RoRs) the ERFN identified that the RoR and associated public review process is a valuable consultation component, as the reports provides opportunities for ERFN Leadership and management in their community to point directly to conclusions made by the Canadian Nuclear Safety Commission (CNSC) regarding the performance of uranium industry leaders and specific uranium operations and sites. The public review process, in turn, provides an opportunity for ERFN Leadership and management to provide direct feedback on their understanding of the state of the operations CNSC authorizes. The same is true for providing an Intervener Submission for an operating license renewal.

Often proponents presume engagement is equivalent to consultation and that engagement during the life of an operation solely requires that they adequately inform First Nations and Metis Nations of their activities. However, inherent to consultation is the integration of the perspective of First Nations and Metis Nations into project planning, operations and closure. As stated in Section 4.1 Indigenous Consultation of Cameco's licence renewal application (Cameco Application), Cameco recognizes the right of Indigenous groups to be consulted and, where applicable, to have their interests accommodated with respect to potential impacts to their ability to exercise Indigenous or treaty rights.

I have reviewed the CDM 21_H2 and Cameco Application following community input on activities that occurred at Cameco mines and operations in 2018, 2019 and 2020, this process was executed to facilitate a review of these documents in a culturally aware manner.

Summation and Clarification of Information Provided

Safety Control Areas Summary

To facilitate review of the document, the discussion and conclusions in relation to each of the relevant safety and control areas (SCAs) is provided in Table 1. I felt this would significantly improve the readers ability to digest the information provided. The text in the CDM document is a bit confusing (refer to last column in Table 1), however, as stated on page 115 of the DCM21-2H (page 193/265) there are no changes proposed to the existing licence other than 10-year licence term being recommended.

Table 1: CMD21-H2 Safety and Control Areas Summation

SCAs	Number Inspections (2013-2020)*	Performance Rating	Proposed Improvements	Changes to Licence Conditions
Management System	11	Satisfactory[a]	Implementation of CNSC's REGDOC-2.1.2 Safety Culture in 2022	No change
Human Performance Management	6	Satisfactory[a]	Compliance verification criteria for SCA updated to include CNSC's *REGDOC-2.2.2 Human Performance Management, Personnel Training* for next licence period	No change
Operating Performance	N/A[b]	Satisfactory[a]	No proposed improvement [c]	No change
Safety Analysis	5	Satisfactory[a]	No proposed improvements	Recommended the one condition in proposed license remain
Physical Design	8[d]	Satisfactory[a]	No proposed improvements[e]	Recommended the one condition in proposed license remain
Fitness for Service	9	Satisfactory[a]	No proposed improvements	Recommended the one condition in proposed license remain
Radiation Protection	18[f]	Satisfactory[a]	No proposed improvements	One condition in proposed license; recommend there be no change to the current licence condition
Conventional Health & Safety	20	Satisfactory[g]	No proposed improvements[h]	Recommended the one condition in proposed license remain
Environmental Protection	10[i]	Satisfactory[a]	Metal and Diamond Mining Effluent Regulation starting June 2021[j]	Two condition in proposed license; recommend the licence conditions remain

SCAs	Number Inspections (2013-2020)*	Performance Rating	Proposed Improvements	Changes to Licence Conditions
Emergency Management & Fire Protection	3[k]	Satisfactory[a]	*CSA Standard N393 Fire Protection for Facilities that Process, Handle or Store Nuclear Substances*	Two conditions in proposed license; recommend there be no change to the current licence condition
Waste Management	7[l]	Satisfactory[a]	No proposed improvements	Two conditions in proposed license; recommend current licence conditions remain
Security	2	Satisfactory[a]	No proposed improvements	One condition in proposed license; recommend the condition remain
Safeguards & Non-proliferation[m]	N/A[n]	Satisfactory[a]	No proposed improvements	One condition in proposed license; recommend the condition remain
Packaging and Transport	6[o]	Satisfactory[a]	No proposed improvements	One condition in proposed license; recommend the condition remain

* In the Cameco Application it is stated that 40 inspections by the CNSC were completed during the current licence period - 2013 to June 2020.
(a) For all years of the current licence period - 2013 to June 2020
(b) Overall review of the conduct of the licensed activities and other activities that enable effective performance; 51 reported events during licence period.
(c) Improvements to operation, equipment and programs are identified on an ongoing basis and implemented as part of a process of continuous improvement.
(d) Focused inspection completed September 2013 and February 2019.
(e) Improvements to operation, facility equipment and processes are identified on an ongoing basis and implemented as part of continuous improvement.
(f) Focused inspection completed March 2014, June 2017, and August 2019.
(g) For 2015 to 2020 rating was Satisfactory (SA) for 2013 it is indicated to be Fully Satisfactory (FS).
(h) Focused inspection completed April 2018.
(i) Focused inspections completed September 2013 and June 2018.
(j) More stringent licence limits for arsenic and lead, new license limits for un-ionized ammonia, and new reporting requirement for Daphnia magna toxicity testing.
(k) Focused inspection completed September 2016.
(l) Focused inspection August 2018.
(m) Tracking and reporting of foreign obligations and origins of nuclear material.
(n) Monitor performance through participation in IAEA activities and through CNSC regular oversight activities independent of the IAEA.
(o) Focused inspection completed November 2018.

Radiation Protection Summary

To facilitate review of the document, I compiled a summary of the radiation monitoring results in Table 2. I felt this would significantly improve the readers ability to digest the information provided.

Table 2: Radiation Monitoring Results Summation

Parameter	Measured Level	Monitoring Timeframe	Guideline
Average Effective Dose	0.57[(a)]	2013-2019	50 mSv per 1-year
Maximum Individual Effective Dose	7.16 mSv [(b)]	2013-2019	50 mSv per 1-year
Maximum 5-year Dosimetry Dose	33.6 mSv	2011-2015	100 mSv per 5-years
Maximum 5-year Dosimetry Dose	18.3 mSv	2016-2020	100 mSv per 5-years
Annual Collective Dose[(c)]	821 person-mSv	2013	-
	233 person-mSv	2014	-
Public Estimated Dose[(d)]	0.1 mSv/1-year		1 mSv per 1-year

(a) Highest average annual effective dose ranges from 0.16 in 2014 to 0.57 in 2019.
(b) Maximum annual individual effective dose ranges from 2.04 in 2014 to 7.16 in 2018.
(c) Sum of effective dose assigned to workers at Cigar Lake Operation in a given calendar year.
(d) Dose to general public, in other words not a Nuclear Energy Worker, level derived in 2017 Human Health Risk Assessment.

In addition to the guidelines identified in the Radiation Protection Regulation, in the Cigar Lake Operation Radiation Program there are action levels for effective dose identified. These levels are lower than the guidelines and serve as early warning triggers allowing corrective action to occur to confirm a guideline exceedance does not occur. As stated during discussions with ERFN, these can be considered one-off incidents, they are not anticipated to be repeated and do not insolation represent a risk to the workers. These action levels are 1 mSv per week and 5 mSv per quarter (in other words, 5 mSv per 3 months). At Cigar Lake in the reporting period there were exceedances of these protective action levels in 2018.

- June/July - four workers, due to exposure to long-lived radioactive dust, exceeded the 1 mSv per week action level and one of those workers also exceeded the 5 mSv per quarter action level.
- November – one worker, due to completing maintenance activity on the jet bore system, exceeded the 1 mSv per week and 5 mSv per quarter action levels.

Further, as outlined the Cameco Application there was also one exceedance in 2020 before they submitted their application, but it was after June 30 thus not within the reporting period.

- September – one worker, due to performing underground welding, exceeded the 1 mSv per week action level.

Corrective actions have been completed, and CNSC will monitor the implementation and effectiveness of these actions.

Cameco Application Minor Edit

On page 10 of the Cameco Application (pate 14/54), it is indicated that in Table 3.2-1 the Cameco Incident Reporting System (CIRS) levels would be identified; however, this seems to have been omitted in the table on page 11. In the CMD21-2H it is stated that all incidents were medium or low safety significant.

Environmental Effects Predictions

The environmental effects predicted for the Cigar Lake Operation are delineated by the findings of the:

- 2004 EA = Cigar Lake Project – Construction, Operation and Decommissioning Environmental Assessment Study Report (e-Doc 1034719; January 30, 2004).
- 2011 EIS = Cigar Lake Water Management Project – Environmental Impact Statement (e-Doc 3675517; January 31, 2011).
- 2017 ERA = 2017 Cigar Lake Human Health and Environmental Risk Assessment (e-Doc 5357937; October 6, 2017)
- 2019 ERA = Addendum to 2017 Cigar Lake Environmental Risk Assessment (e-Doc 5908811; May 21, 2019)

All of these assessments concluded negligible risks to the environment, the public and Indigenous groups, if effects are within those predicted.

Prediction Exceedances of Concern

In the 2017 RoR, it was stated that the 2017 ERA showed that arsenic levels in the water and/or sediment of Seru Bay (Waterbury Lake) were elevated above those that were predicted in the 2011 EA, and there was an increasing trend in effluent arsenic concentration (2017 annual average effluent concentration 0.0750 mg/L). However, levels in the receiving environment were still lower than protective water quality guidelines (Saskatchewan Water Quality Objective of 5 µg/L), and there was no risk to humans or other biota. In 2018, Cameco implemented several mitigation techniques (e.g., recycling process water) to reduce the arsenic being released to the receiving environment, and accordingly as reported in the 2018 RoR the annual average effluent concentration decreased to 0.0603 mg/L (a 19.6% decrease from 2017; page 47 of the 2018 RoR).

Consistent with the 2017 RoR, in the 2018 RoR, it is stated that although water and sediment levels are above the 2011 EA predictions, they are below the 2017 ERA predictions and effluent concentrations have steadily decreased since 2016 (page 51 of the 2019 RoR). In my review of these documents for ERFN I concluded, however, that no context was provided on:

- If the improving effluent quality trend will continue (i.e., have all mitigation efforts been implemented).

- Degree of the variance of the monitoring data and the 2017 ERA predictions from the 2011 EA predictions.
- If arsenic levels in the receiving environment have illustrated a decrease/recovery in response to improved effluent quality.
- If / when arsenic levels in the receiving environment will recover to levels consistent with the 2011 EA predictions.

It was apparent that it had been concluded that arsenic concentrations in the receiving environment would not result in a significant adverse effect, and that it was an example of adaptive management at site. However, I pointed out that re-baselining of an environmental assessment and overriding prior approved assessments, to my knowledge, is not typical practice. Particularly, as the facility's operating license was issued in 2013 and doesn't expire until 2021 (8 years). Further, as far as I could tell, the 2017 ERA was not associated with a regulatory approval involving engagement/consultation (i.e., the change in effluent quality did not require a license amendment; Table A-1: Uranium Mines and Mills – License Information). As stated in the 2018 RoR, the 2017 ERA was submitted to the CNSC and Saskatchewan Ministry of Environment in 2016 and 2017, respectively. Therefore, we were left to assume the environmental effects had been reviewed and concluded to be acceptable, and within reason of the 2011 EA predictions.

In 2018, it was identified that an area of interest to ERFN for discussions with industry leaders and/or regulators would be the establishment of expectation on when / how Free, Prior, and Informed Consent (FPIC) will be accommodated during operations, specifically when operational limits deviate from those predictions made in approved EAs.

In the CMD21-H2 document we were pleased to see, in addition to concentrations of constituents of concern, the context of loadings (kg per year) to the receiving environment, which represents not only the quality of the water being released from site but also the volume of water being released overtime.

As stated on page 54 of CMD21-H2 (page 60/265), according to the 2017 ERA predicted arsenic concentrations in the effluent would now be above those predicted in the 2004 EA and 2011 EIS, and concentrations in the effluent would be predicted to pose a potential risk to benthic invertebrate community structure in Seru Bay towards the operating life of the mine.

It is recognized that there are species of benthic invertebrates (in other words, types of aquatic sediment bugs) that can tolerate mine-related changes in water quality and there are species that are sensitive to mine-related changes in water quality (in other words, they may become absent altogether or their abundance in the area may decrease as a result of water quality changes). The reader is left to assume, this is what is meant by risk to benthic invertebrate community structure, as no more context is provided. Further, the reader is left to assume that:

- In terms of providing a food source for the fish community supported by Seru Bay, overall density of benthic invertebrates must not be predicted to change, which is already reported to be relatively low (page 49 of the Environmental Protection Review Report attached at the back of the CDM21-2H document as page 170/265).
- In terms of bioaccumulation of arsenic from the benthic invertebrates to the fish and then to humans there must not be a risk.

Further, the timeframe for the operating life of the mine assessed in the ERA is not stated here in the document. However, on page 63 of the CMD21-H2 (page 69/265), it is stated that the life of the Cigar Lake Mine is estimated at 15 years following initial production. On page 7 of the DMD21-H2 (page 13/265) it is stated that full production started in 2015, as such the reader is left to assume the end of the operating life of mine assessed was 2030. The reader is left to assume that the 2017 ERA predicted at some point in time less than 9 years from now this environmental impact would occur.

On page 52 of the CMD21-H2 (page 61/265) it is stated that Cameco undertook various investigation between 2017 and 2019 to:

- increase their understanding of arsenic being released,
- assess efficiencies in water handling and water treatment plant circuits, and
- consider potential effluent treatment technologies.

Resulting from this Cameco optimized the water handling and treatment circuits to limit the release of arsenic in effluent to as low as reasonably achievable (ALARA). Subsequently, the 2019 ERA addendum to the 2017 ERA was prepared. The predicted concentrations of arsenic in the water to be released decreased, and subsequently so did the risk to aquatic environment in Seru Bay. The effects predicted in the 2019 ERA in relation to arsenic are similar to those in the 2011 EIS, in other words they are anticipated to be negligible effects. However, the reporting period of the CMD21-H2 does not include monitoring data that to me demonstrates the improvement from the optimization of water management. Table 3 below provides the relevant excerpts from Table 3.2 and 3.3 of CMD21-H2.

Table 3: Annually Monthly Mean Effluent Arsenic Concentrations and Annual Arsenic Loadings

Parameter	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Aqueous Arsenic Concentrations (mg/L)	0.0007	0.0033	0.0565	0.0919	0.0750	0.0603	0.0952	0.0793
Arsenic Loadings (kg/year)	0.214	1.231	14.952	36.016	31.606	21.183	33.436	-

On page 45 of CMD21-H2 (page 51/265), however, the reader is reassured that currently the levels in the environment remain below the limits set out in the Metal and Diamond Mining Effluent Regulations, and are below those predicted in the ERA (Note: the reader is left to assume this is the 2019 ERA). As well, the CNSC staff concludes that arsenic has stabilized. However, in the table above (Table 3) no increasing trend was demonstrated among the years of full production (2015 to 2019), as such I am confused by this statement.

Also of concerns is the statement on page 55 of the CDM21-H2 (page 61/265) that the constituents of potential concern were largely comparable from the 2017 ERA and the 2019 ERA, with the notable exceptions of:

- molybdenum and selenium where water and/or sediment concentrations were predicted to result in minor increases in potential risk to muskrat (molybdenum) and the rusty blackbird (selenium).

The reader is left to assume that the optimization of the water management would measurably decrease aqueous arsenic concentrations and significantly reduce risks to aquatic receptor, but would result in measurable increases in aqueous molybdenum and selenium that would mean a measurable increase in risk to muskrat and rusty blackbird (identified as aquatic-dependent receptors). On page 49 of the Environmental Protection Review Report attached at the back of the CDM21-2H document as page 170/265, it is stated that the increased risk associated with molybdenum and selenium has a low probability of occurring, but I do not understand this as these predictions are for the expected effluent release scenario. The reader is left to assume that the exposure to these receptors were conservatively assessed, but no context is provided. Further, the result of the assessment for the volume of water considered as the upper bound for the assessment (in other words, not the expected effluent volume but high volumes due to some type of upset conditions) identified additional risks to fox (selenium) and the rusty blackbird (zinc and molybdenum). Overall, it is concluded that the effects would return to pre-operational conditions over time after effluent discharge is ceased; however, no timeframe for this is provided, and it is concluded that the increased risk is negligible. A change in an aqueous concentration that does not result in an increased risk to receptors, but no context is provided as to why an increased risk to receptors is considered negligible. However, the CNSC concludes the 2019 ERA predictions are comparable to the 2004 EA and 2011 EIS.

Questions I would ask, and that could be asked of Cameco during engagement activities:

- **In the 2017 ERA were the aqueous concentrations of arsenic in the receiving environment predicted to be below the guideline / limits set out in the Metal and Diamond Mining Effluent Regulations? If no, at what time point were they predicted to exceed the limits and how far above the limits were the predicted concentrations? If yes, what was identified as the reason why the limits were not protective of benthic invertebrates in this environmental setting?**
- **Is there monitoring data that supports the conclusion that the arsenic levels assessed in the 2017 ERA will no longer be realized? If yes, where would this information be available to ERFN? If no, when would data be available?**
- **Did the molybdenum and selenium concentrations assessed in the 2019 ERA change from those assessed in 2017? If yes, why is there a predicted increase? If no, what was the reason for the change in predicted effects?**
- **Why is the probability of the risks associated with the expected effluent release scenario considered to have a low probability of occurring?**
- **How can an increased risk to receptors in an ERA be considered negligible, as it is an increase in risk?**

- **What is the characterization of the risk posed by the predicted molybdenum and selenium concentrations? For example:**
    - **What is the constituent's mode of action? Is the effect, for example, a measurable reduction in reproductive success?**
    - **What is the exposure pathway to the receptor? Is, for example, the risk the result of tissue accumulation / bioaccumulation?**
- **What animals in the Waterbury Lake area are represented by the muskrat and rusty blackbird in the assessment? For example:**
    - **Does this mean there is an increased risk to moose?**

Operating Performance Assurance

As indicated on page 5 of CDM21-H2, the Cigar Lake Operation has been an active site for about four decades; however, this is misleading as this timeline includes a small test mine, care and maintenance, and remediation and recovery following the flooding of the mine; construction only concluded in 2014 and full production has only occurred from 2015 to 2019. As stated on page 7 of the Cameco Application (page 11/54) there are challenges associated with mining high-grade ore located adjacent to water-bearing sandstone under pressure. As was indicated in the review of the 2018 RoR for ERFN, longer licence terms are of concern to stakeholders that unlike regulatory agencies do not have the ability to inspect or audit performance on a continual basis, but rather must rely on the RoRs and Licence Renewals to confirm adequate engagement is occurring. In other words, to confirm the information being provided as part of engagement is consistent with the understanding of regulators and has been substantiated by regulators.

Recommendations

From my review of the information provided there is no reason to object to the CNSC's conclusions that the Cigar Lake Operating Licence should be renewed; however, it is reasonable that ERFN is not supportive of the 10-year licence terms. This isn't the first time ERFN has voiced this concern. Further, as is stated by CNSC they have noted previously public concern with longer license terms (Email from Ryan Froess, CNSC Senior Policy Advisor, Policy, Aboriginal, and International Relations Division dated March 01, 2021). Specific to the renewal, this objection is reasonable even if you consider alone that the current life of the mine could conclude in 2030 and if granted a 10-year licence term would encompass 2021 – 2031. However, it is more than reasonable when you consider this in the context that in this timeframe (9 years or so) there are adverse effects to selenium and molybdenum water/sediment concentrations being realized that will increase risks to aquatic-dependent wildlife. As well, decommissioning is expected to only take 14 years (on page 63 of CDM21-H2 [page 69/265]), but no timeframe is provided for the return of concentrations of arsenic, selenium and molybdenum to pre-operational conditions.

Following the Virtual Community Meeting held on February 25, 2021 in response to the general lack of detail pertaining to the environmental risks associated with the Cigar Lake mine (Note: a simple general statement was made that all water released from site met regulatory limits), ERFN expressed concerns regarding the 10-year licence term (Email from Cheyenna Campbell dated March 01, 2021). This concern

was dismissed by the CNSC as a question, as ERFN was told that these concerns are addressed through the annual RoR reviews (Email from Ryan Froess, CNSC Senior Policy Advisor, Policy, Aboriginal, and International Relations Division dated March 01, 2021). This response misses the context that a regulatory ask from the proponent is not associated with the RoR, and that it is therefore perceived to equate with engagement rather than consultation. Further, there is the concern that the level of information provided in a community meeting is substantially different than that provided in an RoR and/or License Renewal, and the responses misses the fact that the proponent is held to the information provided at a License Renewal, including operational performance predictions.

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