

YA'THI NÉNÉ LAND AND RESOURCE OFFICE INTERVENTION

*In the matter of the Denison Mines Wheeler River Project:
Environmental Impact Statement (EIS)*



4 March 2023

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Introduction and Project Overview

The Wheeler River Project (hereafter, the Project) is a proposed in situ recovery (ISR) uranium mine and processing plant situated 35 km northeast and 35 km southwest of the Key Lake Mill and McArthur River Mine, respectively, and 4 km west of Highway 914. The Project is operated and 95% owned by Denison Mines Incorporation (hereafter, Denison). The Property hosts two uranium deposits, Phoenix and Gryphon. Only the Phoenix deposit is amenable to ISR mining. It is the focus of this Environmental Impact Statement (EIS) under review.

Estimated to contain 70.2 million pounds of triuranium octoxide ('yellowcake,' U_3O_8) in mineral resources of high-grade ore (with an average grade of 19%), the Phoenix deposit is geologically situated 400 m below the surface at or above the unconformity between the overlying sandstone and underlying basement rock.

Briefly, extraction by the ISR method involves delivery of an acidic mining solution (containing sulphuric acid, hydrogen peroxide, and ferric sulphate) through injection wells to the ore body. This solution permeates the ore body through natural fissures and dissolves the uranium. Uranium in solution is then recovered through recovery wells. The uranium-bearing solution (mining solution + dissolved uranium) is processed at an on-site facility to produce yellowcake. The active mining area belowground is isolated from the surrounding area by an engineered freeze wall to prevent groundwater from flowing through the uranium deposit. ISR mining has not yet been used as an extraction method for uranium in Saskatchewan. However, the freeze wall technique is used at both McArthur River and Cigar Lake Operations.

The proposed timeline for the Project is 38 years: 2 years construction, 15 years operation, 5 years decommissioning, and 15 years post-decommissioning.

In addition to the proposed mine, processing plant, and associated infrastructure and facilities, the area hosts exploration operations currently conducted from Denison's camp facilities. This includes many kilometres of geophysical survey grid lines that transect the Property, about 750 drill pads, and various access trails.

Ya'thi Néné Lands and Resources (YNLR) holds a Participant Funding Contribution Agreement with the CNSC to provide an intervention related to Denison's Wheeler River Project EIS. The Project falls within Nuhenéné, the traditional territory of the Athabasca Denesų́liné. The purpose of YNLR's intervention is to provide information and context of the Athabasca Denesų́liné and Basin Residents' perspectives and concerns regarding this EIS. Of principal concern to YNLR is that the Project be fully sustainable with respect to cultural rights and traditions of the Athabasca Denesų́liné, socioeconomic equity, and environmental protection. To achieve this end, YNLR expects Denison to work collaboratively with the people of Nuhenéné through the YNLR office.

Background of Nuhenéné and YNLR

YNLR works to protect the lands and waters of Nuhenéné for the long-term benefits of its member Denesų́liné First Nations and Athabasca communities, guided by their knowledge, traditions, and ambitions, while being a respected partner in relations with industries, governments, and organizations who seek to develop the Athabasca Basin’s resources. YNLR is governed by an independent Board of Directors appointed by the elected community leaders and operates five offices in Saskatchewan (Saskatoon, Fond du Lac, Black Lake, Hatchet Lake, and Uranium City).

The organization is mandated by the Hatchet Lake, Black Lake, and Fond du Lac Denesų́liné First Nations, as well as the municipalities of Wollaston Lake, Stony Rapids, Camsell Portage, and Uranium City, to act as the representative body and initial point of contact for consultation and engagement from government and proponents. YNLR manages all consultation and engagement within Nuhenéné. In addition to the protection of lands and waters within Nuhenéné, YNLR works to promote the interests of the region’s residents through training, employment, and procurement opportunities.

The Project is located within Nuhenéné, the traditional territory of the Athabasca Denesų́liné. The First Nation members of YNLR are all signatories to treaties with the Crown.¹ A significant majority of the residents of the municipalities represented by YNLR are also Indigenous Peoples,² with Aboriginal and/or Treaty rights protected by section 35 of the *Constitution Act, 1982*. Despite a long history of Crown and industry seeking to exclude Indigenous People from the area and disrupt their connection to their ancestral lands, the relationship between the Athabasca Denesų́liné and their lands and waters continues.

References in this submission to “the Aboriginal and Treaty rights of YNLR members” refers to the Aboriginal and/or Treaty rights held by the First Nations, and/or exercised by the Indigenous Peoples resident in the municipalities.

YNLR provides support for the implementation of the Collaboration Agreement with Cameco and Orano on behalf of the seven Athabasca Basin communities, as well as involvement in many other land and resource-related initiatives. With Denison specifically, YNLR and Denison are partnered in an Exploration Agreement that was signed in October 2022.

¹ Fond du Lac and Black Lake Denesų́liné First Nations are both signatories to Treaty 8. Hatchet Lake Denesų́liné First Nation is a signatory to Treaty 10.

² According to the 2016 census, 89.5% of Wollaston Lake residents, 78% of Stony Rapids residents, and 60% of Uranium City residents are Indigenous Peoples, or “aboriginal peoples” as defined under section 35 of the *Constitution Act (1982)*. Data for Camsell Portage is not available.

Document Timeline and YNLR Submission

YNLR applied for funding to intervene in the EIS on 14 March 2022. YNLR received the fully executed funding agreement on 23 June 2022. A draft form of the EIS (reviewed by CNSC) was made available on 21 November 2022. However, Denison had provided YNLR with the Indigenous sections of the EIS for review and comment in June 2022.

Once YNLR received the draft EIS released on 21 November 2022, YNLR undertook the following tasks:

- Participated in joint in-person and virtual meetings with the YNLR Board of Directors and Athabasca Land Protection Committee (ALPC) on 15 December 2022.
- Participated in a joint in-person and virtual meetings with CNSC staff on 20 December 2022.
- Conducted a biophysical review.
- Conducted a review of Indigenous rights and perspectives.
- Conducted a legal review.

YNLR is providing this submission on behalf of its member communities. This submission is intended to provide the Commission with a summary of key issues relevant to the EIS. YNLR and its advisors have engaged in as much analysis as possible within the limited time frame available, especially considering the intervening December holidays. In reviewing these submissions, **YNLR reminds the Commission that an absence of analysis or documented concern or discussion should not be taken to indicate that YNLR has no concerns on that issue.** The information in the following written document is incomplete, and an absence of data does not mean an absence of value or perspective.

The recommendations and comments provided in this submission are not comprehensive nor representative of the entirety of YNLR's membership. Nothing in this submission is intended to or shall abrogate or derogate from any Aboriginal and/or Treaty rights of YNLR or the communities and organizations it represents.

Application review, evidence collection, and intervention preparation were limited to a short window of time and overlapped with the December holidays. As such, YNLR requested and received a two-week extension to the deadline for the written submission of 18 February 2023 to 4 March 2023. As outlined in this submission, YNLR has actively engaged with the proponent and sought to provide a comprehensive review within the strict timelines available. Through this review, YNLR has identified important information gaps and methodological issues that create uncertainty about potential impacts.

1. Designation of Athabasca Denesų́liné as an Indigenous Community of Interest

Denison's EIS (draft) for the Wheeler River Project recognizes and categorizes Indigenous communities as either Indigenous Communities of Interest (COI) or Indigenous Communities (IC). For the purposes of this EIS, Athabasca Denesų́liné First Nations and communities were categorized as Indigenous Communities, about which YNLR has had previous correspondence with Denison.

Designation of Athabasca Denesų́liné as an IC and not a COI marginalize the Athabasca Denesų́liné and their knowledge. This categorization ensures that the EIS expends considerably more effort to understand the issues and concerns of a COI than an IC. To determine whether an Indigenous community is an IC or COI, the EIS uses a Local Study Area (LSA) and Regional Study Area (RSA) that focus on the area to the south of the Project location and along the road network, rather than downstream along the Wheeler and Geikie Rivers to the north.

The preoccupation with road access ignores that Athabasca Denesų́liné traditional land users generally access the study area via overland routes. For example, Hatchet Lake and Wollaston Lake Post are about 160 km downstream of the Wheeler River Site.

In contrast, the English River First Nation (ERFN) Community (or Metis Local #82) of Patuanak is further from the Project site at approximately 225 km yet is designated as a COI. Both ERFN and Hatchet Lake Denesų́liné First Nation are signatories to Treaty 10. They have knowledge, land use, and occupancy in the area. Hatchet Lake/Wollaston Lake Post is approximately 65 km closer to the Wheeler River Project than Patuanak. Yet, Patuanak is considered a COI, while Hatchet Lake is an IC. This seems inconsistent with the criteria used in the EIS to determine designation of communities. To be clear, we are not questioning the inclusion of ERFN or the Metis Local #82 as COI within the EIS, but we are pointing out the inconsistent treatment.

The ramifications of the designation of Athabasca Denesų́liné communities as an IC rather than a COI are evidenced by the limited engagement with the Athabasca Communities and the limited inclusion of their knowledge within the EIS.

The EIS states that (Pages 25-26, Executive Summary EIS):

“Denison recognizes the value Indigenous Knowledge (IK) and Local Knowledge (LK) adds to project planning, the completion of the EIS, and throughout the lifespan of the Project. Denison has recorded and stored information regarding IK, LK, and engagement activities in an Engagement Database referenced throughout the EIS. Indigenous perspectives can be complementary to the Cumulative Effects Assessment (CEA) for the Project. ERFN and KML have shared their Indigenous Knowledge on past, present, and predicted cumulative effects. The Ya'thi Néné Lands and Resources (YNLR) Office also shared a report with Denison that focused

primarily on the Athabasca Denesų́łn  First Nations including Hatchet Lake, Black Lake, and Fond du Lac, as the following source:

- *An Exploration of Recorded Athabasca Denesų́łn  Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project (Ya'thi N n  Lands and Resources Office 2022)*

Denison has brought this Indigenous Knowledge and Traditional Knowledge together with 'western' science throughout the EA process. Additionally, Denison is supporting several processes to aid community-led collection of IK. These processes are at different stages of completion. Denison will continue to consider and integrate results from any forthcoming materials provided by communities as it advances the EIS process."

However, Denison misunderstands the nature of the YNLR Report provided in March 2022.

This report is an amalgamation of existing information from YNLR's database, which originates from a variety of projects varying in purpose, each with differing objectives and geographic scope. Consequently, it is not specific to the Wheeler River Project. It is thus not a focused Athabasca Denesų́łn  Knowledge, Land Use, and Occupancy (ADKLUO) Study. This, in our opinion, leads to misunderstandings and misrepresentations within the draft EIS. This error was detailed by YNLR to Denison in a July 2022 letter.

In part, because the Athabasca Denesų́łn  were not identified as a COI, specific works were not undertaken or commissioned; to better understand the Athabasca Denesų́łn , additional efforts are necessary. This is important because it sets the tone for comparisons with other Indigenous groups who have engaged with Denison more frequently and conducted far more intensive and focused work. This impacts the level of Athabasca Denesų́łn  information available and included. As a result, it does not allow for a shared, more in-depth exploration of Athabasca Denesų́łn  experiences.

Moreover, given the legacy of dispossession and denial of Indigenous Peoples' rights, the Athabasca Denesų́łn  connection to their ancestral lands is less about who does what, where, and when, than it is about *who belongs to those lands*. And, as part of Nuhen n , Athabasca Denesų́łn  hold a sacred obligation to look after these lands for both today and to steward it for future generations.

Assertion of Traditional Territory: land use. YNLR's 2022 Report mentions woodland caribou values, tracks, and sightings within the EIS study area; again, these data arise from various caribou studies and clearly demonstrate that Athabasca Denesų́łn  members were in the EIS area. That harvesting or other information were not recorded is a function of the purpose of the various woodland caribou studies from which these data originated rather than an indication that

Athabasca Denesųliné do not utilize the area for other traditional purposes. In addition, Athabasca Denesųliné activities include, but are not limited to, large and small game harvesting, gathering activities, and fishing, all of which are of key cultural importance. Additional engagement with the Athabasca Denesųliné communities and YNLR could have ensured further clarification.

Additionally, information from the YNLR 2022 Report (Section 3.3) appears to have been disregarded in the draft EIS. This information includes references to activities mentioned during duty-to-consult works for other projects with the LSA. This includes hunting, fishing (including commercial) and gathering of berries and medicines. The responses also indicate that the land is used for therapeutic purposes, youth gatherings, fish camps, and general camping. Further, the responses note that areas were utilized year-round for hunting, trapping, and fishing, with activities such as berry picking occurring in summer. Impact concerns raised by the interviewees included damage to the lands and water, effects on wildlife, disruption to traditional activities, and accessibility to the areas while projects are ongoing. This information is relevant to the Wheeler River project and should be included with the EIS.

Depictions of contemporary land use describe only land use that has persisted through time, despite impacts. For example, the greater landscape surrounding the Wheeler River Project has been bludgeoned with mineral exploration and extraction for generations. Although YNLR's 2022 Report describes ample Traditional Land Use in the Project area, when considering contemporary land and resource use by Athabasca Basin residents, it is imperative to remember the alienation from the land caused by the cumulation of *all* industrial development prevents residents from fully accessing affected areas.

Cumulative impacts of development have left residents with a steadily shrinking usable area to exercise their rights. In addition, psychological, cultural, and social impacts of uranium exploration and mining, including fear of contamination due to nearby extraction and milling sites north and south of the Wheeler River Project, have further prevented residents from fully accessing the general area.

Assertion of Traditional Territory: connectivity by water. The EIS states (Pages 1-7):

“Water in the Project Area drains towards Russell Lake, the Wheeler River, and ultimately into Wollaston Lake (via the Geikie River).”

It is important to note that the Hatchet Lake Denesųliné First Nation and the community of Wollaston Post are situated at Wollaston Lake. In addition to documented Traditional Land Use, this fact should categorize Athabasca Denesųliné Communities as a COI given their downstream

location of the Wheeler River Project and, thus, potential to receive negative impacts on aquatic resources and ecosystems.

Given the preceding, Athabasca Denesųliné communities should be designated as a COI. In any case, YNLR points out that the Project is located within Nuhenéné (the Athabasca Denesųliné territory), the Athabasca Denesųliné First Nations are signatories to Treaties 10 and 8, and our communities are in proximity to the Project and have demonstrated traditional activity. The groups YNLR represents are constitutional rights holders, not mere stakeholders. As such, they need to be involved at a significant level when their rights may be impacted.

YNLR acknowledges the intent between Denison and YNLR to enter into negotiations for a Benefit Agreement. We anticipate our concerns noted within this document will be discussed as well as any other concerns our community members and leadership identify. We recognize the implications of having been designated as an IC instead of a COI but we anticipate being able to work through these differences with Denison and to be able to rectify this concern. Some of our more notable concerns that arise as a result of the designation include:

Project economic and employment benefits: the draft EIS (page 25, Executive Summary) states, *“Denison will concentrate initial and sustained efforts towards employment and training initiatives for the Project targeted at the Communities of Interest. Best efforts will be made to make sure employment is maximized within the Communities of Interest and beyond that, with Indigenous people and Residents of Saskatchewan’s North. Denison will work with the leadership of the Communities of Interest to assist in determining appropriate hiring practices during all phases of the Project.”*

Unlike the performance of many past northern developments, YNLR expects this project to deliver on the economic and employment benefits promised to local and Indigenous People, including Athabasca Denesųliné communities, while at the same time protecting the ecological health of the surrounding lands and waters. As expanded upon below, appropriate mechanisms can serve to both properly respond to and address potential ecosystem and socioeconomic impacts and to add confidence and certainty to impact assessment and outcomes for the Project.

Involvement in future monitoring: the draft EIS (page 74, Executive Summary) states that *“Denison is proposing project monitoring and follow-up. Monitoring programs are designed to meet regulatory requirements (e.g., permit or license conditions), and/or to demonstrate compliance with environmental commitments made in the EIS. Follow-up programs are those that are proposed to address any uncertainties identified during the EA process (e.g., to verify predictions made during the EA; determine the effectiveness of proposed and implemented mitigation measures) and to determine when to implement adaptive management measures.”*

A cursory examination of the EIS revealed no less than 23 proposed management and monitoring plans.

Given the multitude of environmental concerns with the EIS, including those posed by YNLR (see below), YNLR believes that monitoring throughout the life of the Project is extremely important. However, the list of proposed management and monitoring plans is daunting, requires a refinement of realistic, measurable outcomes, and reinforces the need for YNLR's involvement in all phases of monitoring and mitigation activities.

For example, one of the proposed monitoring plans states, *"Monitoring programs were identified as being required to measure the effects on selected ungulates, furbearers, and woodland caribou to meet regulatory requirements."* This is a vague statement with statistical implausibility to achieve a conclusive end; the result is that it is largely a meaningless statement. "Monitoring" could vary from systematic surveys to simply recording observations. "Measure the effects" could involve measurements of metrics ranging from population size, reproduction, or behaviour. As these groups of organisms are typically wide-ranging and with low population abundance, determination of effects on any of these metrics would require extensive and intensive studies with likely unachievable necessary sample sizes.

YNLR believes these uncertainties represent another opportunity for further collaboration between Denison and Athabasca Basin residents. Athabasca Denesų́liné have much to offer to reduce uncertainty and improve overall environmental management of the Project, impact avoidance/reduction, and opportunities for shared benefits. While the physical footprint of the Project may be small, the nature and permanence of a uranium mine development raises the risk level for the surrounding environment and its Indigenous People. YNLR, therefore, expects to be fully involved with the design, implementation, and reporting of all monitoring programs for the Project, and expects such programs to be arms' length, statistically robust, and transparent to the public.

YNLR seeks a transparent and trusted process regarding who is responsible for ensuring that the promised monitoring programs are delivered in the future. To that end, YNLR should play an independent auditing role in this regard. Without these steps, there is a strong probability that the Project will not adequately monitor and manage Athabasca Denesų́liné food security, access to and enjoyment of land, and harvesting success. But by taking these steps, Athabasca Denesų́liné and their knowledge will be better integrated into the environmental management of the Project. This will build trust with local peoples and communities and improve the Project overall by providing more opportunities for including Indigenous and Local Knowledge into the adaptive management system.

The above areas of concern are further detailed in our technical comments that follow. However, on the whole, the main outstanding concerns and deficiencies are largely the result of the limited engagement with the Athabasca Denesųfiné and Basin residents and the limited inclusion of their knowledge within the EIS. We anticipate that our concerns will be mitigated by an anticipated benefit agreement implementing a co-designed monitoring, reporting, and adaptation approach for the Project. Without this involvement, it will be difficult to know with certainty how the Project will impact Indigenous People and their relationship and rights to the lands.

2. Protection of Woodland Caribou Considering Cumulative Effects

The individual EIS discipline sections predict project-specific LSA residual effects for each Valued Component (VC) and their associated Key Indicators (KI) as well as RSA cumulative effects from the Project, plus other previous and existing projects and activities, where applicable. For example, the EIS includes 33 LSA and RSA VCs (Table 5.3-1, pages 5-6) plus their associated KIs. Yet, all the 66 residual and cumulative effects analyses following mitigation are ‘non-significant.’ While YNLR understands the important role of mitigation in reducing predicted impacts, we find this conclusion extremely suspect and statistically unlikely. YNLR believes that this overly optimistic conclusion results from several sources ranging from a poor selection of VCs to the largely subjective and qualitative nature of the impact assessment analyses, including the erroneous conclusions drawn for some VCs, including for woodland caribou, of which populations are in decline.

Residual and cumulative effects assessments of the EIS were deemed to be not significant for all bird and wildlife VCs, including the woodland caribou (page 55, Executive Summary). As a result, a ‘woodland caribou management plan’ is proposed to address wildlife-specific mitigation measures based on proven and accepted mitigation following standard industry guidelines and best management practices (page 2-104). YNLR disagrees with this conclusion. The situation for this important species in the region is already uncertain. YNLR believes that the Wheeler River Project will exacerbate this. Simply stated, the region’s woodland caribou populations are declining, and any further disturbance to the animals themselves or their habitats – and this project contributes to both aspects – will have negative impacts.

YNLR does not understand how both residual and cumulative effects on woodland caribou are not significant with the presence of enormous historic seismic cutline disturbance in the area (Figure 9.2-6, page 9-83, EIS and Appendix 9B). For example, 100% of the LSA and 82% of the RSA are already disturbed in this manner (Appendix 9B). Such linear features are well known to be detrimental to woodland caribou. YNLR cannot find any reference to seismic disturbance being

included in the analyses of the effects and is perplexed about the reasons justifying its omission. The Indigenous groups consulted undoubtedly mentioned it.

In addition, the normal 'proven and accepted mitigation' has not helped this species historically hence its precarious conservation status today. There remain concerns over the unknown impacts the Project will have on caribou and other wildlife. Therefore, a minimum of an aggressive habitat-offset plan for woodland caribou should be developed, approved, and actioned before construction begins on the Project. YNLR would like to be involved with the development of this plan. We suggest that the plan should address the many kilometres of seismic disturbance within the Project LSA and RSA and beyond.

If the seismic cutline disturbance has not been included in the analyses of the residual and cumulative effects for woodland caribou, then a project development permit should not be issued until such studies have been conducted and assessed. As well, if such disturbances have not been included in the analyses of the residual and cumulative effects, then it brings into question the conclusions drawn of non-significant impacts for all other avian and wildlife species.

3. Protection and Health of Aquatic Environments

The EIS states (pages 12-13 and 16, Executive Summary):

"Mining will be completed using a relatively new ISR (In Situ Recovery) method, which is considered better both environmentally and financially. A water-based acidic mining solution is injected from surface pump houses via a series of injection wells, entering the uranium deposit mining area 400 metres below the surface. As the mining solution travels from injection wells towards recovery wells, uranium contained in the host rock is dissolved and transported to the surface within the mining solution. Water will be sourced from either a shallow groundwater well or Whitefish Lake.

Containment of the acidic mining solution and resulting uranium bearing solution within the mining area will be achieved through three levels of containment:

- 1. Design and operation of the injection and recovery wells to reduce the likelihood of leakage into the overlying sandstone.*
- 2. The inward hydraulic gradient between the injection and recovery wells.*
- 3. Creation and maintenance of an underground freeze wall.*

Processing of the Uranium bearing solution to Triuranium Octoxide or U₃O₈ ('yellowcake') will then take place in the processing plant on the surface."

YNLR has questions concerning the proposed method of mining. First, the relative newness of the ISR technology combined with the use of a freeze wall, and second, the enormous amounts of the natural lake and ground water proposed to be used.

The EIS cites two other Saskatchewan uranium mines where freeze wall technology is in operation (Cameco's McArthur River and Cigar Lake). Yet, YNLR cannot find any reference to the environmental performance of these freeze walls in the Wheeler River EIS. Is this information not available?

YNLR is concerned about freeze wall integrity through the life of the mine, and the fate of contaminants in the system following decommissioning when the wall thaws. While Denison provides the usual assurances in the EIS, ongoing independent monitoring is critical here, and YNLR would like to be included as part of this.

Water usage and maximum quantity of water withdrawal were discussed during a virtual engagement meeting with YNLR and Leadership representing the communities throughout the Athabasca Basin (page 2-36, EIS). Despite this, YNLR has remaining concerns about project water management.

During its operation over several decades, the Denison mine will extract fresh water from both groundwater and Whitefish Lake at the rate of 81 cubic metres (81,000 litres) per hour (page 2-36, EIS). (However, Figure 2.2-15 shows only an extraction rate of 40.5 cubic metres per hour from groundwater OR Whitefish Lake; please clarify.)

Assuming the larger quantity, 81 cubic metres per hour equates to 2 million litres per day, or 710 million litres per year. As a result, stream flows are predicted to decline by 3% (page 46, Executive Summary, EIS). In addition, more than 90% of this extracted water will be released back into Whitefish Lake following treatment for contaminants (page 2-32, EIS), which raises concerns about future water quality in the lake and beyond. Whitefish Lake connects to Russell Lake, the latter of which is part of the Wheeler River. Wheeler River connects downstream to the Geikie River, which flows to Wollaston Lake. As such, Basin residents are rightfully concerned about the quality of these waters and the ramifications to human and ecosystem health.

Denison proposes a monitoring program to test the effectiveness of water mitigation measures and predictions. In consultation with Indigenous communities, relevant federal and provincial agencies, and other interested parties in the development and implementation of this program, specific monitoring and follow-up plans will be prepared to refine and finalize the monitoring approach (page 47, Executive Summary, EIS).

In situations like this where the impacts to the environment are uncertain or there remain significant outstanding questions surrounding the conclusion of impact predictions, collaborative

ongoing monitoring and mitigation becomes paramount. Doing so will lead to more informed decision-making and, ultimately, a better project. YNLR looks forward to being actively involved in these discussions.

Appendix A: Details of Biophysical Review

A note on this Appendix's format: some sections of the EIS have been directly copied and indicated in *italics* to provide context and clarity to the comments immediately following them.

A. Executive Summary of EIS

Project Overview (Page 2)

- *Project components and activities: the central Project components are the ISR (in situ, or 'in place' recovery) mine and the processing plant. Supporting Project components and activities include those needed for waste management, water management, distribution of electricity, and transportation, such as pads, ponds, buildings, roads, and an airstrip.*
- *Inputs: freshwater, chemicals (for mining, uranium processing, treating water), electricity, and fuel.*
- *Outputs: waste (organics, clean waste rock, special waste rock (drilling core), domestic waste, industrial waste, precipitates from the processing plant and water treatment, sewage), air emissions including greenhouse gas emissions (GHGs), noise, and treated effluent.*
- *Product: U3O8 or yellowcake. The product Denison sells is ultimately used as fuel in nuclear power plants, supporting global efforts to reduce GHG emissions.*
- *Employment: Approximately 300 workers during Construction and 180 during Operation. The Project will be operated as a fly-in-fly-out operation.*
- *Project duration: Total of approximately 38 years, about 2 years for Construction, 15 years for Operation, 5 years for Decommissioning, and 15 years for post-Decommissioning periods.*

Comment 1: YNLR sees a potential benefit of the in situ approach as it is designed to reduce the surface disturbance of the Project, and the potential leakage of contaminants from excavated rock and tailings. However, see the comments below.

Comment 2: YNLR is concerned that the extraction of source water for the Project may have a negative effect on stream flows both below- and aboveground.

Comment 3: YNLR is concerned with the potential effects of contaminants released during and after the Project.

Comment 4: From these statements, YNLR assumes no permanent work camp will be constructed. YNLR expects that a sizeable proportion of the Project workers will be hired from the local and regional area.

Comment 5: YNLR is concerned with the potential increase in road and off-road traffic affecting wildlife and fisheries sustainability.

The environmental assessment (EA) outlined in this environmental impact statement (EIS) was transparent and conservative, following a standard, stepwise approach for evaluating Project effects including cumulative effects. In an effort to generate a conservative EA and provide operational flexibility, Denison developed an assessment basis for the EA, which bound, or was higher than, the current understanding of the Project's engineering design basis. For example, the direct Project footprint based on engineering site plans is about 75 ha, but the EIS assumed the Project's area of disturbance was closer to 170 ha. (Page 2)

Comment 6: YNLR supports this built-in precautionary approach to the Project's risk assessment. However, given the lengthy timeline of the Project, YNLR would like to see that lost (i.e., unmitigated) wildlife and fisheries habitat be offset in some manner. A response to this should be approached through an anticipated impact benefit agreement.

Residual effects remaining after mitigation were largely linked to land clearing, increases in traffic, emissions to air, waste generation, and water management. Residual effects were evaluated for 32 Valued Components (VCs) and significance determined for receptor VCs. The evaluations and conclusions of the EIS are that the Project can be constructed, operated, and decommissioned while regional plant communities are stable and continue to function, regional fish and wildlife populations are viable and healthy, human health is protected, there is continued opportunity for land use activities, including exercising Indigenous rights, and there is continued social and economic viability of local economies. The EIS outlines mitigation measures, monitoring requirements, and commitments needed for Denison to have confidence that Project is operating as planned and that the actual effects resulting from Project Construction, Operation, and Decommissioning are at or below predicted effects. (Page 2)

Comment 7: Despite these reassuring statements, YNLR is aware that predictions may fall short, hence the need for close collaboration with Indigenous Peoples, communities, and organizations, including their input into the design and implementation of transparent and statistically-robust project monitoring programs.

Overall, the Project has the potential to achieve a superior standard of environmental sustainability when compared to conventional uranium mining operations. Owing, in large part, to the use of the ISR mining method, the Project has potentially fewer residual effects remaining after mitigation when compared to conventional open pit or underground mining methods and conventional milling activities. (Page 2)

Comment 8: See above comment on the potential benefits of ISR technology. However, YNLR remains concerned about the nature and disposition of project contaminants during and after the mining process.

Importantly, Denison has been proactively engaging with Indigenous communities and organizations, the general public, and regulatory agencies since 2016. The use of a collaborative approach to engagement and advancement of the Project is exemplified by the input these groups have provided to influence both project designs and the EA in various ways. Denison views the EIS as an important planning tool that will be used to support future activities and represents one stage in the rigorous EA, licensing, and permitting process for a uranium mining facility in Canada. (Page 2)

Comment 9: YNLR supports these statements with the caveat that the company's collaboration and partnership with Indigenous Peoples, communities and organizations continues throughout the life of the Project. It is important for the company to understand that these groups do not consider themselves as stakeholders but rather as rights holders.

Mining will be completed using an ISR method. A water-based low pH or acidic mining solution is injected from surface pump houses via a series of injection wells, entering the uranium deposit mining area (approximately 400 metres below surface) via slotted well screens installed at the base of the injection wells. As the mining solution travels from an injection well towards a recovery well, uranium contained in the host rock is dissolved and transported to surface within the mining solution. (Page 12)

Comment 10: While YNLR supports the Project outcome of lower aboveground disturbance, it retains concerns about the management inputs and outputs of the ISR method, particularly project water sources, quantity, and release along with its associated contaminants.

Containment of the mining solution and uranium bearing solution within the mining area will be achieved through a defence-in-depth approach with three levels of containment (Page 12):

- 1. Design and operation of the injection and recovery wells – The wells are designed with both an outside and inside casing which will minimize the potential accidental release of mining solution or UBS into the sandstone above the mining area.*
- 2. Inward hydraulic gradient from wellfield operation – A hydraulic gradient will be present in the mining area as the mining solution is pumped from an injection well (areas of high pressure) towards a recovery well (areas of low pressure). This consistent gradient in pressure causes the solutions to preferentially flow towards the low-pressure areas in a controlled manner.*
- 3. Creation of a freeze wall – Denison is proposing a freeze wall for tertiary containment of the mining solution. The engineered freeze wall will extend from the surface of land down to the basement rock below the depth of the uranium deposit. The very low permeability basement rock underlying the uranium deposit serve as a natural aquitard; however, the sandstone hosting the uranium deposit is permeable and groundwater can flow horizontally through the deposit. Ground freezing technology is well established throughout the world. Its use in a mining environment was pioneered in Saskatchewan's potash mining industry for shaft sinking activities, and later adapted for use in Saskatchewan's uranium industry. Ground freezing to control and eliminate groundwater from entering the mining areas is a fundamental component of two existing Athabasca Basin underground uranium mines: Cameco Corporation's McArthur Operation and Cigar Lake Operation. The freeze wall for the Project will be established ahead of the commencement of mining activities by drilling vertical holes (using common diamond drilling methods) from surface to the basement rock. These holes will be cased and outfitted to allow for the recirculation of a freeze brine, which will gradually reduce the temperature of the ground near the drill hole and ultimately freeze the water within the rock to create a continuous in-ground freeze wall around the perimeter of the mining area. A total of over 300 freeze holes are planned for the Project. Once completed, the freeze wall will create a physical boundary*

*around the mining area that will completely isolate it from the surrounding regional groundwater.
(Page 13)*

Comment 11: YNLR assumes that information and data exist with respect to the environmental safety of freeze wall technology in uranium mining operations within Saskatchewan. Has Denison reviewed these data and are they considered/presented as part of this EIS? If not, why not?

Comment 12: What happens to the freeze wall and its retained contaminants at the end of the Project's life? – despite safeguards and remediation, it has potential to release contaminants after mining is completed.

Groundwater monitoring wells will be configured to demonstrate effective containment of solution within the mining area and provide early warning of any vertical migration of the mining solution or UBS within the perimeter of the freeze wall. Additional monitoring wells will be positioned to monitor groundwater pressures and quality outside of the mining area, including outside of the perimeter of the freeze wall. Groundwater samples taken outside of the mining area during Operations are expected to be comparable to regional groundwater quality. (Page 13)

Comment 13: See preceding comment. Monitoring and adaptive management are important components of sustainable uranium mining. YNLR expects to be consulted/included in the design and implementation of the Project's environmental monitoring programs.

When the UBS comes to surface, radon gas will naturally migrate out of solution and into the atmosphere. To keep radiation exposure of process plant worker as low as reasonably achievable (ALARA,) a radon purge tank will be used to remove an initial volume of radon before the solution enters the processing plant. (Page 16)

Comment 14: Will the released radon gas be of any concern to natural resources, such as fish and wildlife?

Water management for the Project involves distribution of freshwater, collection of runoff water, recycling and treatment of process water, and collection and treatment of industrial and domestic wastewater. As part of Denison's approach to sustainable mining at the Project, Denison intends to recycle process water to the greatest extent possible, thereby reducing the demand for fresh water supply and reducing the volume of treated effluent released. A freshwater distribution system will be designed to provide fresh water for the fire water system, the potable water treatment plant (WTP), the processing plant including mining solution preparation, the wash bay, drilling, and batch plant operation. Water will be sourced from either a shallow groundwater well or Whitefish Lake. (Page 18)

Comment 15: While Project water reuse is laudable, its overall conservation and management are significant concerns for YNLR, particularly the quantities removed from the ecosystem and the fate of contaminated water released back into the ecosystem from the Project that end up in Wollaston Lake. See the above comments on environmental monitoring.

Denison will concentrate initial and sustained efforts towards employment and training initiatives for the Project targeted at the Communities of Interest. Best efforts will be made to make sure employment is

Comment 18: As noted above, Indigenous People and their communities are rights holders, not stakeholders. This is an important distinction, as the rights they hold are constitutionally protected. This must be respected and recognized in the ongoing dialogue between the company and Indigenous Peoples through their chosen representatives, like YNLR.

Interested Parties are categorized into three broad groups, each with several sub-categories. These include Indigenous Groups, the General Public, and Regulatory Agencies. As part of our adaptive approach, engagement activities for each of these groups of Interested Parties have been tailored to comply with both federal and provincial regulatory legislation and, importantly, meet the expectations of each Interested Party. (Page 28)

Comment 19: Again, the Indigenous People, communities, and organizations YNLR represents are rights holders, and are not to be arbitrarily grouped and treated as non-rights holders.

Indigenous peoples have a unique relationship with the environment, and importantly, Indigenous and Treaty Rights, which must be fully respected during the process of Project development, Construction, Operation, and Decommissioning. To this end, Denison's objectives with respect to Indigenous engagement associated with the Project are as follows: (Page 29)

- *build and maintain relationships built on trust and transparency.*
- *create a respectful dialogue that promotes communication between Denison and Indigenous communities and organizations, in a timely and accurate fashion; and*
- *understand how the proposed development of the Project may affect the ability of Indigenous peoples to exercise collective Indigenous/Treaty Rights.*

Comment 20: YNLR broadly supports these statements and looks forward to working with the company in a collaborative fashion. This would best be achieved through the signing of an impact benefit agreement.

Indigenous Knowledge and engagement activities clearly identified the importance Interested Parties place on groundwater as a pathway to surface water, and the associated potential for changes in groundwater inputs to surface water to influence Fish and Fish Habitat, Sediment Quality, Vegetation, Wildlife, Human Health, and Indigenous Land and Resource Use. (Page 43)

The primary potential effects from the Project on groundwater included changes to Groundwater Quantity and Groundwater Quality during Operation as a result of surface facilities (ponds, landfills, laydown and wash areas) and mining, as well as the migration of chemical constituents in groundwater from the remediated mining area as natural groundwater flow conditions are re-established in post-Decommissioning. (Page 44)

The freeze wall will be established as tertiary containment before mining operations commence to create hydraulically isolated mining area. Groundwater will be remediated during Decommissioning to acceptable standards, which are referred to as mining area decommissioning objectives. These objectives reflect concentrations of mining-associated groundwater constituents that are protective of the surface

water environment after giving consideration to the removal of the hydraulic isolation of the freeze wall following the decommissioning stage. (Page 44)

Migration of dissolved constituent concentrations along the groundwater flow path from the mining area to Whitefish Lake (the local surface water receptor) is predicted to take hundreds to thousands of years, with concentrations remaining below values that would result in an environmental risk. (Page 44)

Comment 21: The release of contaminants before and after the Project's completion worries YNLR, which sets a high priority on clean and abundant groundwater and surface water. The Indigenous People, communities, and organizations YNLR represents will be here long after mine decommissioning, so minimizing this risk with statements regarding the length of time it takes is not helpful. Monitoring of water will be critical, and YNLR expects to be consulted and heavily involved with respect to this activity.

Flows and water levels in lakes and rivers within the LSA for the Surface Water Quantity VC are expected to experience some adverse change (i.e., reduction) as a result of altering the drainage areas reporting specifically to Whitefish Lake and water taking from this same waterbody. (Page 45)

Residual adverse effects are expected on Surface Water Quality due to the mobilization of solids and treated effluent discharge to Whitefish Lake; however, with the implementation of appropriate design criteria for site water management and the effluent discharge pipeline and diffuser, in addition to meeting provincial and federal criteria for discharge criteria and mine water treatment (as needed), the residual effects of the Project on Surface Water Quality are anticipated to be not significant. (Page 47)

Comment 22: As with groundwater, YNLR places a high value on the quantity and quality of surface waters and expects to be fully included with respect to decisions regarding the monitoring of impacts.

The physical and chemical attributes of aquatic sediments directly influence benthic invertebrate community distribution, diversity, abundance, and health. Potential changes to water quantity and quality are key considerations in the assessment process and draw a high level of concern from interested parties. Changes to Surface Water Quality have the potential to influence sediment particle size, chemistry, and distribution within the aquatic environment, and in turn influence biodiversity and biological function. Such effects are of interest with respect to the cultural values of Indigenous communities. (Page 48)

Comment 23: See above comments on groundwater and surface water.

The Fish and Fish Habitat VC was selected for inclusion in the assessment as Project activities have the potential to cause erosion-driven mobilization of suspended sediment. Project activities are also expected to discharge treated effluent to the natural environment, overprint fish habitat, and locally increase access to fisheries resources with the addition of a new access road and temporary increase of employees to the site. Furthermore, inclusion of the Fish and Fish Habitat VC is vital due to its importance to Indigenous peoples from a cultural and subsistence perspective. (Page 50)

The assessment predicted residual effects on Fish and Fish Habitat due to change in water quality (including temperature), change in sediment quality, change in aquatic habitat (aerial extent), and change in fish harvest from increased site access. However, with the implementation of appropriate mitigation

measures, the predicted residual effects were characterized as low magnitude, localized, and fully reversible, and are, therefore, anticipated to be not significant. (Page 51)

The main Project activity that may affect Fish Health is the release of treated effluent to Whitefish Lake. Changes in surface water quality and sediment quality have the potential to affect Fish Health in the receiving environment. (Page 52)

Comment 24: Fish, fish habitat, and fish health are all extremely important to northern people of Saskatchewan, and especially Indigenous People. Wild fish are a culturally important source of protein and provide economic opportunities in the form of commercial fishing and recreational angling. YNLR will be eager to and expects to be involved in collaborating with Denison in the future monitoring of these vital natural resources.

Comment 25: Based on existing federal fishers legal and policy requirements, YNLR expects that all fish habitat destroyed or altered by the Project will be more than offset.

The assessment predicted residual effects on Vegetation and Ecosystems, Listed Plant Species, and Wetlands due to changes in the extent of habitat types, changes in the constituent concentrations of potential concern in plant tissue, changes in the number of listed plants, and changes in the area of wetland ecosystems. The residual effects of the Project are expected to interact with the residual effects of other projects and activities in the Terrestrial RSA resulting in cumulative effects on Vegetation and Ecosystems. The residual effects of the Project and the cumulative effects (interacting with residual effects from other projects and activities) on Vegetation and Ecosystems, Listed Plant Species, and Wetlands are predicted to be not significant. (Page 54)

The assessment predicted residual effects on wildlife via direct loss of habitat through vegetation clearing, changes in how wildlife may use their preferred habitats due to sensory disturbance, direct mortality through wildlife-vehicle collisions, and indirect mortality due to the potential for increased harvest and/or predation. The residual effects of the Project are expected to interact with the residual effects of other projects and activities in the Terrestrial RSA resulting in cumulative effects on wildlife. The residual effects of the Project and the cumulative effects (interacting with residual effects from other projects and activities) on terrestrial wildlife are predicted to be not significant. (Page 55)

Comment 26: Again, YNLR places a high priority on wildlife and wildlife habitat, from both ecological and sociocultural perspectives. Given the long time frame of the Project, we are concerned about the lack of significance associated with the residual and cumulative effects assessments of all ecological VCs. YNLR believes that the addition of this mine with its associated disturbances will have a cumulative effect on wildlife, especially for woodland caribou, as the area is already crisscrossed with many kilometres of seismic cut lines through the LSA, RSA and beyond (Figure 9.2-6, page 9-83, EIS and Appendix 9B). Because of this, YNLR maintains that in order for the Project to meaningfully attempt to mitigate this concern, the company must work with Indigenous partners to create an effective habitat offset plan for this species. This should form part of any project approval. Such a plan should, for instance, include steps to restore the considerable caribou habitat degraded by past mineral exploration activities.

Comment 27: Indigenous People have brought forward concerns with the extensive network of seismic cut lines at several places in the EIS.

Comment 28: While the overall direct footprint of the Project is relatively small, YNLR maintains that any wildlife habitat destroyed or altered by the Project should be more than offset or compensated for in some fashion. One example would be the additional disturbance created by the proposed Highway 914 extension. This needs to be accounted for by Denison.

The Project is within the Nuhtsiye-kwi Benéne of ERFN, the traditional territory of Kineepik Metis Local #9, and near the southern extent of the Nuhenéné of the Athabasca Denesųliné communities. Much of the documented shared use of land and resources by Indigenous communities occurs close to their primary populated communities, although some uses are documented in proximity to the Project footprint and surrounding areas such as Russell Lake and along the Wheeler River. Recorded uses include hunting sites (moose and woodland caribou), the gathering of plants for food or subsistence purposes, trapping of aquatic furbearers (including beaver and muskrat), and fishing (including Walleye, Northern Pike, Lake Trout, Lake Whitefish, and Arctic Grayling). Proximal to the Project, many of the most recent uses were by an ERFN Trapper who passed away prior to the filing of the EIS. Additionally, all three Indigenous groups have documented uses on Russell Lake, south of the Project Area. (Page 59)

Comment 29: As stated above, the Athabasca Denesųliné people are rights holders and not stakeholders with respect to the Project. These rights include full access and use of the natural resources of the area. Any proposed infringement on these rights by the Project will need to be discussed well ahead of the Project's start date.

Monitoring and follow-up programs for the Project will be integrated within Denison's overall EMS framework (see Section 3.4.4) and implemented through the various programs, plans, and procedures that would be developed therein. Generally, Denison is anticipating establishing monitoring and follow-up programs in relation to the following VCs (as outlined in the various subsections of Section 5):

- *Air Quality and Noise;*
- *Groundwater;*
- *Surface Water Quantity and Quality;*
- *Fish Habitat and Health;*
- *Terrain and Soil;*
- *Vegetation and Ecosystems, Listed Plant Species, and Wetlands;*
- *Ungulates, Furbearers, and Woodland Caribou;*
- *Raptors and Migratory Breeding Birds;*
- *Human Health and Worker Health and Safety;*
- *Indigenous Land and Resource Use, Other Land and Resource Use, and Heritage Resources; and*

- *Economy. (Page 74)*

Comment 30: As indicated above, YNLR expects to be included as part of the design and implementation of all monitoring programs. All such programs should be transparent, arm's length, include significant involvement and participation of Indigenous People, communities, and organizations and be statistically robust.

On the basis of the Project information and related evaluation and assessment of effects, Denison believes that the Project can be constructed, operated, and decommissioned in a manner that is not likely to cause significant adverse effects to the biophysical or human environments. (Page 76)

Comment 31: This is perhaps an overly optimistic conclusion. However, YNLR is willing to discuss how the company moves forward and is interested in creating more formal processes to achieve this, such as the signing of an impact benefit agreement.

B. Project Introduction and Overview (Page 1-1, EIS)

The Wheeler River Project (the Project) is a proposed in situ recovery (ISR) uranium mine and processing plant in northern Saskatchewan, Canada (Figure 1-1). It is located in Saskatchewan's Athabasca Basin approximately 4 km west of Highway 914 (Figure 1-2). The approximate UTM coordinates of the property are 477,000E and 6,374,000N (NAD83, Zone 13). The Project is a joint venture between Denison Mines Corp. (Denison; 90%) and JCU (Canada) Exploration Company Ltd. (JCU; 10%). Denison is also a 50% owner of JCU, which means that Denison has an effective 95% ownership interest in the Project. (Page 1-1, EIS)

English River First Nation, the traditional territory of the Kineepik Métis Local #9, the homeland of the Métis, and the Nuhenéné. The Project is also located within the Northern Saskatchewan Administration District (Figure 1-3; Figure 1-4). The Northern Saskatchewan Administration District includes approximately 250,000 km² (44% of Saskatchewan's land area) and is home to approximately 36,000 people (3.2% of Saskatchewan's population; Statistics Canada 2022). (Page 1-1, EIS)

The main land use activities in the area by Indigenous and other land users are hunting, trapping, and fishing. There are recreational and traditional resource user leases nearby. The closest recreational lease is located approximately 2.5 km away. The closest traditional resource user lease is located approximately 12 km away. (Page 1-5, EIS)

Comment 32: Because the Project is located within Nuhenéné, YNLR is providing these comments on the draft Wheeler River EIS. Comments on the Executive Summary of the EIS can be found above. Of principal concern to YNLR is that the Project be fully sustainable with respect to cultural rights and traditions, socioeconomic equity, and environmental protection. To achieve this end, YNLR expects Denison to work collaboratively with the people of Nuhenéné through the YNLR office.

Hand-in-hand with the rising demand for reliable and low-cost energy is the discussion surrounding greenhouse gas (GHG) emissions and climate change. Despite numerous environmental initiatives and on-going research, global climate change continues at an alarming rate. In 2019, global energy-related carbon

dioxide (CO₂) emissions rose to 33.5 billion tonnes, the highest on record, which was approximately 45% above the total in 2000 (World Nuclear Association 2021; Canadian Nuclear Association 2021; Figure 1.3-1). One of the most influential energy sources available to combat the rise of CO₂ emissions is nuclear power. If all of the world's coal and natural gas plants were replaced with low carbon nuclear, CO₂ emissions would be reduced by nearly 13 billion tonnes annually (Canadian Nuclear Association 2021). (Page 1-18, EIS)

Comment 33: YNLR supports the sustainable mining of uranium within Nuhenéné. See previous comment.

C. Aquatic Environment (Page 8-1, EIS)

Flows and water levels in lakes and rivers within the LSA will realize some adverse change (reduction) as a result of overprinting drainage areas reporting specifically to Whitefish Lake and water taking from this same waterbody. However, under all scenarios, including under low flow (5th percentile), the reduction in flow is expected to be less than 3% and, therefore, below the criteria for magnitude of 5%. (Page 8-38, EIS)

Comment 34: The EIS recognized that the utilization of water will result in an adverse impact on the drainage but dismissed the issue given that a reduction in the stream flow rate is expected to be less than 3%. It would therefore be prudent to closely monitor the flow regime to identify possible adverse effects throughout the life of the Project.

Determinations of significance of residual adverse effects related to Surface Water Quantity are provided in association with receptor VCs in Sections 8.3, 8.4, and 8.5 (Fish and Fish Habitat, Sediment Quality and Benthic Invertebrates and Fish Health, respectively). (Page 8-39, EIS)

The Project is situated approximately 35 km northeast of the Cameco Key Lake Operation and 35 km southwest of the Cameco McArthur River Operation. The Project is located approximately 85 km southwest of the Cameco Cigar Lake Mine. These projects do not overlap spatially with the LSA of the Project and are, therefore, not further considered in the cumulative effects assessment. (Page 8-40, EIS)

Comment 35: Utilizing the extent of the LSA and the fact that it does not overlap with projects located within the same drainage system seems to be quite arbitrary and convenient. By this criterion, each mine does not trigger a cumulative effect according to the EIS, although they are all additive to the water flow regime. This methodology then arbitrarily and conveniently determines that “mitigation measures” for each of the mines is not warranted since there was a determination of no cumulative effects (see below).

8.1.7.1: Additional Mitigation Measures

Additional mitigation measures were not warranted as no potential cumulative effects were identified for the Surface Water Quantity VC. (Page

8.1.7.2: Cumulative Effects Characterization and Determination of Significance

A determination of significance was not warranted as no potential cumulative effects were identified for the Surface Water Quantity VC.

8.1.7.3: Cumulative Effects Assessment Summary

No cumulative effects were identified for the Surface Water Quantity VC as no project and/or activity that may be considered as reasonably foreseeable overlaps with the defined RSA.

8.1.7.4: Environmental Monitoring and Follow-Up

Additional monitoring and follow-up were not warranted as no potential cumulative effects were identified for the Surface Water Quantity VC.

Comment 36: Again, the determination of Cumulative Effects Characterization and the resultant Determination of Significance is highly subjective, therefore a much more extensive monitoring program is required. Such a program should start prior to the construction phase and carry on at least several years into the operation portion of the Project to at least demonstrate local and cumulative effects of mining projects within the watershed.

The long-term hydrological monitoring study at the Project site has been in place since 2011. The program should remain consistent to allow for the continued establishment of long-term streamflow trends at the site through relationships to long-term operating hydrometric gauging stations in the same watershed. (Page 8-42, EIS)

Comment 37: YNLR agrees that the hydrological monitoring program remain throughout the life of the Project but as per the above, the study should have a much broader mandate in order to measure local and regional effects on VCs.

Human Health

Consideration is given to people drinking surface water as part of the Human Assessment. Based on the above and the assessment approach described in Section 5, the Surface Water Quality VC is considered an intermediate VC. The assessment of the Surface Water Quality VC provides a full evaluation of residual effects with the determination of significance completed on receptor VCs such as Sediment Quality, Benthic Invertebrates, Fish and Fish Habitat, Fish Health, and Human Health. (Page 8-48, EIS)

Comment 38: YNLR supports detailed, rigorous, and extensive monitoring and reporting of surface water quality for the life of the Project given the consideration that it is used as drinking water and is integral to ecosystem health.

8.2.4.2.5: Long-Term Transport of Groundwater Solutes to Whitefish Lake in Future Centuries - During the 'future centuries' phase as described in Section 8.2.1.3, remediation works will be completed, and the site naturalized, thereby restoring drainage patterns to report to surface waterbodies. As indicated in Section 7 of the EIS, groundwater plumes may develop from residual mass remaining post mining based on bench-scale lab tests of core flushing, and numerical modelling of reactive fate and transport.

Comment 39: Recognition that bench-scale testing indicated that groundwater plumes may develop because of mining activity provides more impetus for extensive water quality monitoring, especially in Whitefish Lake.

Operation

During Operation, the primary potential water quality effect from the Project is the discharge of excess water from the site water management system to Whitefish Lake (LA-5). Discharge to Whitefish Lake South has the potential to change the concentrations of water quality constituents from background.

For planning purposes, a continuous (year-round) discharge at an expected average effluent discharge rate of 0.0101 m³/s (or 36.5 m³/hr) was used during Operation, despite the likelihood that effluent discharge will not be continuous, and Denison will only discharge when the site water balance requires (based on water storage capabilities). (Page 8-92, EIS)

Local Indigenous communities have expressed direct concern with respect to mercury. Mercury has not been identified as a COPC for the Project as it is currently not present in the receiving environment (i.e., background condition) at detectable concentrations and will not be produced as part of the mine process, and, therefore, not discharged to the aquatic environment. However, it is understood that potential nutrient enrichment-related effects are possible and can be linked to increases in mercury in the environment. (Page 8-93, EIS)

Water quality predictions did not consider physical or chemical processes that may attenuate concentrations in the receiving environment. An example of such a process would be partitioning of constituents from the water column to Whitefish Lake sediments. No attempt has been made to adjust water quality predictions to account for this partitioning, despite using this relationship to consider the potential effects of discharge on Sediment Quality. (Page 8-96, EIS)

Comment 40: There are several comments in the EIS that recognize the potential for a negative effect on water quality from the site water management system into Whitefish Lake.

Statements taken from residents have identified concerns about the release of elements such as “mercury” because of the mining activity. While the report recognized that detectable concentrations of mercury will not be produced, the local comment should be considered as a proxy for a variety of contaminants such as selenium, arsenic, cobalt, zinc, etc., as well as the concern expressed by residents, rather than being taken literally as mercury as the only contaminant of concern.

YNLR reiterates that concerns about water quality are warranted given that the EIS indicates that there will be a continuous (year-round) average discharge of water from the mine site of more than 36,000 litres/hour for the entire life of the Project. This discharge will be especially evident during low flow periods.

Future Centuries

The 2013 Key Lake ERA indicated that during the 10,000-year post-decommissioning period, predicted exposure levels may affect lower trophic level aquatic biota on a population or community level within

some isolated lakes in the SSA, but adverse effects on the ecology of the Outlet Creek drainage, and therefore further downstream were not expected during the post decommissioning phase (Cameco 2013). The results of the 2020 ERA for the Key Lake Operation

were consistent with the findings from the 2013 ERA in that there were limited significant risks posed to aquatic receptors situated in the area surrounding the Operation, but not to areas farther downstream. The 2020 ERA concluded that environmental health in the vicinity of the Key Lake Operation will remain protected (Cameco 2020). (Page 8-98, EIS)

The results of the numerical modelling for the Project, as provided in Section 7 and Appendix 10-A in Section 10, support the conclusion that with the implementation of appropriate mitigation during the decommissioning and mining area remediation phase of the Project, the residual effects of the Project on the intermediate Groundwater VC will not result in an adverse effect to surface water.

Comment 41: YNLR is concerned that the conclusion that the residual effects from Project operations will not have an adverse effect on surface water is highly speculative. Again, this indicates the need for a comprehensive monitoring program to validate the speculation on water quality with rigorous statistical evidence.

8.2.7.1: Additional Mitigation Measures

Additional mitigation measures not warranted as no potential cumulative effects were identified for this VC.

8.2.7.2: CE Effects Characterization and Determination of Significance

A determination of significance is not warranted as no potential cumulative effects were identified for this VC.

8.2.7.3: Cumulative Effects Assessment Summary

Surface water impacts on the aquatic environment from the Key Lake Operation are expected to remain localized and not extend to the Wheeler River system or Russell Lake. Likewise, impacts on surface water quality from the Project are expected to remain localized (Whitefish Lake) and not extend to Russell Lake. Effects on the aquatic environment due to changes in surface water quality associated with the Key Lake Operation are not anticipated to spatially overlap with those from the

Project during operation/decommissioning or during “future centuries” and therefore a cumulative effect is not expected.

Comment 42: YNLR questions the logic track that states, “additional mitigation measures not warranted” because of the determination of no cumulative effects, then “a determination of significance is not warranted” as no cumulative effects were identified for water quality because surface water impacts are expected to remain localized...for all the mining operations in the region. Impacts on water quality and mitigation measures “not warranted” should be demonstrated through field studies and research rather than relying on a theoretical modelling approach.

Monitoring and Follow-up

For the purposes of this EIS, monitoring and follow - up are defined as follows:

- monitoring programs are designed to meet regulatory requirements (e.g., permit or license conditions) and/or to demonstrate compliance with environmental commitments made in the EIS.

8.2.9: Surface Water Quality Summary

The Project Area is in primarily undisturbed area of the boreal forest and the existing water quality in the LSA lakes and rivers is indicative of a low level of disturbance.

Monitoring programs are recommended for confirming the effectiveness of mitigation measures and predictions made in the assessment and will include measurement of radiological and non-radiological water quality parameters to meet regulatory criteria. Monitoring will occur within the collection ponds, and the receiving water (Whitefish Lake). Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other stakeholders, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program. (Page 8-102, EIS)

Comment 43: While appreciating current water quality standards, YNLR suggests that monitoring programs be designed to more than meet regulatory requirements of the license conditions. The EIS recognizes that the Project area lies primarily within an undisturbed area of the boreal forest (aside from the extent of seismic activity carried out within this area). YNLR would like to be involved in specific follow-up and monitoring plans as identified in the EIS.

8.3: Fish and Fish Habitat

This section addresses the potential effects of the Project on the Fish and Fish Habitat VC.

8.3.2: Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment

At its broadest level, IK can be understood as the unique and collective knowledge of Indigenous peoples that may include, but is not limited to, the environmental, cultural, economic, political, and spiritual conditions of a community or region. In this section, IK and LK are viewed as complementary and influential alongside western science to produce a full understanding of the potential effects of the Project, whether measurable or perceived. Both forms of information have been given full and fair consideration.

Baseline fish and fish habitat surveys for the Project were performed in a combination of lentic (lakes and ponds) and lotic (streams and rivers) environments. Aquatic habitat surveys were undertaken in September 2016, coincident with biological sampling (fish and benthos) that was conducted at that time, and included the collection of bathymetric and water quality data, as well as observations of physical shoreline and lake/pond/stream substrate features, and aquatic vegetation, fish, and benthic communities. (Page 8-117, EIS)

Comment 44: It is noted that the aquatic survey and fish sampling were carried out in 2016, which is now somewhat dated.

Plan in-water works, undertakings, or activities to respect timing windows to protect fish and fish habitat, including their eggs, juveniles, spawning adults, the organisms upon which they feed, and the areas where they migrate. In-water works should be deferred based on the specific waterbody and known species that inhabit the waterbody (Saskatchewan Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat [DFO 2020d]). (Page 8-140, EIS)

– Spring spawning species (northern Saskatchewan) – avoid work between May 1 and July 15.

– Fall spawning species (northern Saskatchewan – Lake Trout present) – avoid work between September 1 and July 15).

– Fall spawning species (northern Saskatchewan – Lake Trout absent) – avoid work between October 1 and July 15).

-Where possible, conduct instream work during periods of low flow (e.g., summer or winter) to further reduce risk to fish.

- In discussion with responsible authorities, prepare a fish salvage plan to relocate fish prior to in-water works.

Comment 45: It appears that from the above noted restrictions, work that would affect fish and fish habitat could/should only be carried out between July 16 and September 30th, as both spring and fall spawning species were collected in the fish sample. Of particular note - YNLR would be eager to see how “a fish salvage plan to relocate fish prior to in-water works” might be carried out? Such an approach may not be practicable or effective.

-Workforce members will be transported to/from site via a fly-in/fly-out rotation and will, therefore, not use ground travel options during shift changes, which will eliminate fishing on local lakes during commutes to/from the site and during time off work. Denison site vehicles will not be available for recreational purposes. While at the Project site and off duty, workers may opt to fish local waterbodies. To protect sustainable use of resources, only catch and release of fish will be encouraged, and fish storage or cooking facilities will not be provided.

Comment 46: While the sentiment of the above fish management strategy is laudable, it is not practical in terms of preserving fish numbers given the increased human access to the lakes that the mining activity will create.

The EIS does recognize the value of sucker species to residents, which is a positive step, as these fish species are netted for a variety of purposes. Increased local traffic will also undoubtedly provide more access for both subsistence and recreational fishing.

As part of the mitigation measures YNLR proposes working with authorities to regulate recreational fishing prior to the onset of the construction phase of the Project and revisiting these regulations at intervals throughout the mine’s operation and decommissioning.

The Cameco Key Lake Operation has the potential to interact with the Fish and Fish Habitat VC for the Project (Figure 5.9.1) via the surface water quality pathway. The site has been in operation since 1983. In 2018, sustained low uranium prices resulted in a decision to curtail production for the foreseeable future and place the operation into safe care and maintenance. On February 9, 2022, Cameco announced plans for the operation's gradual return to production. Cameco's Key Lake Operation will overlap spatially and temporally with the Project. (Page 8-151, EIS)

The Project is situated approximately 35 km northeast of the Key Lake Operation and both are located in watersheds that ultimately report to Russell Lake. Releases to the aquatic environment from the Key Lake Operation are received by the David Creek, McDonald Creek, and Outlet Creek drainages. These three drainages join the Wheeler River, which then flows to Russell Lake (Cameco 2020). Therefore, a potential spatial overlap was identified for the Project and the Key Lake Operation and further assessed or cumulative effects.

The assessment of cumulative effects on the Surface Water Quality VC considered releases from the Project and the Key Lake Operation during all phases of the Project. The key Project component contributing to potential cumulative effects is the discharge of treated effluent to the aquatic environment during Operation and Decommissioning which may interact with Cameco's current releases to water including treated water released to David Creek drainage, treated groundwater and diverted surface water to the McDonald Creek drainage (Cameco 2020).

Comment 47: The statement on page 8-151 recognizes that the discharge of treated effluent during the Operation and Decommissioning phase may interact with Cameco's current releases contributing to cumulative effects. It is recommended that a study be undertaken to assess the basin effect of water discharges.

Potential Project residual effects on surface water quality relate to changes (increases) in constituent concentrations that are related to the controlled discharge of Project site waters into local receiving environments (Whitefish Lake). Such changes are predicted to be negligible to low in magnitude and limited to the LSA. For example, during Construction, no discharge from the Project site is planned. During Operation, treated effluent will be discharged to Whitefish Lake. The Whitefish Lake discharge will be the only routine discharge location during Operation. Water quality and sediment quality in Whitefish Lake and, by extension, sediment quality downstream of Whitefish Lake, are expected to meet appropriate benchmarks for the protection of aquatic life in consideration of a small mixing zone in the lake, which is anticipated to remain within tolerable HQs for fish. Following Decommissioning and the restoration of drainage patterns that are similar to pre-mining conditions, water quality is expected to meet appropriate benchmarks for the protection of aquatic life in Whitefish Lake and downstream. This includes Russell Lake of which the Iclander River system is associated. (Page 8-152, EIS)

In consideration of the above discussion, effects on the aquatic environment due to changes in surface water quality from the Key Lake Operation are not anticipated to spatially overlap with those from the Project and therefore a cumulative effect is not expected.

Comment 48: The above states that sediment quality of Whitefish Lake and downstream is not “anticipated” to overlap with the Key Lake Operation. It would be prudent to test this hypothesis to ensure that water quality in the flowage is maintained given the high value placed on these waters by residents.

8.3.7.2: Additional Mitigation Measures

Additional mitigation measures are not warranted as no cumulative effects are expected on the Fish and Fish Habitat VC.

8.3.7.3: Cumulative Effects Characterization and Determination of Significance

A determination of significance is not warranted as no cumulative effects are expected on the Fish and Fish Habitat VC.

8.3.7.4: Cumulative Effects Assessment Summary

Effects to Fish and Fish Habitat VC due to changes in surface water quality from the Key Lake Operation are expected to remain localized and not extend to the Wheeler River system or Russell Lake. Likewise, impacts on surface water quality from the Project are expected to remain localized (Whitefish Lake) and not extend to Russell Lake. Effects on the aquatic environment due to changes in surface water quality associated with the Key Lake Operation are not anticipated to spatially overlap with those from the Project during operation/decommissioning or during “future centuries” and therefore a cumulative effect is not expected.

8.3.7.5: Environmental Monitoring and Follow-up

Specific monitoring and follow-up for Fish and Fish Habitat related to cumulative effects is not warranted as no cumulative effects are expected on the Fish and Fish Health VC. Monitoring and follow-up specific to the Project is detailed in Section 8.3.8.

Comment 49: YNLR disagrees with the assumptions used, which “assume” specific monitoring and follow-up for Fish and Fish Habitat related to cumulative effects is not warranted. Further, YNLR would like to be involved in designing and carrying out of a monitoring program, which would test the “no cumulative effect” assumption.

8.4.7.4: Cumulative Effects Assessment Summary

Impacts on the aquatic environment (including sediment quality and benthic invertebrates) via the surface water quality pathway from the Key Lake Operation are expected to remain localized and not extend to the Wheeler River system or Russell Lake. Likewise, impacts on sediment quality and benthic invertebrates via the surface water pathway from the Project are expected to remain localized (Whitefish Lake) and not extend to Russell Lake. Effects on the aquatic environment due to changes in surface water quality associated with the Key Lake Operation are not anticipated to spatially overlap with those from the Project during operation/decommissioning or during “future centuries” and therefore a cumulative effect is not expected.

8.4.7.5: Environmental Monitoring and Follow-up

Specific monitoring and follow-up for Sediment Quality and Benthic Invertebrates related to cumulative effects is not warranted as no cumulative effects were identified for the Sediment Quality and Benthic Invertebrates VCs. Monitoring and follow-up specific to the Project is detailed in Section 8.4.8.

8.4.8: Monitoring and Follow-up

For the purposes of this EIS, monitoring and follow - up are defined as follows:

-monitoring programs are designed to meet regulatory requirements (e.g., permit or license conditions) and/or to demonstrate compliance with environmental commitments made in the EIS; and follow - up programs are those that are proposed to address any uncertainties identified during the EA process (e.g., to verify predictions made during the EA; to determine the effectiveness of proposed and implemented mitigation measures) and to determine if and when to implement adaptive management measures.

Monitoring and follow-up are recommended for the Sediment Quality and Benthic Invertebrates VCs to verify the accuracy of the predicted effects and effectiveness of proposed mitigation measures. The sediment quality and benthic invertebrate monitoring program should be considered in conjunction with the surface water quantity (hydrology) (Section 8.1.8) and surface water quality (Section 8.2.8) monitoring programs as sediment quality and benthic invertebrates are specifically tied to surface water quantity and quality from the perspective of pathways of effects. Specifically, monitoring of TSS in the effluent monitoring ponds and other catchment ponds prior to discharge to the environment will be important to provide context to further evaluate Project-related effects on sediment and benthic invertebrate communities in the receiving water environment (Whitefish Lake). (Page 8-209, EIS)

Comment 50: Specific monitoring of sediment quality and benthic invertebrates related to cumulative effects was deemed to be “not warranted” while specific monitoring “is recommended to verify the accuracy of the predicted effects.” By extension of the proposed monitoring program, the mine could demonstrate conclusively that cumulative effects due to mining operation are or are not an issue. We support such an approach.

Construction

The primary effect pathway during Construction relates to the mobilization of suspended material into natural surface water features as a result of land disturbance and clearing. According to the site water balance (Figure 2.2-14 in Section 2), there is no planned discharge to Whitefish Lake during Construction.

In the event that releases to the natural environment are necessary, they will only occur once it is safe to do so (i.e., suspended solid levels in the water would be at acceptable levels). No downstream effects on surface waters, natural sediments, or fish health are expected. (Page 8-232, EIS)

Comment 51: Water management during construction indicates that there is to be no planned discharge to Whitefish Lake. If a release of water from the mine site becomes necessary, in addition to monitoring

suspended solid levels, there should be a communication plan to inform area residents of the pending release and its duration.

Operation

During Operation, mobilization of suspended materials will be managed through the development and operation of water management infrastructure and implementation of the Surface Water Management Program. Releases of contact water to the natural environment will be directed through applicable collection ponds, IWWTP, and Effluent Monitoring and Release Ponds. Discharge will only occur once it is safe to do so (i.e., suspended solids levels in the water would be at acceptable levels). Denison may employ active means (e.g., filtering), if required, to achieve low TSS levels in discharge, in addition to passive means, such as settling and clarification in the IWWTP to manage TSS in the effluent stream to low levels. No downstream effects on surface waters, natural sediments, or fish health are expected.

Local Indigenous communities have expressed direct concern with respect to mercury. Mercury has not been identified as a COPC for the Project as it is currently not present in the receiving environment (i.e., background condition) at detectable concentrations and will not be produced as part of the mine process and therefore, not discharged to the aquatic environment. However, it is understood that potential nutrient enrichment-related effects are possible and can be linked to increases in mercury in the environment. (Page 8-237, EIS)

Monitoring and follow-up are proposed for the Fish Health VC to verify the accuracy of the predicted effects and the effectiveness of the proposed mitigation measures. The fish health monitoring program should be considered in conjunction with the surface water quality monitoring (Section 8.2.8), fish and fish habitat monitoring (Section 8.3.8), and sediment and benthic invertebrate monitoring (Section 8.4.8) programs as it is specifically tied to these monitoring programs from the perspective of pathways of effects. Specifically, monitoring of water quality in the effluent monitoring ponds and other catchment ponds prior to discharge to the environment will be important to provide context to further evaluate Project-related effects on Fish Health in the receiving water environment (i.e., Whitefish Lake). (Page 8-252, EIS)

Comment 52: YNLR would like to be involved in a monitoring program for fish health. Further, this monitoring program should continue for the life of the Project or until it is demonstrated that the current filtering programs are effective.

D. Terrestrial Environment (Page 9-1, EIS)

9.1 Terrain, Soil, and Organic Matter/Peat (Page 9-5, EIS)

This subsection addresses potential effects from the Project on Terrain, Soil, and Organic Matter/Peat, respectively, as VCs. This section comprises the following steps as part of the assessment:

- *scope of the assessment;*
- *summary of existing conditions relevant to VCs;*

- *identification and description of potential interactions between the Project and VCs;*
- *identification and description of mitigation measures applicable to VCs to eliminate, reduce, or control the potential adverse Project-related effects);*
- *identification and characterization of predicted Project residual effects for VCs after mitigation;*
- *characterization of significance and assignment of the level of confidence in the predictions; and*
- *identification and characterization of potential cumulative effects.*

The summary of the assessment and characterization of Project-related residual effects specific to the VCs for Terrain, Soil, and Organic Matter/Peat is presented in Table 9.1-10. For each VC, the residual effects were predicted to be not significant: the effects are not expected to cause a change in the VCs and/or their respective KI(s) to the extent that they will alter their status or integrity beyond an acceptable level (i.e., where they are not sustainable or are unavailable to contribute to ecological functions). (Page 9-47, EIS)

Based on available information and understanding of other past, present, and reasonably foreseeable projects or activities within the RSA for Terrain, Soil, and Organic Matter/Peat, there is potential for cumulative effects pertaining to the VCs for Terrain, Soil, and Organic Matter/Peat. Potential cumulative effects are associated with clearing of vegetation, stripping and salvaging of soil, and surficial earthworks. The Kis and associated MPs for Terrain (change in terrain morphology and change in terrain stability), Soil (change in soil quantity and change in soil quality) and Organic Matter/Peat (change in the quantity of organic matter/peat) are expected to be within the natural range of variation; no additional mitigation measures are recommended. After characterization of the cumulative effects, the significance of the cumulative effects was deemed not significant for both VCs; the level of confidence in these predictions is moderate. (Page 9-59, EIS)

Comment 53: YNLR is concerned about the potential residual and cumulative effects of the extensive seismic network on the soils of the RSA and LSA (Fig 9. 2-6, page 9-83, EIS). Were these and other potential network effects considered in the analyses?

Comment 54: Note that Appendix 9B (page 60) states that 100% of the LSA and 82% of the RSA are already disturbed by buffered anthropogenic disturbances in the form of exploration lines, exploration trails, and seasonal roads. During the consultation process, residents raised the issue of the high degree of human disturbance.

9.2 Vegetation and Ecosystems, Listed Plant Species and Wetlands (Page 9-68, EIS)

This subsection addresses potential Project-related effects on the Vegetation and Ecosystems, Listed Plant Species, and Wetlands VCs. This subsection includes the following steps as part of the assessment:

- *scope of the assessment;*
- *summary of the existing conditions of the VCs;*
- *identification and description of potential interactions between the Project and the VCs;*

- *identification and description of mitigation measures and monitoring activities to eliminate, reduce, or control the potential adverse Project-related effects on VCs;*
- *characterization of potential Project residual effects on VCs (i.e., after mitigation) including determination of significance and level of confidence in the predictions; and,*
- *identification and characterization of cumulative effects.*

The results of the characterizations for these residual effects are summarized in Table 9.2-18. The residual effects of the Project on the vegetation abundance and constituent concentrations in vegetation KIs were predicted to be not significant. Thus, the residual effects of the Project on the Vegetation and Ecosystems VC is predicted to be not significant. Similarly, the residual effects of the Project on the listed plant species, and wetlands KIs, were predicted to be not significant. Thus, the residual effects of the Project on the Listed Plant Species and Wetlands VCs are predicted to be not significant. (Page 9-133, EIS)

As detailed above, the residual effects of the Project, in conjunction with the comparable residual effects from past, present, and reasonably foreseeable future projects on the vegetation abundance and constituent concentrations in vegetation KIs were predicted to be not significant. Thus, the cumulative effects are not expected to alter the integrity of the Vegetation and Ecosystems VC (i.e., it remains sustainable and available to contribute to ecological functions) and is predicted to be not significant. Similarly, the residual effects of the Project, in conjunction with the comparable residual effects from past, present, and reasonably foreseeable future projects on the listed plant species and wetlands KIs were predicted to be not significant. Thus, the cumulative effects are not expected to alter the integrity of the Listed Plant Species VC and Wetlands VC (i.e., they remain sustainable and available to contribute to ecological functions) and are predicted to be not significant. (Page 9-149, EIS)

Comment 54: As with the Project soils, YNLR is concerned about the potential residual and cumulative effects of the extensive seismic network on the vegetation and wetlands of the RSA and LSA (Fig 9. 2-9, page 9-139, EIS), particularly from edge effects (page 9-101, EIS). Were these and other possible effects of the network considered? If so, how were they included? See above comment regarding Appendix 9B.

Comment 55: Indigenous People highlighted concerns about the broad network of linear disruptions in numerous places across the EIS.

9.3 Ungulates, Furbearers, and Woodland Caribou (Page 9-161, EIS)

This subsection addresses potential Project-related effects on the Ungulates, Furbearers, and Woodland Caribou VCs and their associated KIs. In support of the assessment, this section covers the following aspects:

- *scope of the assessment;*
- *influence of IK, LK, and engagement on the assessment;*
- *description of the existing environment for the VCs and associated KIs;*
- *identification of potential interactions between the Project and the VCs and associated KIs;*

- *identification and description of potential Project-related effects on the VCs and associated KIs;*
- *identification and description of mitigation measures to avoid or minimize the potential adverse Project-related effects on VCs,*
- *description and characterization of potential Project residual effects on VCs and associated KIs, including determination of significance and level of confidence in the predictions;*
- *identification and characterization of cumulative effects; and*
- *identification and description of monitoring and follow-up programs and activities.*

Terrestrial RSA: the area established to assess the potential, largely indirect, effects of the Project on the terrestrial VCs (including the Ungulates, Furbearers, and Woodland Caribou VCs) in the broader, regional context. It also provides the regional context in which cumulative effects on terrestrial VCs may occur. The Terrestrial RSA (i.e., 40,173.6 ha) is defined as a minimum of a 6.6 km buffer around the Wildlife LSA and has been delineated to capture regional effects on wildlife species with large home ranges. (Page 9-168, EIS)

Comment 56: Wilson et al. (2018) recently summarized the home ranges of 25 woodland caribou populations in Canada. The average home range varied 28-fold, from 312 to 8,838 sq. km. The RSA delineated for assessing cumulative effects on caribou (40,174 ha ~ 402 sq.km.) is thus inadequate for this purpose, and the conclusions of project residual and cumulative effects non-significance are highly suspect. The same could be said for other wide-ranging species such as wolverine.

The SK1 Boreal Shield Woodland Caribou Management Unit has relatively low levels of anthropogenic disturbance and was exposed to large fire disturbances in the past 40 years (ECCC 2019). Environment and Climate Change Canada (2019) identified this caribou population as being self-sustaining at a threshold of 40% undisturbed habitat with the total anthropogenic disturbance not exceeding 5% of their habitat. The current anthropogenic disturbance levels (without areas burnt by past forest fires) for the study areas are below this threshold (with the exception of the already disturbed Project Area) and are estimated as: 24.8 ha (14.6%) for the Project Area, 168 ha (3.5%) for the Wildlife LSA, and 599 ha (1.5%) for the Terrestrial RSA. (Page 9-211, EIS)

Comment 57: Was the current RSA anthropogenic disturbance estimate (599 ha) inclusive of the many kilometres of existing seismic cut lines? (Fig 9. 2-9, page 9-139, EIS). Did the estimate include consideration of the compounding ‘edge effects’ from these linear disturbances? If not, why not? See previous comments on the very high level of existing human disturbance in the LSA and RSA highlighted in Appendix 9B.

Wolverines were not observed during baseline studies (Appendix 9-B). While they are not encountered regularly in the region, LK holders noted no change in frequency of wolverine observations over the years (19-LK-ERFNTrip-134.162). They are known to occur in low densities across all forest stand and vegetation types, they are absent from most areas of human development and activities, and they avoid linear infrastructure (ABMI 2020a). Based on this evaluation, year-round available wolverine habitat in the

Project study areas was determined as comprising all ecosites except for anthropogenic development and waterbodies. Figure 9.3-10 depicts available wolverine habitat in the project study areas. (Page 9-239, EIS)

Comment 58: Again, the direct and indirect effects of the existing seismic disturbance seem not to have been considered in this assessment, particularly because wolverines ‘avoid linear infrastructure.’ In fact, one can also see that woodland caribou avoid areas of historic seismic disturbance by directly comparing the figures on page 9-139, EIS (vegetation) and 9-202, EIS (caribou sightings). Appendix 9B gives a summary of the impacts of linear disturbances on boreal forest wildlife.

In accordance with ECCC’s (2019) assessment of disturbed areas, which buffered (500 m) anthropogenic disturbances to evaluate woodland caribou habitat, the alteration of available woodland caribou habitat is quantified in this EIS by applying a buffer of 500 m around the Project Area in which Project effects in the form of sensory disturbance are likely to affect available woodland caribou habitat and make it functionally unavailable for use. (Page 9-269, EIS).

Comment 59: Was the 500m buffering of anthropogenic disturbances also applied to the network of seismic cut lines to account for edge effects? If not, why not? Buffered disturbance is included in Appendix 9B but appears to have been ignored in the effects assessment.

Direct habitat loss is calculated as the area of available woodland caribou habitat lost due to site clearing within the Project Area. Direct habitat loss has been mitigated by reducing the size of the Project Area to the extent practicable during Project design; however, available woodland caribou habitat is still predicted to be cleared during Construction. In the Project Area, 142 ha or 100% of available woodland caribou habitat is assumed to be removed and will not be available to caribou for the duration of the Project (Table 9.3-23). This represents a loss of 3.8% of available woodland caribou habitat within the Wildlife LSA and 0.5% in the Terrestrial RSA (Table 9.3-23). An additional 1,165.3 ha (27.7%) of available caribou habitat in the Wildlife LSA may experience habitat alteration stemming from indirect Project effects, such as sensory disturbance, relating to 3.8% of available woodland caribou habitat likely affected in the Terrestrial RSA (Table 9.3-23). Mitigation measures outlined in Section 9.3.5 are anticipated to reduce the effects of alteration and/or loss of habitat on woodland caribou, but not eliminate them entirely. (Page 9-270, EIS).

Comment 60: Is the amount of initial ‘available woodland caribou habitat’ in Table 9.3-23 inclusive of the direct and indirect seismic cutline network effects? If not, why not? Irrespective of this, it appears that the LSA is being written off for woodland caribou for decades to come. See above comments with respect to Appendix 9B.

The residual effect of alteration and/or loss of available woodland caribou habitat is not expected to result in a change that will alter caribou habitat integrity to the point where it would not be able to sustain the regional woodland caribou population. Therefore, the effect is assessed as not significant. The level of confidence of this prediction is moderate. The effects of habitat loss and alteration on woodland are well understood, and mitigation measures have been proven effective during past projects and activities. However, some level of uncertainty exists related to the available background and baseline information used to identify available woodland caribou habitat in this assessment. (Page 9-275, EIS).

Comment 61: YNLR disagrees with this residual effects conclusion. The buffered direct habitat loss alone eliminates the LSA and RSA for caribou habitation for decades to come (Appendix 9B), so how can it ‘sustain the regional woodland caribou population’ in any way? The reference to ‘proven’ mitigation measures is rather vague and requires further explanation. YNLR is unaware of these proven mitigation measures, other than isolation from human disturbance.

The residual effects evaluation process in Section 9.3.6 assessed the following residual effects of the Project on the Ungulates, Furbearers, and Woodland Caribou VCs:

- *alteration and/or loss of habitat; and*
- *change in mortality.*

The evaluation process characterized the residual effects of the Project on the respective VCs, the results of which are summarized in Table 9.3-26 and Table 9.3-27. The residual effects of the Project are not expected to result in a change to the viability and persistence of the VCs and associated KIs and were, therefore, predicted to be not significant. (Page 9-280, EIS)

Comment 62: Again, YNLR disagrees with this overall residual effects conclusion for these wildlife VCs, especially in regard to woodland caribou (Appendix 9B). The reasons for this will be summarized after the following comments on the cumulative effects assessment for wildlife.

Wildlife habitat within the Terrestrial RSA has experienced historic anthropogenic disturbance such as line cutting, drilling, and access development in support of past exploration and mining activities, and future exploration activities within the Terrestrial RSA are likely. Such exploration activities are expected to contribute to the cumulative effects on the Ungulates, Furbearers, and Woodland Caribou VCs through habitat loss, increased sensory disturbance (e.g., noise and dust deposition), potential wildlife-vehicle collisions, increased hunting and predation pressure, increased risk of human-wildlife encounters, and deposition of trace metals and radionuclides to soil, vegetation, and waterbodies in the Terrestrial RSA. (Page 9-287, EIS)

Comment 63: YNLR agrees. The extent of past seismic line cutting is very high for both the LSA and RSA (Fig. 9.3-15, page 9-289, EIS and Appendix 9B). However, its direct and indirect (edge) effects on wildlife, especially woodland caribou, seem to have been overlooked or minimized. Future exploration disturbance should have been estimated and included based on the rate of historic disturbance if nothing else.

Vegetation clearing is anticipated to be required for the Project and most of the ongoing and reasonably foreseeable projects and activities; however, the amount, location and timing are unknown. Mining exploration and development are expected to be responsible for most of the ongoing and future habitat loss and alteration within the Terrestrial RSA. The spatial and temporal extent of these activities are unknown, but it is anticipated that all future exploration and development will be conducted in accordance with applicable provincial and federal approval processes and will follow BMPs and implement effective mitigation measures (Page 9-300, EIS)

Comment 64: See above comments on the lack of assessing the impacts of the existing seismic line clearing. In addition, the reason why SK1 holds one of the very few sustainable caribou populations despite a high level of forest fire, is because of currently very low levels of human intrusion, which suggests that the provincial and federal approval processes, BMPs, and mitigation measures have not been sufficient in the rest of the species' range throughout the entirety of Canada.

Comment 65: Is it not possible to conduct modern mineral exploration without cutting miles and miles of seismic lines across the boreal forest?

It is not expected that the cumulative effect of alteration and/or loss of habitat will alter the integrity of woodland caribou habitat within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions. Therefore, the cumulative effect resulting from the Project's residual effect interacting with residual effects from other projects and activities is predicted to be not significant. (Page 9-302, EIS).

Comment 66: YNLR disagrees, again because the past and future direct and indirect effects of seismic line clearing appear to have been ignored in this assessment (Appendix 9B). The fact that most caribou sightings occurred away from seismically disturbed areas independent of habitat type supports this observation. YNLR believes that, at a minimum, Denison should commit to an aggressive caribou habitat offset plan before work on the Project begins. A woodland caribou 'management' plan is not sufficient. Offset activities should include the ongoing restoration of the existing seismic lines, among other things. This work is best accomplished in consultation and collaboration with Indigenous People, their communities, and organizations.

Ungulates, Furbearer, and Woodland Caribou Summary (Page 9-308, EIS)

The terrestrial wildlife VC's (and KI's) considered in this EIS are Ungulates (moose), Furbearers (wolverine, pine marten, mink, and muskrat) and Woodland Caribou (woodland caribou). Proposed mitigation measures include:

- *Reduced project footprint*
- *Avoidance of wildlife 'sensitive periods'*
- *Pre-clearing wildlife surveys*
- *Woodland caribou management plan*
- *Facilitated access to undertake Treaty Rights*
- *No staff wildlife interaction policy*
- *Road signage*
- *No littering policy*

Comment 67: Most of these mitigation measures are quite superficial and would contribute little to the long-term conservation of wildlife in the RSA and LSA. The proposed caribou management plan needs to be a fully developed Caribou Habitat Offset Plan given the extent of already altered habitat by seismic activities. Also note that this has a high potential for a direct impact on Aboriginal and Treaty rights.

More, some Indigenous People will likely take offence at the idea of the company ‘facilitating access’ to their inherent Treaty Rights. Significant consultation and collaboration with Indigenous People is required.

With the implementation of the above (and additional) mitigation measures, the residual effects on the Ungulates, Furbearer, and Woodland Caribou VCs were assessed as follows:

Moose. Not significant: the residual effects of alteration and/or loss of available habitat and of change in mortality are not expected to result in a change that will alter habitat integrity to the point where it would not be able to sustain the regional ungulate populations or the integrity of the regional moose population to the point where it could not be sustained.

Furbearers. Not significant: the residual effects of alteration and/or loss of available habitat and of change in mortality are not expected to result in a change that will alter habitat integrity to the point where it would not be able to sustain the regional furbearer populations or the integrity of the regional furbearer populations to the point where they could not be sustained.

Woodland caribou. Not significant: the residual effects of alteration and/or loss of available habitat and of change in mortality are not expected to result in a change that will alter habitat integrity to the point where it would not be able to sustain the regional woodland caribou population or the integrity of the regional woodland caribou population to the point where they could not be sustained.

Comment 68: YNLR believes this summary to be overly optimistic and somewhat inaccurate for the following reasons:

- **The RSA and LSA are too small relative to the home range of woodland caribou to serve as a basis for assessing residual and cumulative effects on the species.**
- **Large portions of the RSA and LSA have been badly degraded by mineral exploration activities (particularly by line-cutting for seismic surveys; Appendix 9B), yet their direct and indirect (edge) impacts seem not to have been considered in the effects assessments. This is puzzling given the known impact that these features have on wildlife, especially caribou, wolverine, other predators, and many avian species. The EIS maps themselves clearly show an avoidance of these seismically-disturbed areas by woodland caribou.**

Because of this, YNLR strongly believes that, at a minimum, an aggressive Caribou Habitat Offset Plan should be co-developed before Project work begins, and regular monitoring of the caribou population be conducted throughout the life of the Project.

Comment 69: Concern about the extensive network of seismic cut lines were also raised by Indigenous People at several places in the EIS.

9.4 Raptors, Migratory Breeding Birds, and Bird Species at Risk (Page 9-320)

This subsection addresses potential Project-related effects on the Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs and their associated KIs. In support of the assessment, this section covers the following aspects:

- *scope of the assessment;*
- *influence of IK, LK, and engagement on the assessment;*
- *description of the existing environment for the VCs and associated KIs;*
- *identification of potential interactions between the Project and the VCs and associated KIs;*
- *identification and description of potential Project-related effects on the VCs and associated KIs;*
- *identification and description of mitigation measures to avoid or minimize the potential adverse Project-related effects on VCs;*
- *description and characterization of potential Project residual effects on VCs and associated KIs, including determination of significance and level of confidence in the predictions;*
- *identification and characterization of cumulative effects; and*
- *identification and description of monitoring and follow-up programs and activities.*

The 10 Key Indicators (KIs) of the three VCs are as follows (Table 9.4-1, page 9-325, EIS):

Raptors VC – Bald Eagle, Osprey

Migratory Breeding Birds VC – Waterbirds & waterfowl, upland game birds, migratory songbirds

Bird Species at Risk VC – Common Nighthawk, Short-eared Owl, Yellow Rail, Rusty Blackbird, Olive-sided Flycatcher

Comment 70: YNLR questions how and why these three avian VCs were selected and grouped. The three VCs include dozens of breeding bird species with hugely varying habitat requirements, so it difficult to see how it is possible to accurately predict Project effects for many of these species, especially when so many are lumped together in only one Migratory Breeding Birds VC. In addition, the scarcity of raptors and avian species at risk makes them poor candidates for effects assessments because of low sample sizes.

In this assessment, alteration of habitat is defined as indirect habitat alteration where suitable habitat for the Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs and their associated KIs remains physically intact but is rendered less suitable or unsuitable for their use. Sources of habitat alteration include Project-related habitat fragmentation (i.e., the breaking apart of continuous habitat into smaller, spatially distinct patches), edge effects (i.e., the influence of recently cleared areas on adjacent habitats), and sensory disturbance. (Page 9-356, EIS)

A minimum patch size is often required to fulfill all required life requisites (Robbins et al. 1989, Askins 1994, Vance et al. 2003, Butcher et al. 2010). When available suitable habitat is below a minimum patch size threshold, individual birds may get displaced despite the continued presence of suitable habitat. As a result, patch size at the individual and population level may have a species-specific effect on habitat use and could affect reproductive success, health, and survival (Askins 1994, Villard et al. 1999, Vance et al. 2003, Suorsa et al. 2004, Butcher et al. 2010). (Page 9-357, EIS)

Edge effects include the influence of recently cleared areas on adjacent intact habitats. Gradients of light intensity, temperature, wind, relative humidity, as well as snow accumulation and melt may occur along the border between cleared areas and intact habitats (Bannerman 1998, Kremsater and Bunnell 1999), which could alter habitat suitability for avian use. Bannerman (1998) suggested that the richness and density of generalist bird species may increase along forest edges based on the variety of vegetation and abundance of food (e.g., American Crow and Blue Jay. However, numbers of habitat specialist species (e.g., Red-breasted Nuthatch and Pileated Woodpecker may decrease near edges because they use edge habitats less frequently or avoid them (George and Dobkin 2002). The potential influx of individuals into edge habitats, or the potential displacement of individuals into other areas, may increase crowding and subsequent inter-and intra-specific competition for breeding habitat, food, and other resources (Hagan et al. 1996, Schmiegelow et al. 1997, Bannerman 1998, George and Dobkin 2002, Calizza et al. 2017). (Page 9-357, EIS)

Comment 71: The above descriptions summarize the potential effects of the Project on breeding bird habitats. When wooded landscapes are subjected to widespread seismic activity, the same effects occur: continuous parcels of forest are divided by miles of cut lines, resulting in smaller habitat patches and greater habitat edge. As a result, bird species that prefer contiguous habitats are declining, while birds that prefer habitat edges are increasing. As with the Project effects assessments for woodland caribou and other mammals, the EIS appears to have ignored the already existing direct and indirect impacts of these historic seismic linear disturbances across the LSA and RSA (Appendix 9B).

Mitigation measures for the avian VCs are much the same as for the mammal VCs and include project design, work timing, staff education, policies, and various BMPs (page 9-367, EIS).

The residual effect of alteration and/or loss of available Bald Eagle and Osprey habitat is not expected to result in a change that will alter their habitat integrity to the point where it would not be able to sustain the regional raptor population. Therefore, the effect is assessed as not significant. The level of confidence of this prediction is moderate. The effects of habitat loss and alteration on raptor species are well known, and proven, effective mitigation measures will be implemented. However, some level of uncertainty exists related to the available background and baseline information used to identify available raptor habitat in this assessment. (Page 9-384, EIS)

Comment 72: With only two water-based species selected to represent all forest raptors in the Project area, the results and conclusions of this assessment are extremely limited.

The Migratory Breeding Birds VC is represented by three KIs - water birds and waterfowl, upland game birds, and migratory songbirds. The residual effects evaluation, therefore, assesses Project related effects on these three groups. (Page 9-389, EIS).

The residual effect of alteration and/or loss of available habitat for migratory breeding birds is not expected to result in a change that will alter their habitat integrity to the point where it would not be able to sustain the regional migratory breeding bird populations. Therefore, the effect is assessed as not significant. The level of confidence of this prediction is moderate. The effects of habitat loss and alteration on migratory breeding bird species are well known, and proven, effective mitigation measures will be

implemented. However, some level of uncertainty exists related to the available background and baseline information used to identify available habitat for the Migratory Breeding Bird VC and its three KIs in this assessment. (Page 9-408, EIS)

Comment 73: As previously stated, this VC contains a large number of very diverse bird species with widely varying habitat requirements and life history strategies, so it is difficult to see how this effects assessment is in any way realistic or accurate. For the forest birds in particular, this is compounded by the non-inclusion of the historic network of seismic cut lines across the landscape (Appendix 9B), and the resulting underestimation of direct and edge effects.

The Bird Species at Risk VC is represented by five KIs – Common Nighthawk, Short-eared Owl, Yellow Rail, Rusty Blackbird, and Olive-sided Flycatcher. The residual effects evaluation, therefore, assesses Project-related effects on these five species. The assessment of the alteration and/or loss of habitat residual effect considers the direct loss of habitat and the indirect alteration (e.g., sensory disturbances, habitat fragmentation, and edge effects) of habitat during all Project phases. (Page 9-413, EIS)

The residual effect of alteration and/or loss of available habitat for bird species at risk is not expected to result in a change that will alter their habitat integrity to the point where it would not be able to sustain their regional populations. Therefore, the effect is assessed as not significant. The level of confidence of this prediction is moderate. The effects of habitat loss and alteration on bird species at risk (i.e., the five KIs) are well known, and effective mitigation measures will be implemented. However, some level of uncertainty exists related to the available background and baseline information used to identify available habitat for the Bird Species at Risk VC and its five KIs in this assessment. (Page 9-441, EIS)

Comment 74: Species at risk generally make very poor indicators of ecological integrity/biodiversity because of their relative scarcity. In fact, three of the VC bird species at risk selected were not even detected during the Project surveys. This very low quantity and data quality greatly weakens any conclusions regarding the Project residual effects.

The CEA [Cumulative Effects Assessment] considers whether residual adverse effects of the Project on the Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs will overlap spatially and/or temporally with the same residual adverse effects resulting from other past, present, and reasonably foreseeable projects or activities. (Page 9-454, EIS)

Wildlife habitat within the Terrestrial RSA has experienced historic anthropogenic disturbance such as line cutting, drilling, and access development in support of past exploration and mining activities. Future exploration activities within the Terrestrial RSA are likely. Such exploration activities are expected to contribute to the cumulative effects on the Raptors, Migratory Breeding Birds and Bird Species at Risk VCs through habitat loss, increased sensory disturbance (e.g., noise and dust deposition), potential wildlife-vehicle collisions, increased hunting and predation pressure, increased risk of human-avian encounters, and deposition of trace metals and radionuclides to soil, vegetation, and water bodies in the Terrestrial RSA. (Page 9-455, Figure 9.4-16, page 9-457, EIS)

Comment 75: Despite this statement, YNLR cannot find any mention of the extensive seismic line network impacts (Appendix 9B) included in the effects assessment for birds. This was also the case for the caribou and wildlife assessments.

The cumulative effect is not expected to alter the integrity of raptor habitat within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions. Therefore, the cumulative effect resulting from the Project's residual effect interacting with residual effects from other projects and activities is predicted to be not significant. (Page 9-460, EIS)

The cumulative effect is not expected to alter the integrity of migratory breeding bird habitat within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions. Therefore, the cumulative effect is predicted to be not significant. (Page 9-465, EIS)

The cumulative effect is not expected to alter the integrity of bird species at risk habitat within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions. Therefore, the cumulative effect resulting from the Project's residual effect interacting with residual effects from other projects and activities is predicted to be not significant. (Page 9-469, EIS)

Comment 76: As mentioned before, the selection of weak indicators and the *ad hoc* grouping of dissimilar species make these predictions quite unreliable. This potential error is likely compounded by the apparent exclusion of the direct and indirect effects of the existing seismic cutline network (Appendix 9B).

Comment 77: Concern about the extensive network of seismic cut lines were also raised by Indigenous People at several places in the EIS.

Comment 78: Why were amphibians excluded as a VC/KI? Bats? Both were surveyed (Appendix 9B).

Project monitoring programs specific to Raptors, Migratory Breeding Bird, and Bird Species at Risk VCs are expected to include:

- *pre-construction nest surveys conducted in accordance with the EMS prior to the commencement of any vegetation clearing or soil disturbance;*
- *avian species routinely monitored throughout the life of the Project (e.g., through the Project wide implementation of the current wildlife card system) in accordance with the EMS (including implemented setback distances during sensitive time periods, if applicable); and*
- *progressive reclamation and revegetation of disturbed areas (i.e., transitioning into avian habitat) monitored in accordance with the Reclamation and Closure Plan (Page 9-474, EIS)*

Comment 79: This monitoring is critical, particularly the ongoing repeated surveys throughout the life of the Project, especially given the weak predictive basis for the effects assessments of the Project on breeding bird species.

E. Land and Resource Use (Page 11-1, EIS)

Section 11 of the Environmental Impact Statement (EIS) for the Wheeler River Project (the Project) is focused on Land and Resource Use. Resource use is comprised of subsistence, commercial and recreational use of resources derived from the natural environment. (Page 11-1, EIS)

Indigenous Land and Resource Use (ILRU) described in Section 11.1 is conducted by Indigenous people and includes hunting, fishing, trapping, and gathering for food production. Gathering includes collection of natural products such as firewood, driftwood, feathers, or other products used for cultural purposes in addition to plants for dietary and medicinal purposes. (Page 11-2, EIS)

Other Land and Resource Use (OLRU) described in Section 11.2 includes commercial resource uses such as commercial fishing, commercial trapping, mining, forestry, lodges and outfitters and ecotourism in which both Indigenous and non-Indigenous people participate. Recreational resource use includes recreational fishing, recreational hunting, and cabin use by non-Indigenous people. Protected areas are also described in OLRU. (Page 11-2, EIS)

Comment 80: YNLR would like to emphasize that natural resource use by Indigenous Peoples of northern Saskatchewan is of incalculable value, and the Project must not infringe upon the ability of Indigenous Peoples to exercise those constitutionally protected rights.

*In March 2022, the YNLR transmitted its report entitled *An Exploration of Recorded Athabasca Denesų́łn  Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project* (YNLR 2022). Denison requested the inclusion of their report into the EIS. This report focused primarily on the Athabasca Denesų́łn  First Nations including Hatchet Lake, Black Lake, and Fond du Lac. Indigenous Knowledge and LK within this report, as well as publicly available information, has been integrated into the EIS with focus on the Athabasca Denesų́łn  communities. With approval from YNLR, the March 2022 report is included as an appendix to the EIS (see Section 3 Indigenous and Local Knowledge, Appendix 3-A). (Page 11-18, EIS)*

Comment 81: YNLR notes that the YNLR March 2022 Report has been included into the Project EIS.

Terrestrial species important to Indigenous hunting include moose and woodland caribou. Other species, such as waterfowl and snowshoe hare, were identified among traditional food sources, but do not compose the same volume of consumption (CanNorth 2017). Though other large terrestrial mammals are harvested, such as elk and white-tailed deer, these species are not found in sufficient abundance in the LSA to be assessed as part the Project. (Page 11-46, EIS)

The ERFN Elders interviewed in 2011 also noted that woodland caribou may be losing their calving areas due to forest fires and may be moving elsewhere to have their calves. Other potential threats to woodland caribou include industry (like mining), exploration, and tourists in the summer (ERFN 2011). Elders have concern that future generations will not see an abundance of wildlife like there used to be and have mentioned that TK is important to the protection of woodland caribou (ERFN 2011). This assessment, therefore, focuses on potential effects to the abundance and distribution of moose and woodland caribou. (Page 11-46, EIS)

Comment 82: The EIS correctly highlights the cultural importance of moose and woodland caribou to Indigenous People, which underscores YNLR's concerns regarding the conclusions of the residual and cumulative effects assessments of these species, particularly for caribou (see Section 9 comments above).

The potential effect of alteration and/or loss of habitat on woodland caribou is based on vegetation removal and/or ground disturbance due to construction of Project components and infrastructure and edge effects. Habitat alteration through sensory disturbance effects (such as noise, dust deposition, and artificial light) will result in reduced habitat effectiveness near Project components and infrastructure reaching and along roadways in the ILRU LSA. (Page 11-47, EIS)

After mitigation, the residual effects of alteration and/or loss of available woodland caribou habitat is not expected to result in a change that will alter caribou habitat integrity to a point where populations cannot be sustained. As such, traditional harvest of woodland caribou is unlikely to be affected by the Project. (Page 11-47, EIS)

Comment 83: YNLR considers the ecological effects assessment for woodland caribou to be flawed (Section 9, EIS), and therefore it questions this optimistic conclusion regarding their ongoing availability for traditional use. Woodland caribou populations have strongly declined across Canada despite all types of project mitigation, so YNLR doubts that similar mitigation efforts will be effective here. In addition, it is unclear what constitutes this proposed mitigation. A caribou management plan is proposed (Section 9), however nothing short of a full caribou habitat offset plan will suffice to sustain the region's population.

Negligible aquatic habitat loss is predicted in LA-5 (also known as Whitefish Lake) due to the installation of a discharge pipeline and diffuser configuration. The total area of the lake substrate that would be overprinted by the pipeline is expected to be approximately 135 m², which will constitute less than 0.05% of the lake's surface area (Section 8.3.6 in Section 8). No other alteration, disruption, or destruction of aquatic habitat in the aquatic environment LSA (Section 8.3.6 in Section 8) is expected. Project induced changes to the abundance and distribution of fish is, therefore, not expected. The effect, if any, is expected to be undetectable to fishers and is, therefore, not carried forward for residual effects assessment. (Page 11-50, EIS)

Comment 84: YNLR acknowledges that the amount of fish habitat directly affected by the Project is small. However, a much bigger concern is the indirect effects of increased human activity in the area over several decades and beyond, particularly with respect to the consequent increase in fish harvest. This will directly affect the ability of Indigenous Peoples to exercise their Aboriginal and Treaty rights.

One indicator of increased human activity is truck traffic (page 11-54, EIS):

Land users north of the Key Lake gatehouse would expect to see an increase in traffic of 23% during Construction to 30% during Operation (Denison 2022).

However, these numbers do not include non-truck traffic.

Contaminated waste management, storage, and disposal of process waste rock and radioactive plant precipitates, and package and transport of nuclear substances, spills or accidents may affect fish and wildlife abundance and distribution, thus reducing or displacing opportunities to conduct ILRU. Potential effects are predicted to begin in Construction, continue through Operation, and cease when reclamation activities have been completed in Decommissioning when Project components are removed, and activities cease. Concerns about the health of moose and their food, caribou and their food, furbearers, fish, and vegetation such as blueberries have been raised by ERFN (ERFN and SVS 2022b). (Page 11-50, EIS)

An ecological risk assessment (ERA) was conducted to consider both radiological and toxicological risks to ecological receptors such as terrestrial and aquatic invertebrates, terrestrial and aquatic vegetation, fish, and terrestrial and aquatic mammals and birds, several of which are important to subsistence harvesters. A summary of results is presented in subsequent text, and comprehensive results are presented in Section 10 Human Health. (Page 11-51, EIS)

Given that there are no predicted radiological and non-radionuclide COPC [Constituents of Potential Concern] exceedances that would affect the growth, reproduction and survival of terrestrial and aquatic ecological receptors, potential effects on subsistence harvests use are unlikely because the MP [Measurable Parameter] of change in relative abundance and distribution of fish and wildlife species is unlikely. Therefore, the potential for radionuclide and non-radionuclide COPCs affecting wildlife and fish abundance and distribution is expected to be negligible and this pathway is not carried forward for a residual effects assessment. (Page 11-52, EIS)

Comment 85: Despite these reassurances, YNLR remains concerned with the potential effects of Project contamination on culturally important natural resources. These concerns stem from the nature of the materials being mined, and the novel method (ISR) by which they are being extracted. Northern residents and Indigenous Peoples will be living here long after the mine is exhausted, thus effective monitoring is critical, as is the inclusion of impacted Aboriginal and Treaty rights holders in the design and implementation of arm's length, transparent, and statistically-robust monitoring programs.

Availability/Accessibility to Lands and Waters (Pages 11-52, 11-53, EIS)

Comment 86: The EIS again minimizes these effects on northern residents and Indigenous Peoples. However, any impairment to the ability of Indigenous Peoples to utilize their Aboriginal and Treaty rights to the use of natural resources for their traditional activities constitutes an infringement of those constitutionally protected rights and must be justified. Rigorous examination of these impacts and negotiated compensation for these impacts should therefore be seriously considered.

The presence of the Project workforce will increase the numbers of people in the ILRU LSA by an estimated 300 during Construction and 180 during Operation and Decommissioning (Section 13.3 in Section 13 Economics). Potential exists for Indigenous users to observe an increasing number of people in the area associated with workforce personnel. Workforce members will be transported to site by a fly-in/fly-out rotation or by a Denison shuttle and will, therefore, eliminate fishing on local lakes during commute to the site and during time off work. Denison site vehicles will not be available for recreational purposes. While at the Project site and off duty, workers may opt to fish local water bodies. To protect sustainable use of

resources, only catch and release of fish will be encouraged, and fish storage or cooking facilities will not be provided. Transportation to fishing areas via trucks or boats will not be permitted. Given these mitigations, increased competition for resources will be limited due to a lack of transportation to fishing locations beyond walking distance and prohibition of firearms/hunting. Given that fishing on LA-5 has not been documented, and the effect is expected to be of low magnitude, changes in fish abundance or distribution are not expected to be detectable to Indigenous land users. (Pages 11-57, 11-58, EIS)

Comment 87: This is a significant increase in the number and persistence of humans in the area, and despite these vague reassurances, YNLR believes that this increase will affect the ability of Indigenous Peoples to exercise their Aboriginal and Treaty rights and increase the pressures on the natural resources of the area.

With the implementation of Project mitigation measures, overall, residual effects on ILRU perceived suitability of lands and resources for safe use are expected to be adverse, low magnitude during all Project phases, located primarily in the LSA, and medium-term in duration. Effects are expected to be continuous in frequency, low in context, and fully reversible following decommissioning. While it is difficult to predict individual perceptions on the suitability of land proximal to the Project for ILRU, resource users may experience disturbances from traffic, noise, air quality changes, changes related to the relationship to the land, and increased competition for resources. Resource users may also be concerned about personal exposure to contamination of surface water and groundwater, soils, and sources of waste. Some perceptions may be strong enough to cause them to avoid practicing in areas proximal to the Project. Overall, given limited use of the ILRU LSA, adverse effects that are low in magnitude, the limited geographic extents of effects, and the reversibility of effects, the conclusion relative to changes to ILRU is not significant. (Page 11-75, EIS)

Comment 88: YNLR believes this to be an overly optimistic conclusion regarding the impacts of the Project on traditional resource use by Indigenous Peoples.

Other Land and Resource Use

Other Land and Resource Use activities that tend to occur in the OLRU LSA include trapping, commercial fishing, and leaseholders and cabin owners. The current number of commercial and recreational resource users admitted through the Key Lake gate is strictly limited to those who lease property, hold commercial licenses, or those who operate outfitting businesses. (Page 11-138)

With the implementation of Project mitigation measures, overall, residual effects on OLRU perceived suitability of lands and resources for safe use are expected to be adverse, low magnitude during all Project phases, located primarily in the LSA, and medium-term in duration. Residual effects are expected to be continuous in frequency, low in context, and fully reversible following Decommissioning. The overall conclusion relative to changes to OLRU is not significant and the overall confidence in the determination is moderate to high. (Page 11-139, EIS)

Comment 89: As with the impacts on the traditional use of land and natural resources by Aboriginal and Treaty rights holders, the human presence in the region is going to increase, which in turn will put additional pressures on fish and wildlife resources.

F. Summary of Residual Effects (Appendix 16-A, EIS)

This Appendix summarizes all predicted residual effects of the Wheeler River Project (the Project) and their significance by each Valued Component (VC) considered to inform the assessment. This is intended to provide the context of the residual effects in a transparent, concise approach to show the fulsome, rigorous analysis undertaken for the environmental assessment (EA) of the Project. Using accepted approaches and best practices, the EA of the Project focuses on the VCs that were determined in consultation with Indigenous communities. The previous VC-specific sections in Parts II and III of this Environmental Impact Statement (EIS) identified current baseline conditions, potential effects, and appropriate mitigation measures, characterized the residual effects on each of the Key Indicators (KIs), and then rolled up the ratings of the characteristics to determine the significance of the effect on receptor VC as a result of the Project. Significance determination is not completed on intermediate VCs, but integrated into the residual effect evaluation, residual effect characterization, and significance determination for related receptor VCs. A summary of the assessment outcomes, predicted residual effect, and significance determination (where applicable) for each VC are summarized in the following tables. (Page 1)

Comment 90: There are about three dozen Valued Component/Key Indicators that are assessed for the significance of residual effects (effects that remain after mitigation) from the Project. They include sediment quality, benthic invertebrates, fish and fish habitat, fish health, terrain, soil, organic matter, vegetation abundance, listed plant species, wetlands, ungulates (moose), furbearers (wolverine, pine marten, mink, muskrat), woodland caribou, raptors (bald eagle, osprey), migratory breeding birds (water birds and waterfowl, upland game birds, migratory songbirds), avian species at risk (5), human health and safety, Indigenous land and resource use, other land and resource use, heritage resources, traditional diet, community well-being (income and cohesion), traffic, infrastructure & services, and economics.

The residual effects of the Project on all of these VCs/KIs are concluded to be non-significant in the EIS.

YNLR questions this overly optimistic and statistically unlikely prediction. For example, the sheer number of fish and wildlife species that the few selected VC/KIs represent would suggest that some will be adversely affected, even if by chance alone. The assessment effectively states that the Project is advantageous and/or neutral to all biophysical and human values, which YNLR rejects. If the Project proceeds, YNLR will want to be closely associated with all project monitoring programs.

G. Summary of Cumulative Effects (Appendix 16-A, EIS)

This Appendix [also] summarizes all predicted cumulative effects of the Wheeler River Project (the Project) and their significance. The Cumulative Effects Assessment (CEA) for the Project considers whether residual adverse effects of the Project on a given Valued Component (VC) of the biophysical or human environment will overlap spatially and temporally with residual adverse effects on the same VC that result from other past, present and reasonably foreseeable projects or activities. The approach for assessing cumulative effects considers both the current conditions (which include changes caused by past development, projects, and activities, and are therefore considered in the baseline condition of the VC) and the identified reasonably foreseeable future projects and/or activities.

Comment 91: There are about three dozen Valued Component/Key Indicators that are assessed for the significance of cumulative effects (effects that remain after mitigation) from the Project. These include air quality, noise, terrain morphology and stability, groundwater quantity and quality, surface water quality and quantity, soil quantity and quality, organic matter, sediment quality, benthic invertebrates, fish and fish habitat, fish health, vegetation abundance, listed plant species, wetlands, moose, furbearers, woodland caribou, raptors, migratory breeding birds, avian species at risk, human health, Indigenous land and resource use, other land and resource use, heritage resources, traditional diet, income of workers, community cohesion, traffic, community infrastructure and services, and economics.

As with the summary of the residual effects, the cumulative effects of the Project on all of these VCs/KIs are concluded to be non-significant in the EIS.

Again, YNLR believes this to be an overly optimistic and statistically unlikely prediction for the same reasons as given above, for example, inadequate spatial boundaries, poorly chosen and grouped VCs and KIs, the apparent omission of the existing linear disturbance network in the effects assessments, and the largely qualitative nature of the assessments and their resultant ‘significance.’

H. Monitoring and Follow-Up Programs (Executive Summary, page 74)

Monitoring programs are designed to meet regulatory requirements (e.g., permit or license conditions), and/or to demonstrate compliance with environmental commitments made in the EIS. Follow - up programs are those that are proposed to address any uncertainties identified during the EA process (e.g., to verify predictions made during the EA; determine the effectiveness of proposed and implemented mitigation measures) and to determine when to implement adaptive management measures. Monitoring and follow-up programs for the Project will be integrated within Denison’s overall EMS framework (see Section 3.4.4) and implemented through the various programs, plans, and procedures that would be developed therein. Generally, Denison is anticipating establishing monitoring and follow-up programs in relation to the following VCs (as outlined in the various subsections of Section 5):

- *Air Quality and Noise;*
- *Groundwater;*

- *Surface Water Quantity and Quality;*
- *Fish Habitat and Health;*
- *Terrain and Soil;*
- *Vegetation and Ecosystems, Listed Plant Species, and Wetlands;*
- *Ungulates, Furbearers, and Woodland Caribou;*
- *Raptors and Migratory Breeding Birds;*
- *Human Health and Worker Health and Safety;*
- *Indigenous Land and Resource Use, Other Land and Resource Use, and Heritage Resources; and*
- *Economy*

Comment 92: YNLR believes there is a lot of uncertainty remaining from this EIS. This stems from several items, including the relatively novel nature of the ISR methodology with its potential effects on water quality and fish health, to the questionable conclusion that the mine will be neutral with respect to the persistence of woodland caribou in the region. If the mine is to be approved, YNLR wants a transparent, independent, statistically robust monitoring program implemented for the life of the Project and beyond. YNLR expects northern Indigenous Peoples to be involved in the design and implementation of such a program.

Appendix B: Details of Indigenous Rights Review

A note on this Appendix's format: sections of the EIS have been directly copied and indicated in *italics* to provide context and clarity to the comments immediately following them.

General comment

Comment 1: There is inconsistent use of YNLRO and YNLR throughout several sections of the EIS. Specifically, YNLRO in section 3, YNLR in sections 4 and 11. As they are used to represent the same thing, only one format should be used.

Section 1. Project Introduction and Overview

EIS Page 1-1, second paragraph, first sentence states:

"The Project falls within the boundaries of Treaty 10, the Nuhtsiye-kwi Benéne (Ancestral Lands) of English River First Nation, the traditional territory of the Kineepik Métis Local #9, the homeland of the Métis, and the Nuhenéné."

Comment 2: YNLR notes that this is a misuse of Nuhenéné as the name of the people. This should be "Nuhenéné, the traditional territory of the Athabasca Denesųliné".

EIS Page 1-5, first paragraph, third sentence states:

"Calculated using a straight line, the closest communities are approximately 150 km from the site..."

Comment 3: YNLR notes that the Hatchet Lake Denesųliné First Nation, an Athabasca Denesųliné community, is the closest to the Project. The Wheeler River EIS seems to rely on road distance rather than physical proximity. Road distance should not be utilized to determine community importance or impacts since not all travel methods require continuous roads. Travel to this part of our traditional territory is typically achieved cross country rather than by road.

EIS Page 1-5, third paragraph, first sentence states:

"The main land use activities in the area by Indigenous and other land users are hunting, trapping, and fishing."

Comment 4: In addition, Athabasca Denesųliné land uses include, but are not limited to, large and small game harvesting, gathering activities, and fishing, all of which are of key cultural importance.

EIS Page 1-7 states:

“Water in the Project Area drains towards Russell Lake, the Wheeler River, and ultimately into Wollaston Lake (via the Geikie River).”

Comment 5: It is important to note that the Hatchet Lake Denesų́líné First Nation and the community of Wollaston Post are situated at Wollaston Lake and given their downstream location there is potential for negative impacts.

Section 3

3.1 The Value of Indigenous Knowledge in Environmental Assessment Practice

The EIS Page 3-1 to 3-2 discuss the value of Indigenous knowledge with statements including:

“Indigenous Knowledge plays an important role in the environmental assessment of major projects in Canada, with the understanding that different types of knowledge and diverse perspectives are needed to obtain a full understanding of the existing conditions in which a project is proposed, the potential effects of a project, and the significance of those effects, especially to Indigenous Peoples (BC EAO 2020).

Inclusion of Indigenous Knowledge strengthens all stages of EA in the following ways (MVEIRB 2005; BC EAO 2020):

- *“makes sure the perspectives and concerns of Indigenous peoples are heard;*
- *provides information, including historical information, that may not have been available through other sources;*
- *leads to better decisions, including improved project design and stronger mitigation measures;*
- *identifies and defines valued components; and*
- *identifies potential project effects to be included in the Environmental Impact Statement (EIS).*

As part of 2022 engagement activities for English River First Nation, Beauval, and Pinehouse, Denison prepared a survey that asked a series of questions relating to the results of the environmental assessment. Responses indicated that Denison could learn from people regarding how to reduce the effects of the project to the environment and that the Indigenous voice should be included in monitoring plans.”

Comment 6: YNLR notes that the Wheeler River Project falls within Nuhenéné and Athabasca Denesų́líné perspectives and knowledge should have been sought throughout all stages of the Environmental Assessment (EA). Early inclusion in this project would have been beneficial to both the Athabasca Denesų́líné communities and to Denison through increased sharing of knowledge.

EIS Page 3-5, first paragraph, is the wording in the submitted draft:

“In March 2022, the Ya’t’hi Néné Lands and Resources Office (YNLRO) transmitted their report entitled An Exploration of Recorded Athabasca Denesų́líné Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project (YNLRO 2022) and

diminished or lost. In fact, only 4 of 31 aspects influenced (from EIS Table 3.5-1) for Indigenous knowledge and 3 of 37 aspects influenced (from EIS Table 3.5-2) for local knowledge were taken from Athabasca Denesųline knowledge sources.

Section 4 Engagement

EIS Page 4-5, Figure 4.2-1 identifies Hatchet Lake First Nation, Fond du Lac First Nation and Black Lake First Nation as Other Indigenous Communities rather than an Indigenous Community of Interest.

EIS Page 4-vii defines a Community of Interest (COI) as:

“A community whose traditional land or potential or established Aboriginal and/ or Treaty rights are in proximity to the Project or has existing transportation infrastructure that would be used by the Project. An Indigenous Community of Interest is more likely to experience impacts from the Project.”

Comment 10: YNLR notes that by this definition, the Athabasca Denesųliné communities should be considered an Indigenous COI as they are/have:

- signatories of Treaty 10 and Athabasca Denesųline traditional territory is within the Project area
- established Treaty rights in proximity to the Project
- more likely to experience impacts, for example, water drainage as indicated on page 1-7 of the EIS ultimately flows into Wollaston Lake where the Athabasca Denesųline community of Hatchet Lake is located

Further, EIS Page 4-12 indicates the criteria used to determine status as Indigenous COI including:

- *“Treaty 10 signatory (Treaty in which the Project is located);”*

Comment 11: YNLR notes that Hatchet Lake First Nation is a signatory to Treaty 10 as recognised on page 4-47 of the draft EIS.

- *“potential or established Indigenous and/or Treaty Rights within the Project Area;”*

Comment 12: YNLR notes that the Project is located within Nuhenéné (the Athabasca Denesųliné traditional territory) as recognised on page 4-61 of the draft EIS. Further, Hatchet Lake First Nation is a signatory to Treaty 10, while Black Lake First Nation and Fond du Lac First Nation are signatories to Treaty 8, and as such all have Treaty Rights within the Project area.

- *“geographic proximity of community and/or reserve land to the Project site;”*

Comment 13: YNLR notes that Hatchet Lake First Nation is located 150 km...Black Lake First Nation is located 180 km...and Fond du Lac First Nation is located 230 km away from the Project as recognised on page 4-47 of the draft EIS. Our community members generally access the Project area via overland routes rather than the established Provincial Road network.

- *“known traditional territory in and around the Project site;”*

Comment 14: YNLR notes that the Project is located within Nuhenéné (the Athabasca Denesų́line territory) as recognised on page 4-61 of the draft EIS.

- *“history of relationship with operating companies, the CNSC, and the Province in relation to other projects located near the Project (McArthur River, Key Lake, Millennium);”*

Comment 15: YNLR notes that the Athabasca Denesų́line has relationships with other projects such as McArthur River and Key Lake as indicated in ROC-78, page 504, Combined Appendices for the Wheeler River Project Draft EIS.

- *“the potential for collective exercising of Indigenous and/or Treaty Rights in proximity to the Project.”*

Comment 16: YNLR notes that the Project is located within Nuhenéné (the Athabasca Denesų́line territory) as recognised on page 4-61 of the draft EIS; that the Athabasca Denesų́line First Nations are signatories to Treaties 10 and 8; that our communities are in proximity to the Project and have demonstrated traditional activity.

Comment 17: Given these EIS defined criteria, YNLR has difficulty understanding why the Athabasca Denesų́line have been excluded from Indigenous COI status for this project. Exclusion of COI status means loss of opportunity for the communities to be part of greater engagement throughout all stages of the Project. Lost opportunities are considerable and include loss of participation at all phases of the Project and include influence regarding the boundaries of the study areas, possibilities for increased discussions regarding environmental and health concerns, mitigation procedures, and planned remediation, potential to participate in monitoring and research projects and future opportunities such as employment.

Comment 18: Exploring the Project benefits listed in chapter 2 of the EIS (EIS 2-92), it appears that employment opportunities available will consider qualified applicants from the COIs in priority to other Indigenous or Northern Saskatchewan communities. Additionally, goods and services requirements will be prioritized to the COIs before looking elsewhere. With expected operating costs of approximately \$39 million annually, designation as CI represents the lost opportunity for significant financial benefits to both the Athabasca Denesų́line and the Athabasca Basin Communities.

Comment 19: The mis-categorization as the Athabasca Denesų́line an Indigenous Community rather than as an Indigenous COI is a step backwards rather than forwards with regards to reconciliation. A letter to Denison dated July 29, 2022, we critiqued the designations of COI and IC as being artificial and marginalizing. Denison responded October 28, 2022, after the submission of Wheeler River EIS with an alternative view.

EIS Page 4-14 states:

“The Project is located at the southern edge of Nuhenéné (the Athabasca Denesų́line territory). Engagement with YNLR is captured under Section 4.3.4.2.”

Comment 20: YNLR note that project is within Nuhenéné. There is no need to state the southern edge. It could be argued that the Project is on the northern edge of other Indigenous groups areas. Such descriptions have been applied inconsistently to the groups. Territories should be described in an unbiased manner.

EIS Page 4-47, the last paragraph discussing road distance from the project states:

“In terms of travel distance by existing transportation routes Hatchet Lake First Nation is located 945 km away from the Project. In terms of direct linear distance, Black Lake First Nation is located 180 km away from the Project. In terms of travel distance by existing transportation routes Black Lake First Nation is located 1130 km away from the Project. In terms of direct linear distance, Fond du Lac First Nation is located 230 km away from the Project. In terms of travel distance by existing transportation routes Fond du Lac First Nation is more than 1,200 km away, a portion of which is only accessible via winter road.”

Comment 21: YNLR notes that the Hatchet Lake Denesų́liné First Nation, an Athabasca Denesų́line community, is the closest to the Project. The Wheeler River EIS seems to rely on road distance rather than physical proximity and fails to recognise that transportation via the provincial road network is not the only means of accessing the Project area. Road distance should not be utilized to determine community importance or impacts since not all travel requires roads. Athabasca Denesų́liné travel to this part of our traditional territory is typically cross country via snowmobile or waterways rather than by road.

EIS Page 4-61 again states:

“The Project is located within Nuhenéné (the Athabasca Denesų́liné territory), at its southern edge.”

Comment 22: YNLR note that there is no need to state the “southern edge”, the Project is within Athabasca Denesų́line territory (as discussed previously for page 4-14 above).

EIS Page 4-61 states that:

“A Letter Agreement outlining a mutually agreeable process by which the YNLR would author a report for Denison to consider and include, as appropriate, into the EIS.”

Comment 23: YNLR notes that the EIS text should recognise that this report was a compilation of existing YNLR data from a variety of projects with differing objectives and study areas, and that no research was commissioned (as discussed for Section 3 page 3-5 above).

EIS Page 4-64 – Engagement Focus: Post-Project Description: Notes that these discussions have been deferred.

Comment 24: YNLR looks forward to these discussions.

(EIS) on page 4-65 states:

“YNLR expressed concern regarding the classification of the Athabasca Denesų́liné First Nations (specifically Hatchet Lake First Nation) as Indigenous Communities rather than Indigenous Communities of Interest. Denison responded to this concern in a letter to YNLR in early October, 2022, which also included a disposition table responding to each specific concern identified by YNLR. As necessary, Denison has also addressed these other concerns in the relevant sections of the EIS.”

Comment 25: YNLR believes that this is referring to the letter sent by Denison dated October 28, 2022 rather than in early October as stated in the draft EIS. Given the draft EIS was submitted to the CNSC on October 24, 2022, four days before Denison responded to YNLR concerns, further opportunity to provide clarifications or specific details for inclusion in the EIS were lost. YNLR does not agree that all our concerns have been addressed in the EIS.

Section 11 Land and Resource Use

EIS Page 11-8, 11.1.1.1 Valued Component Selection, states:

“Valued Components are aspects of the biophysical and human environments that may be affected (adversely or positively) by the Project. The value of a component not only relates to its role in the environment, but also the value people place on it (Denison 2020). An initial VC list was developed for engagement purposes based on a scan of other Environmental Assessments (EAs) conducted in northern Saskatchewan, combined with regulatory expectations and professional experience; ILRU was among the VCs identified (Denison 2020). Additional input into VC selection was obtained through discussions with Indigenous Communities of Interest (COI), government agencies, and the public. Denison Mines Corp. (Denison) reviewed and considered this input to develop a VC list that reflects the key environmental, socio-economic, heritage, and human health components and interests to focus the detailed assessment for the EA.”

Comment 26: YNLR notes that the Athabasca Denesų́liné had limited opportunity to contribute to VCs. One community virtual meeting was presented to the Athabasca Denesų́line, while there appears to have been approximately 12 events for other First Nation communities (combined) including workshops, school presentations, meetings (in person and virtual) and open houses (draft EIS pp 4-16 to 4-86). While we appreciate the opportunity to participate and recognize the impacts of Covid-19, the difference between Athabasca Denesų́line participation and other groups is stark.

EIS Table 11.1-2: Description of Spatial Boundaries and Study Areas (page 11-13) and Figure 11.1.4: Indigenous Land and Resource Use Study Area (page 11-14) identifies the regional and local study areas for indigenous land use.

Comment 27: YNLR notes that the Athabasca Denesų́liné have demonstrated land use in both the local and regional land use as per our report (YNLR 2022). YNLR has reported 371 Athabasca Denesų́line Traditional Land Use and Occupancy data entries within the Denison regional study area. These include 18 points for harvesting of big game, such as barreground caribou, moose, and woodland caribou, 29

overnight sites, 21 points where birds or eggs such as duck and spruce grouse were harvested. Other activities include furbearer harvesting, fishing, including commercial and tourism related activities such as guiding. A map of these activities is reiterated here.

EIS section 11.1.2.4, Page 11-18 states:

“The YNLR was created as a not-for-profit organization to be the single point of contact between industry, government, and the local Athabasca communities of Hatchet Lake First Nation, Black Lake First Nation, Fond du Lac First Nation, Camsell Portage, Stony Rapids, Uranium City, and Wollaston Post. Denison has been engaging with YNLR since 2019 to understand any interest or concerns about the Project that the YNLR may have. Denison and YNLR agreed on a workplan proposal to carry out research associated with better understanding land use activities in or around the Project.

In March 2022, the YNLR transmitted its report entitled An Exploration of Recorded Athabasca Denesų́́né Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project (YNLR 2022). Denison requested the inclusion of their report into the EIS. This report focused primarily on the Athabasca Denesų́́né First Nations including Hatchet Lake, Black Lake, and Fond du Lac. Indigenous Knowledge and LK within this report, as well as publicly available information, has been integrated into the EIS with focus on the Athabasca Denesų́́né communities. With approval from YNLR, the March 2022 report is included as an appendix to the EIS (see Section 3 Indigenous and Local Knowledge, Appendix 3-A).”

Comment 28: YNLR notes our previously raised concerns that the submitted report was an amalgamation of known information within YNLR’s database and that no Wheeler River specific works were undertaken or commissioned. The wording suggested for 3-5 is more appropriate. Further, YNLR indicated to Denison in July 2022 that some of the publicly available information is the draft EIS was misleading and of limited relevance to this project.

EIS Page 11-37. Map of BQ caribou range.

Comment 29: YNLR notes that the Map of BQ Caribou Range in draft EIS Section 11.1.3.3.26 is misdated, it should be BQCMB 2012. The original source map is dated 2000, but includes telemetry data from 2012 so is more appropriately dated as 2012.

EIS Page 11-40 states:

“Additional sources, including the Community Based Environmental Monitoring Program (2018; 2019) and the socio-economic baseline assessment for the Tazi Twé Hydroelectric Project EIS (Golder 2013), recorded harvests of fish, moose, berries, snowshoe hare and spruce grouse in locations close to communities and distant from the Project.”

Comment 30: YNLR notes, as we did previously, that we are unclear what the relevance of including these sources is, since neither the CBEMP nor the Tazi Twé project investigated land use in the Wheeler River area. The March 2022 YNLR compilation report provides clear indications that the Athabasca Denesų́́né communities utilise the areas in the vicinity of the Project.

to-consult works for other projects with the LSA. This includes hunting, fishing (including commercial) and the gathering of berries and medicines. The responses also indicate that the land is used for therapeutic purposes, youth gatherings, fish camps and general camping. Further the responses note that areas were utilized year-round for hunting, trapping, and fishing, with activities such as berry picking occurring in summer. Impact concerns raised by the interviewees included damage to the lands and water, how wildlife will be affected, disruption to traditional activities and accessibility to the areas while projects are ongoing. Surely, this information is relevant to the Wheeler River project and should be included with the EIS?

Lastly, the YNLR notes that the two highlighted citations are listed as YNLR 2020 and should likely be 2022.

EIS Page 11-41 states:

“Current sites, such as cabins, were not documented in the LSA. Camping sites and navigation were documented based on historic use of the LSA by the Hatchet Lake First Nation.”

Comment 33: YNLR notes that the use of the term *historic* is prejudicial and incorrect. We were assured by Denison that they had removed the term *historic* during earlier discussions.

EIS Pages 11-94 to 11-95 states:

“In March 2022, the Ya’Thi Néné authored a report entitled An Exploration of Recorded Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project (YNLR 2022) and shared this with Denison. This report focused primarily on the Athabasca Denesųłiné First Nations including Hatchet Lake, Black Lake, and Fond du Lac. Indigenous Knowledge and LK within this report, as well as publicly available information, have been integrated into the EIS with focus on the Athabasca Denesųłiné communities. The March 2022 report is included as an appendix to the EIS (see Appendix 3-A in Section 3).”

Comment 34: Again, YNLR notes that this should mention that the report was a compilation of YNLR database materials for other projects and is not Wheeler River Project-specific (as discussed above).

EIS Page 11-95 states:

“An Engagement Database was used to store and retrieve engagement, IK, and LK data. The Engagement Database is continuously updated and adapted to store comments made by Interested Parties organized by topic categories. Engagement, LK, and IK comments are stored in the Engagement Database for integration into the existing environment and assessment sections....”

Comment 35: YNLR notes that the engagement database demonstrates that their opportunities to contribute were limited. For example, of the approximately 101 pages of Engagement Database tables that are dispersed through several sections of the appendices for the EIS (2022), there are 6 entries credited to the Athabasca Denesųłiné. Given an average of 3 to 5 entries per page in the tables, this

means that only 1-2% of the contributions were made by the Athabasca Denesųliné. These limited opportunities may well be the result of the exclusion of Athabasca Denesųline from the COI category.

EIS Page 11-100 third- and fourth-lines states:

“The YNLR described trapping activity by one of its Athabasca Denesųliné member at Keefe Lake to the east of the RSA but did nor report any trapping in N-14 (YNLR 2022).”

Comment 36: YNLR notes that the reference to trapping in N-14 is perplexing as the Saskatchewan Trappers Association map shows that N-14 is south of the Project area. Further there is a typo: “not” instead of “nor”.

Summary of Recommendations

The Project falls within Nuhenéné and Athabasca Denesų́liné perspectives, knowledge, and interests must be sought throughout the Project's life cycle. If this is done, the Project has the potential to achieve reduced aboveground disturbance when compared to conventional uranium mining operations. However, without this level of involvement, potential Project-related environmental and rights impacts will be difficult to fully detect and mitigate.

Our concerns have highlighted how the designation of Athabasca Denesų́liné in the Project assessment has undermined participation and compounded information gaps. This includes those related to the resources Athabasca Denesų́liné rely upon for traditional activities where skills and knowledge (including language, ecological knowledge, oral history, spirituality, harvesting/processing/preserving skills) are intergenerationally transmitted with respect to fish, wildlife, and medicine, resulting in concerns that some factors were not adequately addressed in the EIS's impact characterization and estimation of statistical significance on impacts on ecosystem components.

If left unaddressed, it could mean that impacts on Athabasca Denesų́liné cultural practices, food security, and land use will not be fully understood. Any potential impairment to the ability of Indigenous People to use natural resources on which they rely may constitute an infringement of their traditional rights. These concerns are best addressed by proactively engaging with YNLR and other Indigenous communities and organizations in the design and implementation of all monitoring programs, including associated reporting and verification.

Monitoring and adaptive management developed in collaboration with all potentially impacted Indigenous Peoples are critical components of sustainable uranium mining. A key component of this is Indigenous-led, life-of-project, community-based monitoring, and reporting, aided by on-the-ground community monitors informed by Indigenous Knowledge and ways. These programs should include YNLR and be negotiated together, either in the form of an environmental management agreement or other similar arrangements. This will not only serve to promote greater trust and support for environmental management outcomes, but a better-informed system for ensuring the protection of Indigenous culture, resources, and land use going forward.

We thank you for considering our comments and recommendations for continued work. YNLR remains committed to working with Denison and all parties to fill the gaps that have been identified and to ensuring the Project is carried out in a manner that is acceptable to the Athabasca Denesų́liné and Basin communities we represent.