



Wheeler River Project

Indigenous Engagement
Appendix B Part 3

August 2025

Powering
**PEOPLE, PARTNERSHIPS
AND PASSION.**

From: [Carolanne Inglis-McQuay](#)
To: [REDACTED]
Cc: [Damien George](#); [Janna Switzer](#)
Subject: Denison Response to KML Comments on draft EIS
Date: Wednesday, November 22, 2023 2:41:00 PM
Attachments: [20231122-DEN_KML-ResponseEISComments_COMPLETE.pdf](#)
Importance: High

Hi Walter –

As per our discussion yesterday, please find correspondence from Janna Switzer regarding responses to KML's comments made on the draft EIS for the Wheeler River Project.

Carolanne

Carolanne Inglis-McQuay

Director, Corporate Social Responsibility

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From: [Carolanne Inglis-McQuay](#)
To: [Bruce Hanbidge](#)
Cc: [Garrett Schmidt](#); [Dana Kellett](#); [Janna Switzer](#)
Subject: Denison Responses to Ya'thi Nene Lands and Resources Comments on the Wheeler River Project draft Environmental Impact Statement
Date: Thursday, November 23, 2023 9:11:00 AM
Attachments: [20231123-F_ALL-DEN_YNLR-ResponseEISComments.pdf](#)
Importance: High

Good morning Bruce –

Please find attached correspondence from Ms. Janna Switzer, regarding Denison's responses to the Ya'thi Nene Lands and Resources comments made on the draft Environmental Impact Statement.

Sincerely,
Carolanne

Carolanne Inglis-McQuay

Director, Corporate Social Responsibility

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November 23, 2023

Bruce Hanbidge
Operations Manager
Ya'thi Néné Land and Resource Office
335 Packham Ave Unit 100
Saskatoon, SK S7N 4S1

Sent via email: [REDACTED]

Dear Bruce:

Thank you for your letter dated July 20, 2023 shared with us following our meeting of technical experts to *generally* discuss the comments made by the Ya'thi Néné Land and Resource Office ("YNLR") on the Wheeler River Project ("the Project") draft Environmental Impact Statement ("EIS"), provided to the Canadian Nuclear Safety Commission ("CNSC") on March 4, 2023. During the meeting on July 17, 2023 we appreciated the opportunity to broadly discuss the concerns raised about the EIS.

Over the past months, Denison has been working diligently to consider the comments made by the YNLR and respond to the July 20, 2023 request to provide written responses to the comments and questions that were raised in the YNLR's intervention. As such we are pleased to provide you with comprehensive responses in this regard. Please note, the format for our responses is set out in table form, following the manner in which the CNSC provided Denison with the complete suite of public comments made on the EIS. Additionally, we've also attached a technical memo with respect to a series of comments raised with respect to woodland caribou habitat and the relationship between the Project and the existing disturbances on the landscape.

We trust this information will provide clear responses to the issues identified by YNLR, and demonstrate that the Project, as proposed and assessed, is a sustainable mining project, and we look forward to hearing from you upon your review of the materials enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read 'Janna Switzer', with a stylized flourish at the end.

Janna Switzer
Director, HSE Regulatory Compliance

Cc: Garrett Schmidt – YNLR
Dana Kellett – YNLR

Attach: Table: Denison Responses to YNLR draft EIS Comments
Memo: Denison Response to Woodland Caribou Habitat Comments

Denison's Responses to Comments from YNLR on the Wheeler River Project draft EIS
November 23, 2023

Denison's Responses to Comment from Ya'Thi Néné Lands and Resource Office (March 4, 2023) for the Wheeler River Project Environmental Impact Statement

Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
375	Ya'Thi Néné Lands and Resource Office (YNLR) (March 4, 2023)	EIS Executive Summary, p. 2	<p>Comments #1, 2 and 3, Appendix A: 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:</p> <ul style="list-style-type: none"> YNLR is concerned that the extraction of source water for the Project may have a negative effect on stream flows both below- and aboveground. YNLR is concerned with the potential effects of contaminants released during and after the Project. 	<p>Denison acknowledges these concerns and notes the comment from YNLR references the Executive Summary. Both of the areas of interest raised by the comment are addressed in the main part of the draft EIS and supporting appendices. Denison refers YNLR to the following sections for comprehensive evaluation of these aspects of the Project:</p> <ul style="list-style-type: none"> Potential changes in surface water quantity as the result of the Project, including consideration of water taking activities, are presented in the hydrology assessment (draft EIS, Section 8.1). Potential changes to groundwater quantity and quality as the result of the Project, including consideration of the long-term implications of the mining method, are presented in the groundwater assessment (draft EIS, Section 7). Specifically, the 'future centuries' temporal scope of the assessment for Groundwater considers the period for which the highest COPC concentrations in groundwater are predicted to interact with surface water based on groundwater modeling described in Appendix 7-C. Due to the relatively long travel time (relatively low groundwater velocities) between the mining area (Section 7.6.2.2.3) and the surface water environment where groundwater/surface water interactions are expected, as well as the potential for chemical reactions along the groundwater flow pathway, a 'future centuries' scenario was deemed appropriate to fully assess potential future effects beyond the Project timeline (i.e., 0 to 38 years). The 'future centuries' temporal scope was also developed in recognition of the concerns raised by Interested Parties through the engagement process around the potential for the Project to influence water quality into the future. <p>These assessments, completed in a transparent and rigorous manner, concluded that residual effects of the Project would not be significant. Follow-up and monitoring programs will be employed to confirm mitigation measures are functioning as planned and to confirm EA predictions. For example, a groundwater monitoring plan, including an excursion contingency plan and measures for adaptive management will be implemented for the Project.</p>

Denison's Responses to Comments from YNLR on the Wheeler River Project draft EIS

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376	YNLR (March 4, 2023)	EIS Executive Summary, p. 2	Comment #4, Appendix A: based on the information from p. 2 of the Project Overview: 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.	<p>Denison's Indigenous Peoples Policy sets out priority for Indigenous employment and procurement (among other items). With respect to employment, as noted in Section 13.3.2.1 of the EIS, Residents of Saskatchewan's North (i.e., those resident in the northern administration district of Saskatchewan, inclusive of YNLR) are prioritized for employment as an expected condition of the Surface Lease Agreement, similarly for goods and services to service the Project. With respect to procurement, Denison has established an internal procurement policy approach. The approach requires that Denison consider businesses within the local study area first and the Northern Administrative District second, prior to looking elsewhere (southern Saskatchewan and/or outside of Saskatchewan) throughout all phases of the Project. YNLR businesses would fall in the category of northern Saskatchewan businesses, which would place them in line for second preference if project needs cannot be met within the local study area.</p> <p>Details on the Project components are provided in EIS Section 2. The Project will be operated as a fly-in/fly-out mine, meaning the opportunities for interactions between the workforce and Indigenous communities are limited as workers will be transported by air directly to the site. The proposed camp or accommodations facility is anticipated to be a turnkey building manufactured off site and assembled and commissioned on site. The building's design will be sized to accommodate a peak load of about 190 individuals during Operation; however, due to its modularized design, additional modules can be easily installed should additional beds be required in the future.</p> <p>Section 13 provides the assessment for the key indicator of employment and training, which is a component of the Economy Valued Component. A summary of residual environmental effects on employment and training is found in Table 13.5-2. Employment opportunities represent direct and indirect benefits associated with construction and operation of projects, particularly in the vicinity of communities where unemployment is typically high.</p> <p>Additionally, because the property is located on Crown Land, a mineral surface lease agreement will be negotiated with the Province, specifically the Ministries of Environment and Government Relations. The agreement grants surface rights for the purpose of accessing the land to extract minerals under the Crown Resources Land Regulations. The mineral surface lease agreement</p>

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				provides long term rental of Crown land for mining and milling in Saskatchewan. The agreement also contain specific commitments for environmental protections for the life of the project, OH&S protocols, reporting requirements, and socio-economic benefits for residents of northern Saskatchewan.
377	YNLR (March 4, 2023)	EIS Executive Summary, p. 2	Comment #5, Appendix A: YNLR is concerned with the potential increase in road and off- road traffic affecting wildlife and fisheries sustainability	<p>Please note that the Project will not change public access to the area. The existing gate on Highway 914 near Cameco's Key Lake Operation will remain in place and no changes to the gate and the process for controlling access to Highway 914 north of the Key Lake Operation are proposed as part of the Wheeler River Project. The proposed operation is fly-in, so Project related traffic to the area would only be related to deliveries of materials to and from the site. On-site staff will not have access to personal (or company) vehicles and will largely be "confined" to the camp and work areas during their shifts.</p> <p>Refer to draft EIS, Section 12 Quality of Life for the assessment of potential Project effects on the Key Indicator of Infrastructure and services (traffic) and the associated measurable parameter of change in traffic volumes and types and risk of accident.</p>
378	YNLR (March 4, 2023)	EIS Executive Summary, p. 2	Comment #6, Appendix A: 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.	<p>Through the EA process to date, Denison believes it has identified areas where offset may be required based on Project-Environment interactions. To this end, Denison has made a specific commitment to develop a Caribou Mitigation Plan (a preliminary draft of which has been submitted in response to provincial and federal EIS review comments) that includes provision for potential habitat offset. Details of the habitat offset will be developed in collaboration with Saskatchewan Ministry of Environment. Additional detail regarding the Caribou Mitigation Plan is also provide in the memo that is attached to this comment disposition table regarding the Project-specific cumulative effects assessment (CEA).</p> <p>It is also important to consider the site decommissioning plan within this context, though such restoration activities are not typically discussed as "offsets". Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting</p>

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				<p>applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.</p> <p>No other specific needs for "offset" have been identified based on the effects assessment.</p> <p>Denison will continue to engage with YNLR on topics of interest.</p>
379	YNLR (March 4, 2023)	EIS Executive Summary, p. 2	<p>The EIS Executive Summary 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.</p> <p>Comment #7, Appendix A: 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.</p>	<p>Denison acknowledges the comment and is committed to ongoing engagement and dialogue with interested parties with respect to monitoring. Details of follow-up and monitoring plans will be prepared in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies. YNLR will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.</p>
380	YNLR (March 4, 2023)	EIS Executive Summary, p. 2, 12, 44, 45 and 47	<p>Comments #8, 10, 21 and 22, Appendix A: YNLR remains concerned about the nature and disposition of project contaminants during and after the mining process.</p> <ul style="list-style-type: none"> 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. 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. 	<p>Denison acknowledges the comment and concerns raised by YNLR. Denison believes the assessment of potential effects, such as those highlighted in the review comment, have been considered in a robust manner in the EIS and appropriate mitigations have been proposed. Denison is committed to ongoing engagement and dialogue with interested parties on key Project aspects such as that referenced in the review comment.</p> <p>With specific reference to site decommissioning the following is noted. Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.</p>

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			<ul style="list-style-type: none"> As with groundwater, YNLR places a high value on the quantity and quality of surface waters. Monitoring of water will be critical, and YNLR expects to be consulted and heavily involved with respect to this activity. 	Please also see Denison's response to YNLR comments 1, 2 and 3 above, for further relevant information.
381	YNLR (March 4, 2023)	EIS Executive Summary Freeze Wall, p. 12 and 13	<p>Comments #11, 12 and 13, Appendix A: 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.</p> <ul style="list-style-type: none"> 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? 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. 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. 	<p>Denison notes this comment is on the Executive Summary and that more detailed information is available in the main part of the draft EIS e.g., Section 2 Project Description and Section 7 Geology and Groundwater (and associated appendices).</p> <p>Ground freezing technology is well established and used widely 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 mining areas is a fundamental component of two existing Athabasca Basin underground uranium mines: Cameco Corporation's McArthur River Operation and Cigar Lake Operation. Freeze walls, when fully developed, are capable of withstanding significant external pressures because the ice in the pore voids greatly improves the bulk strength of the soil. For example, in the province of Saskatchewan, ground freezing is used to support the sinking of deep potash mine shafts, which must penetrate through the Mannville formation at a depth between 400 and 500 m below surface. The Mannville formation is often described as saturated, unconsolidated beach sand and it would not support shaft excavation in a thawed state. Freezing is used to create a structural and impermeable wall up to 5 m thick, which can resist a stress gradient driven by full hydrostatic and/or lithostatic pressures on the outside of the wall, and an open to atmosphere excavation within the shaft. This loading condition is much more extreme than any condition the freeze walls at the Phoenix deposit will experience because the interior side of the freeze wall where active ISR mining is occurring is not open to atmosphere and is fluid filled in the same way that the regional groundwater system is on the exterior side of the freeze wall, creating a balanced pressure system, where loading is equal on both the interior and exterior sides.. While freeze walls are very strong when fully developed, they are also plastic in nature. This means that they can slowly deform without failing in response to localized ground deformations. As the freeze wall deforms towards a lower stress zone, it maintains its thickness and integrity. While the above example referred to potash shafts, other examples can be drawn from the experience</p>

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				<p>at the McArthur River or Cigar Lake uranium mines. At McArthur River, open stopes are generated directly adjacent to a freeze wall that is a nominal 4 m thick. At Cigar Lake, open mine cavities 10 m high and several metres in diameter commonly exist within the frozen ground. Neither site has had a breach of the freeze wall during mining activity. Given that the freeze wall at Denison will be much thicker than at McArthur River and that it will be located up to 25 m from the ore zone, it is not anticipated that it will be exposed to a stress environment that will put it at risk.</p> <p>Since the mine design includes the freeze wall as a tertiary management strategy, movement of mining solution is restricted and contained horizontally during operations. Wellfield pumping is the primary form of containment and provides the hydraulic containment to keep mining solution within the 50 m mining area (see Section 2.2.1.4.2). During the operation phase, and under normal operational conditions there is no interaction between the mining zone and surface water or down gradient groundwater environments, and the groundwater assessment (Section 7) focuses on the post-decommissioning period following removal of the freeze wall, once the groundwater flow paths return to pre-mining conditions. During mining area remediation (see Section 2.3.3.1.1), the freeze wall will remain in place until decommissioning objectives are achieved. Refinement of the mining area decommissioning objectives and associated modelling will be done through updates to the Decommissioning Plan, and will be bounded by the objectives evaluated in the EIS. To carefully evaluate how constituents dissolved in the remediated groundwater within the mining area may migrate away from and interact with the environment, a rigorous numerical model of groundwater flow and chemical constituent behaviour along the groundwater flow path was used as a predictive tool. The model is based on proven scientific principles and processes (e.g., groundwater flow, contaminant transport, and geochemical reaction processes) and allowed future conditions to be evaluated. 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.</p> <p>Given the nature of the ISR mining method that will be employed by the Project groundwater monitoring is an important consideration. The</p>

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				<p>groundwater monitoring plan would be developed in consideration of how Project facilities and activities could interact with the groundwater environment and groundwater users to define monitoring needs (locations, frequencies and constituents). Data generated from the groundwater monitoring plan would serve various purposes, such as to assess performance and the controls associated with the ISR process, demonstrate compliance with internal action levels, assess performance of emissions control systems, and contribute to the understanding of the potential influence of the Project on the groundwater environment. The groundwater monitoring program would demonstrate, during each Project phase, that:</p> <ul style="list-style-type: none"> • excursions are not occurring; if excursions do occur, an early warning/timely signal will be provided of when and where they are occurring such that appropriate further evaluation and actions can be undertaken; • commitments made in the EA are being achieved; and • protection of groundwater end use/receiving environment is being achieved. <p>The groundwater monitoring plan would be informed by existing local and traditional knowledge, ongoing engagement activities with interested parties, information generated by development of EIS and its supporting documents, relevant guidance, such as CSA Standard N288.7-15, Groundwater Protection Programs at Class I Nuclear Facilities and Uranium Mine and Mills as well as any applicable licenses, approvals, and permits.</p>
382	YNLR (March 4, 2023)	EIS Executive Summary, p.16	Comment #14, Appendix A: Will the released radon gas be of any concern to natural resources, such as fish and wildlife?	<p>Inhalation pathway to terrestrial wildlife and birds was included in the Ecological Risk Assessment (EcoRA). Please refer to the draft EIS Appendix 10-A Section 5 and an excerpt is provided below for reference:</p> <p>Exposure pathways consider the various routes by which radionuclides and/or chemicals may enter the body of the receptor, or for radionuclides, may exert effects from outside the body. Exposures to environmental media may be direct (i.e., by contact) or indirect (i.e., via constituent transport through the food chain). For each type of ecological receptor, draft EIS Appendix 10-A Table 5-5 summarizes the relevant exposure pathways to various environmental media including air, surface water, soil, and sediment. Airborne COPCs partition to soil and plants. For most COPCs, ingestion pathways dominate over inhalation and air immersion. The latter pathways</p>

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				<p>are considered minor pathways in the EcoRA, but inhalation was included in the IMPACT model and is thus included in draft EIS Appendix 10-A Table 5-5.</p> <p>Exposure to constituents that may deposit from air to surface water was not considered, as that pathway is considered negligible according to CSA N288.1-20. As such, a pathway of radon in air to aquatic receptors such as fish was not evaluated. Radiological dose to aquatic receptors is evaluated through water and sediment exposure, as appropriate based on the receptor's characteristics. For fish, aquatic plants, and aquatic invertebrates, contact with water and constituent uptake from water via bioaccumulation represents the main exposure pathway. Direct contact or uptake from sediment are also considered for benthic invertebrates and bottom-feeding fish.</p>
383	YNLR (March 4, 2023)	EIS Executive Summary, p.18 Land and Resource Use, p. 11- 50 to 11-52	<p>Comment #15, Appendix A: 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. YNLR expects to be consulted/included in the design and implementation of the Project's environmental monitoring programs.</p> <p>Comment #85, Appendix A: 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.</p>	<p>The specific activity of water withdrawal from Whitefish Lake was assessed in the draft EIS, Section 8.1. The conservative estimate of water withdrawal would result in a reduction of flow of about 3% at times of low flow and the lake level could change by 1cm; this minor change is beyond the ability of monitoring techniques to practically measure, and the assessment concluded that the Project would not result in a significant effect on surface water quantity (hydrology). It is noted that there will be a separate permitting process that will consider water withdrawal for Project support that will occur following the EIS. Monitoring, including of water withdrawal rates and of potential effects (e.g., change in water flow, change in lake levels) will be implemented as the Project moves forward.</p> <p>Denison is committed to sharing information with Indigenous Communities of Interest (COIs) in a mutually agreed-upon fashion. Overall, the approach that will be utilized with respect to Indigenous community engagement will be aligned with Denison's Indigenous Peoples Policy. Denison's Indigenous Peoples Policy commits the company to respecting Indigenous knowledge and values regarding environmental stewardship and Indigenous peoples' connection to the land. The relevant monitoring plans for the species/resources that support a traditional diet will reflect and incorporate these values and will be reflective of the Indigenous COIs priorities. The monitoring plans when drafted will include more detail about communication methods and their effectiveness would be assessed through ongoing engagement with Indigenous communities.</p>

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384	YNLR (March 4, 2023)	EIS Executive Summary, p. 26	<p>Comments #16 and 17, Appendix A: YNLR supports Denison's corporate Indigenous Peoples Policy (IPP) and looks forward to collaborating with Denison to ensure that the Project's socioeconomic benefits reach local Indigenous People. YNLR acknowledges that Denison incorporated the YNLR report into the EIS and looks forward to further working with the company collaboratively regarding the rights of Indigenous People.</p> <p>YNLR is interested in an impact benefit agreement with Denison ensuring mutual benefits from the Project and co-management of environmental monitoring and mitigation.</p>	<p>As outlined in Denison's Indigenous Peoples Policy, Denison is committed to respecting Indigenous knowledge and values regarding environmental stewardship and Indigenous peoples' connection to the land, and to minimize potential effects, wherever possible.</p> <p>Through continued and focussed engagement with the YNLR since the YNLR identified its interest in the Project in 2019, Denison has come to better understand the Athabasca Denesųłiné communities' relationship to the Project site and current use of the areas for traditional purposes. Denison acknowledges that the Hatchet Lake Denesųłiné First Nation has the potential for established Indigenous and Treaty Rights proximal to the Project. The Hatchet Lake Denesųłiné First Nation, as represented by the YNLR will be identified as an Indigenous COI in the updated EIS. Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. YNLR will be informed throughout the monitoring program design and implementation process.</p> <p>A list of commitments, including specific commitment or mitigation measures related to Project effects as an outcome of engagement, made in the draft EIS, throughout the Federal information request period and the Provincial comment response period, will be included with the submission of the final EIS. For clarity, this would not include any private, confidential accommodations made under contractual agreements.</p>
385	YNLR (March 4, 2023)	EIS Executive Summary, p. 26, 28 and 59 Land and Resource Use, p. 11- 52 and 11-53	<p>Comments #18, 19 and 29, Appendix A:</p> <ul style="list-style-type: none"> Indigenous People, communities, and organizations YNLR represents are rights holders, and are not to be arbitrarily grouped and treated as non-rights holders. 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. The Athabasca Denesųłiné 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 	<p>Denison acknowledges the comment. In March 2019, Denison was notified by the YNLR that the Indigenous communities within the local Athabasca communities identified were interested in the Project and that YNLR held the Duty to Consult from these communities. Since receiving correspondence from the YNLR office in 2019 Denison has been collaboratively working with the YNLR office in a mutually agreed upon manner and will continue to do so.</p> <p>Denison's approach to identifying Indigenous COIs considered several factors as identified in Section 4.3.1 of the EIS. Being signatories of Treaty 10 was among, but not the sole applicable criteria, and not all Treaty 10 communities are considered as Indigenous COIs for the Project. Through continued and focussed engagement with the YNLR since the YNLR identified its interest in the Project in 2019, Denison has come to better understand the Athabasca</p>

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			<p>area. Any proposed infringement on these rights by the Project will need to be discussed well ahead of the Project's start date.</p> <p>Comment #86, Appendix A: The EIS minimizes effects of Lands and Waters availability and access on northern residents and Indigenous Peoples.</p> <p>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.</p>	<p>Denesųliné communities' relationship to the Project site and current use of the areas for traditional purposes. Denison acknowledges that the Hatchet Lake Denesųliné First Nation has the potential for established Indigenous and Treaty Rights proximal to the Project. The Hatchet Lake Denesųliné First Nation, as represented by the YNLR will be identified as an Indigenous COI in the updated EIS.</p> <p>With respect to Denison's consideration of Indigenous Knowledge shared by the Athabasca Denesųliné knowledge sources, Denison notes that Tables 3.5-1 will be updated to better reflect where the YNLR's An Exploration of Recorded Athabasca Denesųliné Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of the Denison Mines Wheeler River Project, which was included as an Appendix to the EIS, was considered and included as Table 3.5-1 does not reflect all instances the report was utilized.</p>
386	YNLR (March 4, 2023)	EIS Executive Summary, p. 52	<p>Comments #24 and 25, Appendix A: 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.</p> <ul style="list-style-type: none"> YNLR will be eager to and expects to be involved in collaborating with Denison in the future monitoring of these vital natural resources. 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. 	<p>Denison has committed to collaborating with Indigenous Communities of Interest with reserves and residential communities most proximal to the Project on specifics of environmental monitoring regimes, suited to each of their interests and needs. As part of these programs, Denison and the Communities of Interest will be sharing information in an agreed-upon fashion. Denison expects that important country foods harvested for food and cultural purposes (e.g., moose, fish, etc.), surface water quality, and other areas of interest will form parts of these monitoring programs, including other areas of potential concern as they evolve over time. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project.</p> <p>The specific potential for need for approval(s) under the Fisheries Act related to effects on fish and fish habitat (i.e., harmful alteration, disruption and destruction) resulting from Project activities has been assessed and presented in the draft EIS. Based on the assessment, Denison has determined that effects can be avoided and mitigated and therefore there will be no need for fish habitat offsets under the <i>Fisheries Act</i>.</p>
387	YNLR (March 4, 2023)	EIS Executive Summary, p. 54 and 55	<p>Comment#26, Appendix A: YNLR places a high priority on wildlife and wildlife habitat, from both ecological and sociocultural perspectives. Given the long-time frame of the Project, YNLR are concerned about the lack of significance</p>	<p>Through the EA process to date, Denison believes it has identified areas where offset may be required based on Project-Environment interactions. To this end, Denison has made a specific commitment to develop a Caribou Mitigation Plan (a preliminary draft of which has been submitted in response</p>

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			<p>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).</p> <p>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.</p>	<p>to provincial and federal EIS review comments) that includes provision for potential habitat offset. Details of the habitat offset will be developed in collaboration with Saskatchewan Ministry of Environment. Additional detail regarding the Caribou Mitigation Plan is also provide in the memo that is attached to this comment disposition table regarding the Project-specific cumulative effects assessment (CEA).</p> <p>It is also important to consider the site decommissioning plan within this context, though such restoration activities are not typically discussed as "offsets". Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.</p> <p>Denison will continue to engage with YNLR on topics of interest.</p>
388	YNLR (March 4, 2023)	EIS Executive Summary	Comment #27, Appendix A: Indigenous People have brought forward concerns with the extensive network of seismic cut lines at several places in the EIS.	<p>Through the EA process to date, Denison believes it has identified areas where offset may be required based on Project-Environment interactions. To this end, Denison has made a specific commitment to develop a Caribou Mitigation Plan (a preliminary draft of which has been submitted in response to provincial and federal EIS review comments) that includes provision for potential habitat offset. Details of the habitat offset will be developed in collaboration with Saskatchewan Ministry of Environment. Additional detail regarding the Caribou Mitigation Plan is also provide in the memo that is attached to this comment disposition table regarding the Project-specific cumulative effects assessment (CEA).</p> <p>It is also important to consider the site decommissioning plan within this context, though such restoration activities are not typically discussed as "offsets". Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting</p>

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				<p>applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.</p> <p>Denison will continue to engage with YNLR on topics of interest.</p>
389	YNLR (March 4, 2023)	EIS Executive Summary, p. 59	Comment #28, Appendix A: 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.	<p>To be clear, Denison's proposed Project does not require any extension to the existing Highway 914. There is a Highway 914 extension project under evaluation by the Ministry of Highways, but this project is not related to or ancillary to the Wheeler River Project.</p> <p>As noted in response to other comments, through the EA process to date, Denison believes it has identified areas where offset may be required based on Project-Environment interactions. To this end, Denison has made a specific commitment to develop a Caribou Mitigation Plan (a preliminary draft of which has been submitted in response to provincial and federal EIS review comments) that includes provision for potential habitat offset. Details of the habitat offset will be developed in collaboration with Saskatchewan Ministry of Environment. Additional detail regarding the Caribou Mitigation Plan is also provide in the memo that is attached to this comment disposition table regarding the Project-specific cumulative effects assessment (CEA).</p> <p>It is also important to consider the site decommissioning plan within this context, though such restoration activities are not typically discussed as "offsets". Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.</p> <p>No other specific needs for "offset" have been identified based on the effects assessment.</p>
390	YNLR (March 4, 2023)	EIS Executive Summary Monitoring Programs, p. 74	Comment #30, Appendix A: 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	Denison has committed to collaborating with Indigenous Communities of Interest with reserves and residential communities most proximal to the Project on specifics of environmental monitoring regimes, suited to each of their interests and needs. As part of these programs, Denison and the

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			involvement and participation of Indigenous People, communities, and organizations and be statistically robust.	Communities of Interest will be sharing information in an agreed-upon fashion. Denison expects that important country foods harvested for food and cultural purposes (e.g., moose, fish, etc.), surface water quality, and other areas of interest will form parts of these monitoring programs, including other areas of potential concern as they evolve over time. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project.
391	YNLR (March 4, 2023)	EIS Executive Summary, p. 76	<p>Comment #31, Appendix A: The EIS states: "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."</p> <p>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.</p>	Denison notes YNLR's perspective on this.
392	YNLR (March 4, 2023)	Section 1.0 Project Introduction and Overview, p. 1-1, 1-5 and 1-18	<p>Comments #32 and 33, Appendix A: The Project is located within Nuhenéné and 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.</p> <p>YNLR supports the sustainable mining of uranium within Nuhenéné.</p>	In March 2019, Denison was notified by the YNLR that the Indigenous communities within the local Athabasca communities identified were interested in the Project and that YNLR held the Duty to Consult from these communities. Since receiving correspondence from the YNLR office in 2019 Denison has been collaboratively working with the Nuhenéné through the YNLR office in a mutually agreed upon manner and will continue to do so.
393	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-38	Comment #34, Appendix A: 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.	In the draft EIS, conservative estimate of water taking would result in a reduction of flow of about 3% at times of low flow and the lake level could change by 1cm. While this incrementally small change in water quantity is beyond the ability of monitoring techniques to practically measure, Denison will conduct hydrological monitoring. Monitoring will likely include streamflow and lake level monitoring as well as continuous monitoring with stage dataloggers with details of monitoring plans to be finalized to support Project permitting and licensing.

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394	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-40, 8-42, 8-98 and 8-99	<p>Comment #35, Appendix A: 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 in sections 8.1.7.1, 8.1.7.2, 8.1.7.3 and 8.1.7.4.</p> <p>Comment #36, Appendix A: 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.</p> <p>Comment #37, Appendix A: 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.</p> <p>Comment #41, Appendix A: 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.</p> <p>Comment #42, Appendix A: 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</p>	<p>In terms of watersheds and nearby uranium operations, only Key Lake Operation's drainage area interacts with the Wheeler River Project. Drainages from both operations would combine at Russell Lake. As such, the Key Lake Operation was included as an existing project in the CEA sections of the aquatic environment. The drainages associated with McArthur River Operation and Cigar Lake Operation are separate from the Project.</p> <p>The RSA is the area that surrounds and includes the LSA, and was established to assess the potential, largely indirect effects of the Project, as well as other activities, in a regional context. The RSA is large enough to capture the extent of potential effects (i.e., zone of influence) on a VC and defines the area within which cumulative effects may occur (i.e., cumulative effects assessment boundary). The RSA for the Surface Water Quality VC is bounded by the regional watershed area in which the Project Area is located. The RSA for this assessment is based on the whole watershed within which the Project is located and extends downstream to include Russell Lake (refer to draft EIS Figure 8.2-3). Given the very low magnitude of predicted changes in water quantity in the LSA (in the draft EIS, conservative estimate of water taking would result in a reduction of flow of about 3% at times of low flow and the lake level could change by 1cm), it would not be measurable further downstream into the RSA.</p> <p>The CEA considers whether residual adverse effects of the Project on a given VC will overlap spatially and/or temporally with the same residual adverse effects on the VC resulting from other past, present, and reasonably foreseeable projects or activities. The CEA follows standard methodology as per provincial (e.g., Guidelines for an Environmental Assessment) and federal guidance (e.g., Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012).</p> <p>Cumulative effects assessment is important to Indigenous communities in general because incremental effects to the environment can weaken resource economies, affect important resources such as plants, fish, and wildlife, affect rights-based and cultural activities, and affect both the health of wildlife and humans. Indigenous perspectives can be complementary to the CEA for the Project, and Denison acknowledges the important relationship of the Indigenous Communities of Interest to the lands and waters. The Indigenous Communities of Interest of ERFN and the Kineepik Métis Local #9 at</p>

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			<p>expected to remain localized...for all the mining operations in the region. Impacts on water quality and</p> <p>mitigation measures “not warranted” should be demonstrated through field studies and</p> <p>research rather than relying on a theoretical modelling approach.</p>	<p>Pinehouse (KML) have shared their Indigenous Knowledge on past, present, and predicted cumulative effects through the following:</p> <ul style="list-style-type: none"> • Wheeler River Project – Summary of Health and Socio-Economic Study Results (ERFN and SVS 2022a); • Wheeler River Project - Summary of Traditional Knowledge Study Results (ERFN and SVS 2022b); • Kineepik Valued Ecosystem Components – KML Pre-statement for Denison EIS (KML and NVP 2022); and • Response to the Environment Impact Assessment For the proposed Ministry of Highways 914 Extension Project (KML and Limnos Environmental 2022). <p>These perspectives on cumulative effects have been summarized in Section 3.4.8 of Section 3. Denison and the Communities of Interest agreed on the high value of this contribution being part of the EIS.</p>
395	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-92, 8-93 and 8-96	<p>Comment #40, Appendix A: 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.</p> <p>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.</p>	<p>The comment from YNLR references text in Section 8.2 of the draft EIS which is the water quality assessment. Please refer to draft EIS Section 8.1 for the water quantity assessment and information on potential changes in water flow.</p> <p>Denison acknowledges the concern raised by YNLR and believes the water quality assessment, including the assessment of potential water quality effects on ecological and human health, presented in the EIS and supporting documentation is robust and supports the conclusions drawn. With regard to YNLR's concerns around contaminants in treated effluent, we refer YNLR to Appendix 10-A Environmental Risk Assessment (ERA) for Wheeler River. The ERA predicts and assesses the risk to representative human and ecological receptors resulting from exposure to radiological and non-radiological substances expected to be released throughout the Project Phases. The ERA encompasses a human health risk assessment (HHRA) and an ecological risk assessment (EcoRA), which have been prepared to be compliant with Canadian Standards Association Group (CSA) N288.6-12 Environmental Risk Assessments for Class I Nuclear Facilities and Uranium Mines and Mills (CSA, 2012). It also meets the requirements for an ERA outlined in Section 4.1 of Regulatory Document 2.9.1, Environmental Principles, Assessments and Protection Measures (CNSC, 2020). The ERA has been developed with current science and current regulatory attitudes in mind. The predicted radiological and non-radiological to human and ecological receptors demonstrate that the</p>

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				Project can be conducted in a manner that is protective of human and ecological health.
396	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-102	Comment #43, Appendix A: 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.	<p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." The monitoring and follow-up program will include measurement of water quality parameters to meet regulatory criteria (i.e., provincial discharge permits, Metal and Diamond Mining Effluent Regulations [MDMER; Government of Canada 2022] and CSA N288.4-19 (CSA Group 2019). At a minimum, this will include collection of non-radiological parameters (e.g., metals, nutrients, hardness, temperature, pH, TDS, TSS, and sulphate) and radiological parameters.</p> <p>Denison has committed to collaborating with Indigenous Communities of Interest with reserves and residential communities most proximal to the Project on specifics of environmental monitoring regimes, suited to each of their interests and needs. As part of these programs, Denison and the Communities of Interest will be sharing information in an agreed-upon fashion. YNLR will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.</p> <p>Additionally, regulators will be involved with setting specific requirements for follow-up and monitoring, as well as reporting, through licence conditions (CNSC) and provincial approvals. A number of monitoring and reporting requirements will be generated through the completion of the environmental assessment process. Denison and its lifecycle regulators will be in regular communication throughout the life of the Project as part of routine reporting, site inspections, licence and permit renewals. Denison is committed to ongoing engagement with regulators and recognizes that this will include information sharing related to follow-up and monitoring results and any needed adaptive management plans. It is also noted for further reference</p>

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				that there are existing, non-Denison monitoring programs such as the CNSC's Independent Environmental Monitoring Program (https://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index.cfm), and the Eastern Athabasca Regional Monitoring Program (www.earmp.ca/). Results from these programs provide relevant information and can complement Denison's Project-specific monitoring program. One forum for discussion of monitoring results is the Northern Saskatchewan Environmental Quality Committee (https://www.saskatchewan.ca/residents/first-nations-citizens/saskatchewan-first-nationsmetis-and-northern-initiatives/northern-saskatchewan-environmental-quality-committee).
397	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment Fish and Fish habitat, p. 8-117, 8-140, 8-141, 8-153, 8-252 and 11-50	<p>Comment #44, 45, 46, 49, 52 and 84, Appendix A: It is noted that the aquatic survey and fish sampling were carried out in 2016, which is now somewhat dated.</p> <p>It is also noted that 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.</p> <p>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.</p> <p>Related comments:</p> <ul style="list-style-type: none"> 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. 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 	<p>The response to the review comment are organized by theme, consistent with the comment.</p> <p><u>Fish salvage</u>: Details of a fish salvage program, if required, will be developed to support Project permitting and licensing. Briefly, for any in-water work, the work area would be isolated from rest of the waterbody. Any fish remaining inside the isolated work area would be captured and relocated outside of the work area. Based on the experience of Denison and its SME team it is noted that such programs are implemented successfully on a routine basis with effective and site-specific planning.</p> <p><u>Indirect effects related to increased human activity in the area</u>: Please note that the Project will not change public access to the area. The existing gate on Highway 914 near Cameco's Key Lake Operation will remain in place and no changes to the gate and the process for controlling access to Highway 914 north of the Key Lake Operation are proposed as part of the Wheeler River Project. The proposed operation is fly-in, so Project related traffic to the area would only be related to deliveries of materials to and from the site. On-site staff will not have access to personal (or company) vehicles and will largely be "confined" to the camp and work areas during their shifts. Section 11 of the draft EIS provides the assessment of potential Project effects on Indigenous Land and Resource Use (Section 11.1) and Other Land and Resource Use (Section 11.2). The mitigation measures proposed in the aquatic and terrestrial assessments translated into undetectable changes in resource availability to existing and future users and rightsholders.</p> <p><u>Recreational fishing</u>: As described in the draft EIS and as noted above, workforce members will be transported to/from site via a fly-in/fly-out</p>

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			<p>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.</p> <ul style="list-style-type: none"> • YNLR disagrees with the assumptions used (Section 8.3.7.2 to 8.3.7.5), which "assume" specific monitoring and follow-up for Fish and Fish Habitat related to cumulative effects is not warranted. • YNLR would like to be involved in designing and carrying out of a monitoring program, which would test the "no cumulative effect" assumption. • 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. 	<p>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. To prevent entry of land users from entering the Project Area, Denison will control access to the property with both a north and south security gate. Overall, given a lack of resources to access fishing locations and store fish harvests, workforce fishing is expected to cause minimal disturbances to local users.</p> <p><u>Monitoring:</u> In the draft EIS, Denison outlines its plans to conduct fish health monitoring in tandem with surface water quality, sediment quality, benthic invertebrate and fish and fish habitat sampling. Sampling locations will be co-located to facilitate comparison to water quality and sediment quality characteristics. Denison has committed to collaborating with Indigenous Communities of Interest with reserves and residential communities most proximal to the Project on specifics of environmental monitoring regimes, suited to each of their interests and needs. As part of these programs, Denison and the Communities of Interest will be sharing information in an agreed-upon fashion. YNLR will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries are sufficiently extensive to measure EIS predictions. Denison is committed to maintaining positive relations with all local interested parties and will be open to discussions on any issues or concerns that arise.</p>
398	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-151	Comment #47, Appendix A: 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.	The requested information is presented in draft EIS Section 8.2.7 Cumulative Effects (surface water quality). The summary referenced in the YNLR comment is made in Section 8.3 Fish and Fish Habitat. Specific monitoring and follow-up plans for the Surface Water Quality VC will be prepared to refine and finalize the approach and specific metrics following consultation

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			It is recommended that a study be undertaken to assess the basin effect of water discharges.	with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC-specific program.
399	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-152	<p>Comment #48, Appendix A: Sediment quality of Whitefish Lake and downstream is not "anticipated" to overlap with the Key Lake Operation.</p> <p>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.</p>	Any changes in sediment quality would be preceded by changes in surface water quality. Should the surface water quality monitoring program identify changes beyond those predicted in the EIS, adaptive management measures would be implemented and may include monitoring of sediment quality further downstream in the watershed. In addition, the Environmental Effects Monitoring (EEM) program under the Diamond Mining and Effluent Regulations will provide a framework for monitoring changes in the aquatic environment.
400	YNLR (March 4, 2023)	Section 8.0 Aquatic Environment, p. 8-232	<p>Comment #51, Appendix A: Water management during construction indicates that there is to be no planned discharge to Whitefish Lake.</p> <p>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.</p>	<p>During Construction, no effluent is expected to be released to the aquatic environment. Contact water stored in the Clean Waste Rock Pond during Construction will be held onsite until the Industrial Wastewater Treatment Plant (IWWTP) is commissioned. At that time the water from the pond would be conveyed to the IWWTP, treated, and released to Whitefish Lake per permit / license requirements. The sequencing of Construction activities will occur in a logical manner based on Project execution plans. For example, construction of the wellfield runoff pond will be prioritized during the early part of Construction, and it will be able to hold 38,200 m3 of water. This will provide contingency and additional water storage capacity if contact water produced exceeds estimates or the volume available in the Clean Waste Rock Pond. Other secondary contingency measures are also available should the volume of water requiring management exceed site infrastructure storage volume. Depending on the situation and volume of water needing management, this could include for example use a hydrovac for offsite disposal. Alternatively, in the instance that there is a planned release of water during construction, this would be permitted by Saskatchewan Ministry of Environment.</p> <p>In accordance with our Indigenous Peoples Policy, Denison is committed to collaborating with Indigenous peoples and communities to build long-term, respectful, trusting, and mutually beneficial relationships. Denison has identified key objectives respecting Indigenous engagement associated with the Project:</p> <ul style="list-style-type: none"> • Build and maintain authentic relationships based on a foundation of trust, good faith, and transparency.

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				<ul style="list-style-type: none"> Create a respectful dialogue process that promotes communication and collaboration among Denison and Indigenous communities, in a timely and accurate fashion. Understand how the proposed development of the Project may affect the interests of Indigenous peoples (including Indigenous and/or Treaty Rights), and work with Indigenous peoples to avoid, mitigate, or otherwise address effects, while also collaborating to maximize potential positive effects. <p>In addition, Denison is required to have a Public Information Disclosure Protocol as set out by the CNSC. This would include any notification to the wider public of unplanned discharges.</p>
401	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Fig 9. 2-6, p. 9-83	<p>Comment #53, Appendix A: YNLR is concerned about the potential residual and cumulative effects of the extensive seismic network on the soils of the RSA and LSA.</p> <p>Were these and other potential network effects considered in the analyses?</p>	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
402	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Appendix 9B, p. 60 Also, p. 9-68, Fig 9. 2-9, 9-133, 9-139 and 9-149	<p>Comment #54 and 55, Appendix A: Appendix 9B of the EIS 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 and highlighted concerns about the broad network of linear disruptions in numerous places across the EIS.</p> <p>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, particularly from edge effects. Were these and other possible effects of the network considered? If so, how were they included?</p>	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
403	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9-168	Comment #56, Appendix A: 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.	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE:

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			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.	Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
404	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Fig 9. 2-9	Comment #57, Appendix A: Was the current RSA anthropogenic disturbance estimate (599 ha) inclusive of the many kilometres of existing seismic cut lines? 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.	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
405	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9- 239	Comment #58, Appendix A: 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.	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
406	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, 9. P- 239	Comment #59, Appendix A: Buffered disturbance is included in Appendix 9B but appears to have been ignored in the effects assessment. 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?	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
407	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Table 9.3-23 and p. 9-270	Comment #60, Appendix A: Is the amount of initial 'available woodland caribou habitat' 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.	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
408	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment,	Comment #61, 62, 82, 83, Appendix A: The EIS correctly highlights the cultural importance of moose and woodland caribou to Indigenous People, which underscores YNLR's	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and

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		p. 9- 275, 9-280, 9-300, Section 11.0 Land and Resource Use, p. 11- 46 and 11-	<p>concerns regarding the conclusions of the residual and cumulative effects assessments of these species, particularly for caribou.</p> <p>YNLR questions the optimistic conclusions drawn by Denison regarding the ongoing availability of woodland caribou for traditional use.</p> <ul style="list-style-type: none"> 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. YNLR disagrees with this overall residual effects conclusion for these wildlife VCs, especially in regard to woodland caribou (Appendix 9B), for the following reasons: <p>(i) Comment #64, Appendix A: 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.</p> <p>(ii) Comment #83, Appendix A: 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. A woodland caribou 'management' plan is not sufficient. YNLR believes that, at a minimum, Denison should commit to an aggressive caribou habitat offset plan before work on the Project begins. 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. Offset activities should include the ongoing restoration of the existing seismic lines, among</p>	complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.

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			other things. This work is best accomplished in consultation and collaboration with Indigenous People, their communities, and organizations.	
409	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9- 280, 9-287 and 9-302	<p>Comment #62, 63, 64, 66, 67 and 68, Appendix A: 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.</p> <p>YNLR disagrees with this overall residual effects conclusion for these wildlife VCs, especially in regard to woodland caribou (Appendix 9B), for the following reasons:</p> <ul style="list-style-type: none"> • Comment # 63 and 64, Appendix A: The extent of past seismic line cutting is very high for both the LSA and RSA. However, 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. • Comment #67, Appendix A: Most of these mitigation measures (listed on p. 9-308) 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. • Comment #69, Appendix A: Concern about the extensive network of seismic cut lines were also raised by Indigenous People at several places in the EIS. 	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.

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410	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment	<p>Comment #65, Appendix A: Is it not possible to conduct modern mineral exploration without cutting miles and miles of seismic lines across the boreal forest?</p> <p>Denison, as a progressive company, will consider advances in technology</p>	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.
411	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment	<p>Comment #68, Appendix A: Section 9.3.9 of the draft EIS indicates that 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:</p> <ul style="list-style-type: none"> • 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. <p>YNLR believes this summary to be overly optimistic and somewhat inaccurate for the following reasons:</p>	Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.

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			<ul style="list-style-type: none"> 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. <p>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.</p>	
412	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9-320, 9-384, 9-389, 9-408, 9-413, 9-414, 9-454, 9-457, 9-460, 9-465, 9-469 Section 11.0 Land and Resource Use	<p>Comment #69, Appendix A: in Section 9.4 of the EIS lists Raptors, Migratory Breeding Birds and Bird Species at Risk together (p. 9-320).</p> <p>YNLR questions how and why these three avian VCs were selected and grouped.</p> <p>The three VCs include dozens of breeding bird species with hugely varying habitat requirements, so it is 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.</p> <p>Comment #72 and 73, Appendix A: 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. For the forest birds in particular, this is compounded by the non-inclusion of the historic network of</p>	An EIS requires scoping in order to determine the appropriate content for the assessment and focus the EIS on key areas of concern and relevance. As per standard, accepted EA practice, the EA was organized by and focused on VCs. The VCs are aspects of the biophysical and human environments that will likely be affected (adversely or positively) by the Project. The VCs reflect identified scientific, local knowledge and Indigenous knowledge, and community interests regarding the Project and its potential effects and are typically identified early in the EA process as a result of questions and concerns raised through engagement with government departments and agencies, Indigenous and community groups, and the general public. Key Indicators are an important component or aspect of the VC that is expected to be affected (changed) as a result of the Project. The KIs may comprise subsets or a guild of the VC, certain aspects of the VC that may be affected by the Project and/or which have a particular importance. The three avian VCs (with Key Indicators in brackets) were: Raptors (bald eagle and osprey), Migratory Breeding Birds (waterbirds and waterfowl, upland game birds, and migratory songbirds), and Bird Species at Risk (common nighthawk, short-eared owl, yellow rail, rusty blackbird, and olive-sided flycatcher). The residual effects evaluation was completed on the Key Indicator species. The

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			<p>seismic cut lines across the landscape (Appendix 9B), and the resulting underestimation of direct and edge effects.</p> <p>Comment #74, Appendix A: 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.</p> <p>Comment # 75, Appendix A: 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.</p> <p>Comment #76 and 77: Appendix A: 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). Concern about these extensive network of seismic cut lines were also raised by Indigenous People at several places in the EIS.</p>	<p>rationale for selecting these avian Key Indicators is available in Section 9.4.1.2. For instance, the inclusion of Species At Risk birds is a requirement of the Species at Risk Act and the CNSC's REGDOC 2.9.1 also notes that applicants should identify all biological species at risk in the area; the avian Species at Risk were not included in the EIS to be indicators of ecological integrity/biodiversity.</p> <p>The avian effects assessment was habitat based. The assessment methods used a conservative approach with the assumption that, following the implementation of site-specific mitigation measures, the proposed Project activities would have a residual effect on these species' guilds regardless of species presence on site. As described in the EIS, pre-construction surveys will be conducted prior to the commencement of any vegetation clearing or soil disturbance. Avian species will also be routinely monitored throughout the life of the Project. Results from the surveys and monitoring activities are expected to inform the adaptive management process to update Project design and identify the need for additional mitigation measures, if required. Denison is of the professional opinion that the data presented, and analysis provided in the avian assessment of the draft EIS is sufficient given 1) the local / regional environment, 2) the level of interaction of the Project with birds that is expected, and 3) because bird densities are not expected to be limited by habitat regionally.</p> <p>Please also refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments for a discussion of how existing cutlines were considered in avian assessments. All past anthropogenic disturbances (which includes cutlines to support mineral exploration) were considered in the terrestrial environment assessments. These human disturbances were mapped and considered/addressed appropriately in Section 9 including the Existing Environment, Residual Effects Characterization, and Cumulative Effects Assessment sections, as they relate to Terrain, Soil and Organic Matter/Peat (Section 9.1); Vegetation and Ecosystems, Listed Plant Species and Wetlands (Section 9.2); Ungulates, Furbearers and Woodland Caribou (Section 9.3); Raptors, Migratory Breeding Birds, and Bird Species at Risk (Section 9.4). The cutlines were classified as previously disturbed and considered as low-quality habitat or no habitat, depending on the species being assessed and their habitat requirements. An anthropogenic layer is included on draft EIS, Figure</p>

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				9.2-6, which includes geophysical cutlines. Please note that anthropogenic features were mapped at IKONOS 1:5,000. This anthropogenic layer is not listed under available habitat types for any of the wildlife or avian VCs in subsequent assessments (e.g., Figures 9.3-9 to 9.3-14, Figures 9.4-8 to 9.4-11, Figures 9.4-13 to 9.4-15) except for Common Nighthawk (Figure 9.4-12), which is a species that is known to use anthropogenic features.
413	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9- 356 and 9-357	<p>Comment #71, Appendix A: The EIS states: "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)</p> <p>"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)</p> <p>"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</p>	<p>Please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments for a discussion of how existing cutlines were considered in avian assessments. All past anthropogenic disturbances (which includes cutlines to support mineral exploration) were considered in the terrestrial environment assessments. These human disturbances were mapped and considered/addressed appropriately in Section 9 including the Existing Environment, Residual Effects Characterization, and Cumulative Effects Assessment sections, as they relate to Terrain, Soil and Organic Matter/Peat (Section 9.1); Vegetation and Ecosystems, Listed Plant Species and Wetlands (Section 9.2); Ungulates, Furbearers and Woodland Caribou (Section 9.3); Raptors, Migratory Breeding Birds, and Bird Species at Risk (Section 9.4). The cutlines were classified as previously disturbed and considered as low-quality habitat or no habitat, depending on the species being assessed and their habitat requirements. An anthropogenic layer is included on draft EIS, Figure 9.2-6, which includes geophysical cutlines. Please note that anthropogenic features were mapped at IKONOS 1:5,000. This anthropogenic layer is not listed under available habitat types for any of the wildlife or avian VCs in subsequent assessments (e.g., Figures 9.3-9 to 9.3-14, Figures 9.4-8 to 9.4-11, Figures 9.4-13 to 9.4-15) except for Common Nighthawk (Figure 9.4-12), which is a species that is known to use anthropogenic features.</p>

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			<p>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)</p> <p>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.</p> <p>How will the EIS address already existing direct and indirect impacts of these historic seismic linear disturbances across the LSA and RSA (Appendix 9B) that were ignored.</p>	
414	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment	Comment #78, Appendix A: Why were amphibians excluded as a VC/KI? Bats? Both were surveyed (Appendix 9B).	Subsequent to filing the draft EIS, Denison has developed a new Species at Risk appendix to Section 9 which will be included in the final EIS and has been included in the response to YNLR (a new SAR appendix (new Appendix 9-D) will be added to Section 9 of the final EIS. It has been included here as Attachment IR-131). This new EIS appendix lists all SAR species potentially occurring in the Project study areas, with links to applicable and appropriate mitigation measures described in the draft EIS. The new appendix also includes a summary of the life history requirements, the expected Project effects, proposed mitigation measures, and anticipated residual effects on bats and amphibians.
415	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9-474	Comment #79, Appendix A: Project monitoring programs specific to Raptors, Migratory Breeding Bird, and Bird Species at Risk VCs are critical, particularly the ongoing repeated surveys throughout the life of the Project, especially given the weak	The framework for avian-related monitoring programs are available in Section 9.4.8 of the draft EIS. This includes a discussion of the anticipated adaptive management process. As described in the draft EIS, a wildlife monitoring plan will be developed to support permitting and licensing and implemented as

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			predictive basis for the effects assessments of the Project on breeding bird species.	the Project proceeds. The wildlife monitoring plan will provide details on the monitoring and follow-up programs outlined in Section 9.4.8 of the draft EIS.
416	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use	Comment #80, Appendix A: 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.	Denison acknowledges the comment. We believe that the work we have done to date with the YNLR, such as entering into an Exploration Agreement in respect of Denison's exploration activities, demonstrates our strong understanding of this YNLR emphasis.
417	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11- 50, 11- 57, 11-58, 11- 79, 11-138 and 11-139	<p>Comment #84, 87, 88 and 89, Appendix A: The EIS notes that "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." (p. 11-57)</p> <p>YNLR notes that:</p> <ul style="list-style-type: none"> 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. YNLR believes that Denison provides an overly optimistic conclusion regarding the impacts of the Project on traditional resource use by Indigenous peoples. One indicator of increased human activity is truck traffic. However, these numbers do not include non-truck traffic. How will Denison address this? <p>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.</p>	<p>Section 12.3.3.2.1 of the EIS describes how access north of the Key Lake gatehouse for employees of northern mines, Indigenous resource harvesters from select communities, cabin owners, and lease owners provides for controlled access to users. Further, Denison staff will not be allowed to hunt or fish. Denison expects to continue to work with Indigenous COI to share information about the proposed impacts of the Project in relation to the potential to adversely impact the exercise of hunting, fishing, trapping and the carrying out of traditional uses as a result of the Project. Information in this respect will be provided as an update to the EIS. Further mitigations identified in Section 12 include:</p> <ul style="list-style-type: none"> Air transportation will be used to transport most workers between the Project site and designated pick-up and drop-off points in communities. Pick-up points will be located at two locally central points in communities within the LSA, one additional site in northern Saskatchewan, and potentially other locations to minimize time spent away from families. Denison's Environment, Health, Safety, and Sustainability Policy will be enforced. Liaison with LSA communities and relevant authorities (e.g., RCMP, health and service providers) will continue. Culturally sensitive employment policies that support the Indigenous workforce will be implemented (e.g., having an Elder representative at the Project site to provide cultural programming)
418	YNLR (March 4, 2023)	Appendix 16-A Summary of Residual Effects, p. 1	Comment #90, Appendix A: 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	The draft EIS carefully evaluated the residual adverse effects remaining on VCs and KIs following implementation of mitigation measures. The EIS conservatively identifies where change from existing conditions are expected for each VC or KI, and assesses this change (i.e., the residual effect) for significance. For instance, the wildlife and avian assessments concluded that the residual effects of the Project are not expected to result in a change to

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			<p>(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.</p> <p><u>The residual effects of the Project on all of these VCs/Kis are concluded to be non-significant in the EIS.</u></p> <p>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.</p>	<p>the viability and persistence of the VCs and associated KIs and were, therefore, predicted to be not significant. As the review comment correctly notes residual effects identified in the EIS were deemed to be not significant - that is, the level of effect (change) did not meet the threshold of significance as defined for the VC. The EIS also discusses the certainty (and uncertainty) of the conclusions drawn by the assessment. Each VC or KI is evaluated independently and based on specific Project-environment interactions and VC-specific mitigations. Denison is confident that the conclusions drawn in the EIS with respect to potential effects and their significance are supported by the analysis presented.</p> <p>Details of follow-up and monitoring plans will be prepared in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies. YNLR will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.</p>
419	YNLR (March 4, 2023)	Appendix 16-A Summary of Cumulative Effects	<p>Comment #91, Appendix A: 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.</p>	<p>Please refer to the response to YNLR comments #90.</p> <p>Additionally, Denison notes that there are a number of review comments that have a similar theme. Rather than repeating the same narrative in this table Denison has developed an inclusive technical memo to provide a more coherent and complete response. Accordingly, please refer to the attached memo RE: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland Caribou Habitat Comments.</p>

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			As with the summary of the residual effects, <u>the cumulative effects of the Project on all of these VCs/Kis are concluded to be non-significant in the EIS.</u> 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.'	
420	YNLR (March 4, 2023)	Executive Summary Monitoring and Follow-Up Programs	<p>Comment #92, Appendix A: 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.</p> <p>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.</p>	<p>Details of follow-up and monitoring plans will be prepared in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies. YNLR will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries are sufficiently extensive to measure EIS predictions. Additionally, Denison has identified key objectives respecting Indigenous engagement associated with the Project:</p> <ul style="list-style-type: none"> • Build and maintain authentic relationships based on a foundation of trust, good faith, and transparency. • Create a respectful dialogue process that promotes communication and collaboration among Denison and Indigenous communities, in a timely and accurate fashion. • Understand how the proposed development of the Project may affect the interests of Indigenous peoples (including Indigenous and/or Treaty Rights), and work with Indigenous peoples to avoid, mitigate, or otherwise address effects, while also collaborating to maximize potential positive effects.
421	YNLR (March 4, 2023)	General	Comment #1, Appendix B: There is inconsistent use of YNLRO and YNLR throughout several sections of the EIS. Specifically,	Editorial issue with inconsistent abbreviations for Ya'thi Néné Land and Resource Office will be corrected in the final EIS and 'YNLR' will be used.

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			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.	
422	YNLR (March 4, 2023)	Section 1.0 Project Introduction and Overview, p. 1-5 Section 3.0 Value of IK in EA Practice, p. 3-1 and 3-2	<p>Comment # 2 and 6, Appendix B: 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."</p> <p>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".</p> <p>In reference to section 3.1 of the EIS (p. 3-1 to 3-2), YNLR also notes that the Wheeler River Project falls within Nuhenéné and Athabasca Denesųliné 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 Denesųline communities and to Denison through increased sharing of knowledge.</p>	At first instance of 'Nuhenéné' Denison will recognize: 'Nuhenéné, the traditional territory of the Athabasca Denesųliné.'
423	YNLR (March 4, 2023)	Section 1.0 Project Introduction and Overview, p. 1-5 and 4-12	<p>Comment #3, Appendix B: There 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.</p> <p>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.</p> <p>Comment #13, Appendix B: 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.</p>	Thank you for the information.

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424	YNLR (March 4, 2023)	Section 1.0 Project Introduction and Overview, p. 1-4 and 1-7	<p>Comment #4 and 5, Appendix B: 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.</p> <p>It is important to note that the Hatchet Lake Denesųliné First Nation and the community of Wollaston Post are situated at Wollaston Lake and given their downstream location there is potential for negative impacts.</p>	<p>Potential effects from the Project on surface water quality were comprehensively assessed in Section 8.2 of the draft EIS. The assessment evaluated discharge of treated effluent from the site using predictive modeling. Water treatment will be conducted in the onsite Industrial WasteWater Treatment Plant (IWWTP) and treated effluent will be tested prior to release to Whitefish Lake. Treated effluent that does not meet the effluent discharge criteria in the provincial approval to operate or effluent criteria defined in the Metal and Diamond Mining Effluent Regulations will not be released to Whitefish Lake and will be recirculated to the process water pond for eventual re-treatment in the IWWTP. In the draft EIS, Section 8.2 the predictive modeling showed that constituent concentrations including radionuclides would be below water quality objectives for the protection of aquatic life (i.e., no effects would be expected) at the outlet of Whitefish Lake. The outlet of Whitefish Lake is well upstream of the inflow of Iceland River to Russell Lake. Since no effects on surface water quality are expected to occur in the lake closest to the Project, no effects would accrue in areas further downstream in the watershed, where contributing sub watersheds are many, many-times the size of the sub watersheds near the Project site. As such, there will be no effects on surface water quality in Wollaston Lake from the Project activities.</p>
425	YNLR (March 4, 2023)	Section 3.0 Value of IK in EA Practice, p. 3-5	<p>Comment #7, Appendix B: YNLR notes that while the wording for EIS Page 3-5, first paragraph, is an improvement from the May 2021 draft, it does not make clear that no Wheeler River site specific Athabasca Denesųliné knowledge or land use studies were undertaken and that the information presented is from a variety of other projects with differing objectives and study areas.</p> <p>The issue is better captured/described in the EIS on page 11-39.</p>	Acknowledged, updated language will be included in the EIS.
426	YNLR (March 4, 2023)	Section 3.0 Value of IK in EA Practice, p. 3-10	<p>Comment #8, Appendix B: YNLR notes that there appears to be grammatical errors for page 3-10, last paragraph of the EIS.</p> <p>YNLR requests edits to: "Ya'thi Néné Lands and Resources, the point of contact for and representative of the Athabasca Denesųliné communities of Black Lake, Fond du Lac, and Hatchet Lake Denesųliné First Nations, as well as the northern hamlets/settlements of Stony Rapids, Wollaston Lake, Uranium City, and <u>Camsell Portage, provided their report; An Exploration</u></p>	Acknowledged, edit will be made to the EIS.

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			<u>of Recorded Athabasca Denesųliné Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project</u> , that summarized traditional knowledge and land use and occupancy information collected for various other projects and initiatives and partially documented Athabasca Denesųliné use in the Project area, although it is not considered as a site-specific study."	
427	YNLR (March 4, 2023)	Section 3.0 Value of IK in EA Practice, various pages	<p>Comment #9, 10, 12, 15, 16, 17, 19 and 35, Appendix B: YNLR notes that as the Athabasca Denesųliné were not considered to be an Indigenous COI, the opportunities to contribute to our knowledge to this discussion were diminished or lost.</p> <p>Comment #19, Appendix B: The mis-categorization as the Athabasca Denesųline am 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, YNLR 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.</p> <p>Other related comments include:</p> <ul style="list-style-type: none"> • Comment #9, Appendix B: 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. How will Denison address this? • Comment #10, Appendix B: YNLR notes that the Athabasca Denesųliné communities should be considered an Indigenous COI per Denison's definition (EIS page 4-vii) as they are/have: <ul style="list-style-type: none"> ○ signatories of Treaty 10 and Athabasca Denesųline traditional territory is within the Project area (Hatchet Lake First Nation is a signatory to Treaty 10 as recognised on page 4-47 of the draft EIS) 	<p>Denison's approach to identifying Indigenous COIs considered several factors as identified in Section 4.3.1 of the EIS. Being signatories of Treaty 10 was among, but not the sole applicable criteria, and not all Treaty 10 communities are considered as Indigenous COIs for the Project. Through continued and focussed engagement with the YNLR since the YNLR identified its interest in the Project in 2019, Denison has come to better understand the Athabasca Denesųliné communities' relationship to the Project site and current use of the areas for traditional purposes. Denison acknowledges that the Hatchet Lake Denesųliné First Nation has the potential for established Indigenous and Treaty Rights proximal to the Project. The Hatchet Lake Denesųliné First Nation, as represented by the YNLR will be identified as an Indigenous COI in the updated EIS.</p> <p>With respect to Denison's consideration of Indigenous Knowledge shared by the Athabasca Denesųliné knowledge sources, Denison notes that Tables 3.5-1 will be updated to better reflect where the YNLR's An Exploration of Recorded Athabasca Denesųliné Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of the Denison Mines Wheeler River Project, which was included as an Appendix to the EIS, was considered and included as Table 3.5-1 does not reflect all instances the report was utilized. With respect to Table 3.5-2, only a limited number of data sources were considered and labelled as Local Knowledge - which is representative of information collected outside of a community-led IK process, key person interviews, or engagement events. As such, there may be limited examples in which knowledge shared constituted local knowledge, and may have been considered as either IK or engagement outcomes.</p>

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			<ul style="list-style-type: none"> ○ 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 • Comment #12 and 16, Appendix B: 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 and that ; that our communities are in proximity to the Project and have demonstrated traditional activity; • Comment #15, Appendix B: YNLR notes that the Athabasca Denesųline 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. • Comment #17, Appendix B: Given these EIS defined criteria, YNLR has difficulty understanding why the Athabasca Denesųliné 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 # 35, Appendix B: YNLR notes that the engagement database demonstrates that their opportunities to contribute were limited. For example, of the approximately 101 pages of Engagement Database 	

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			<p>tables that are dispersed through several sections of the appendices for the EIS (2022), there are 6 entries credited to the Athabasca Denesųliné. 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.</p> <p>[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	
428	YNLR (March 4, 2023)	Section 4.0 Engagement, p. 4-14, 4-61	Comment #20 and 22, Appendix B: 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.	Noted, EIS will be updated accordingly.
429	YNLR (March 4, 2023)	Section 4.0 Engagement, p. 4-61	Comment #23, Appendix B: YNLR notes that the EIS text on page 4-61 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.	Noted, EIS will be updated accordingly.
430	YNLR (March 4, 2023)	Section 4.0 Engagement, p. 4-65	<p>Comment #24, Appendix B: YNLR believes that the EIS section on page 4-65 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.</p> <p>YNLR does not agree that all our concerns have been addressed in the EIS.</p>	Denison understands the EIS involves an iterative process and Denison will continue to engage with YNLR at their direction.
431	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11-8	Comment #26, Appendix B: YNLR notes that the Athabasca Denesųliné had limited opportunity to contribute to VCs. One community virtual meeting was presented to the Athabasca Denesųline, while there appears to have been approximately 12 events for other First Nation communities (combined) including	In March 2019, Denison was notified by the YNLR that the Indigenous communities within the local Athabasca communities identified were interested in the Project and that YNLR held the Duty to Consult from these communities. Since receiving correspondence from the YNLR office in 2019 Denison has been collaboratively working with the YNLR office in a mutually

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			workshops, school presentations, meetings (in person and virtual) and open houses (draft EIS pp 4-16 to 4-86). While YNLR appreciate the opportunity to participate and recognize the impacts of Covid-19, the difference between Athabasca Denesųline participation and other groups is stark.	agreed upon manner and will continue to do so. Denison understands the EIS involves an iterative process and Denison will continue to engage with YNLR at their direction.
432	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11-14	Comment #27, Appendix B: YNLR notes that the Athabasca Denesųliné have demonstrated land use in both the local and regional land use as per our report (YNLR 2022). YNLR has reported 371 Athabasca Denesųline Traditional Land Use and Occupancy data entries within the Denison regional study area. These include 18 points for harvesting of big game, such as barrenground 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.	Thank you, noted.
433	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11-18, 11-40, 11-41, 11-94 and 11-95	Comment #28, 31 and 32, and 34 Appendix B: YNLR notes that Denison's understanding of the nature of the 2022 YNLR Report is incomplete. As YNLR noted many times, this report is an amalgamation of known information contained within YNLR's database. It comes from a variety of projects each with differing objectives and geographic scope. It is not a Wheeler River-specific Athabasca Denesųliné Knowledge, Land Use, and Occupancy (ADKLUO) Study. This, in our opinion, leads to misunderstandings and misrepresentations within the draft EIS. Additional clarifications are that our report is not a Wheeler River-specific TLU study, nor were any such specific works undertaken or commissioned. This is important because it sets the tone for comparisons with other Indigenous groups who have met with Denison far more frequently and conducted far more intensive and focused works. Additionally, the limited engagement with did not allow for a shared Athabasca Denesųline – Denison in- depth exploration of Athabasca Denesųliné experiences.	Section 11.1.2.4 of the EIS will be updated to reflect the fact that the YNLR's report is an amalgamation of known information from YNLR's database and was not collected explicitly for the purposes of the Project, and as such, should be interpreted by the reader with caution. Section 3.3 of the YNLR's report notes that the comments shared are not geo-located. Without having the locations disclosed, information may have been excluded from Section 11.0 as there was no way to confirm whether those activities overlapped with the spatial boundaries under consideration for potential effects to Indigenous Land and Resources Use.

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			<p>Using the YNLR Report requires an understanding that the amalgamated information comes from a variety of projects and was collected for a variety of purposes. For example, the report mentions woodland caribou values, tracks, and sightings within the EIS study area.</p> <p>This information comes from various caribou studies and our database records project.</p> <p>information. This information clearly demonstrates that Athabasca Denesųline members were in the EIS area, that harvesting or other values were not recorded is a function of the purpose of the woodland caribou study rather than an indication that Athabasca Denesųline do not utilize the area for other traditional purposes. Other such interpretations or misrepresentations exist within the report. Additional engagement with the Athabasca Denesųliné communities and YNLR could have ensured further clarification.</p> <p>Information from the 2022 YNLR 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 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 in 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?</p> <p>YNLR also 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.</p>	

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434	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11-37	Comment #29, Appendix B: 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.	Noted, the map included in Section 11.1.3.2.6 (Figure 11.1-5) will be updated to reflect the appropriate date.
435	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11-40	Comment #30, Appendix B: YNLR notes, as they did previously, that they 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 Denesųline communities utilize the areas in the vicinity of the Project.	Noted, Denison provided publicly available information on the Community Based Environmental Monitoring Program and the socio-economic baseline assessment for the Tazi Twé Hydroelectric Project EIS to provide context on recorded harvests in locations close to communities and distant from the Project. Section 11.1.3 further provides context from the YNLR 2022 report and their recorded land use in the vicinity of the Project.
436	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use, p. 11-40	Comment #31, Appendix B: YNLR notes that the citations on the EIS page 11-40 are listed as YNLR 2020 and should likely be 2022.	Noted, the EIS will be updated.
437	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use	Comment # 33, Appendix B: Pages 11-94 and 11-95 of the EIS uses the term historic. YNLR notes that the use of the term historic is prejudicial and incorrect. YNLR were assured by Denison that they had removed the term historic during earlier discussions.	Denison has verified that the term 'historic' is not included or referenced on pages 11-94 or 11-95 of the EIS.
438	YNLR (March 4, 2023)	Section 11.0 Land and Resource Use	Comment #36, Appendix B, 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 not report any trapping in N-14 (YNLR 2022)." 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"	Denison will revise the EIS to correct the typo.

To: Ya'Thi Néné Lands and Resource Office

From: Denison Mines Corp.

Date: November 22, 2023

Re: Wheeler River Project Environmental Impact Statement - Denison's Response to Woodland
Caribou Habitat Comments

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Attachments

Attachment A: Ya'Thi Néné Lands and Resource Office Comments Related to Woodland
Caribou Habitat

Attachment B: Pilot Program: Linear Feature Mitigation Interim Report – Status Update and
Preliminary Results

Attachment C: Conceptual Caribou Mitigation Plan

1 Summary of Ya'Thi Néné Lands and Resource Office (YNLR) Comments

Denison Mines Corp. (Denison) received consolidated comments from Indigenous Nations and Communities and the public on the draft Wheeler River Project (the Project) Environmental Impact Statement (EIS) from the Canadian Nuclear Safety Commission on June 27, 2023.

These comments are at: [available on the federal impact assessment registry \(https://iaac-aeic.gc.ca/050/documents/p80178/152187E.pdf\)](https://iaac-aeic.gc.ca/050/documents/p80178/152187E.pdf).

This technical memorandum (memo) is provided to supplement Denison's responses to YNLR's comments that can be found in the comment / disposition table. The memo addresses a number of comments that pertained to a similar theme – that is, woodland caribou habitat and questions regarding how the Project could add to the existing disturbances on the landscape, primary mineral exploration cutlines. Specifically, this memo considers YNLR comments numbers 53 to 68 and provides a more coherent, inclusive, and integrated response to facilitate review.

2 Existing Anthropogenic Disturbance: Considerations in the Terrestrial Environment Component of the Environmental Impact Assessment

2.1 Baseline Characterization

A two-step procedure was used to develop baseline mapping for the Local Study Area (LSA) and Regional Study Area (RSA) that including delineation of anthropogenic disturbance. First, the Environment and Climate Change Canada (ECCC) national level anthropogenic mapping was downloaded and clipped to the study area boundaries (ECCC 2015). Second, to improve the resolution and ensure appropriate characterization of disturbance, all visually discernible anthropogenic features in the area were digitized at a scale 1:5,000. To support this process and enhance the final product, a combination of 2018 project specific ortho-photography, Landsat Imagery (2018) and Map Info Microsoft Bing Imagery (2018) were used to visually identify/confirm anthropogenic features. Industrial clearings (polygons) were hand drawn based on the imagery. All linear features were digitized as lines and buffered to create polygons as per the widths detailed below:

- Cutline: 1.75 m
- Right-of-way (ROW): 2.5 m
- Trail: 4 m
- Rough Road: 5.5 m
- Road: 10 m
- Transmission ROW: 40 m
- McArthur-Key Haul Road/Highway 914: 40-60 m

The baseline efforts to characterize and map anthropogenic disturbance in the LSA and RSA were used to develop the ecosite mapping that was used in Section 9 of the EIS to support assessment of potential Project related effects on relevant Valued Components and Key

Indicators. Considering this approach, existing geophysical cutlines are included in baseline studies and results from baseline field surveys reflect wildlife species use of the area under existing conditions.

2.2 Exploration Activities

As noted in the YNLR review comment mineral exploration activities occur in the Athabasca Basin. Denison believes it is useful herein to clarify mineral exploration terminology within the context of its understanding of such activities in the region (in which it engages) and terminology used by YNLR.

For clarification seismic lines and cut lines are two very different items in terms of scale. A seismic survey is a geophysical survey type that is not typically used in the Athabasca Basin as part of exploration activities as it has had limited positive results. When used, it requires the development of relatively large and wide lines (~5 m; seismic lines) to accommodate the movement of seismic equipment that is mounted on a half-ton sized equipment. In Denison's experience, seismic survey applications are generally restricted to projects in an advanced state of development, as they are expensive to complete and do not provide good value at the early stage of the exploration cycle. In contrast, cut lines, which are generally no more than a 1 m wide, are the preferred methods to orientate a ground survey once airborne surveys have identified an area of exploration interest. These cut lines do not remove the roots of the trees and leave slash (tree branches, woody debris) behind to promote new vegetation growth. Cut lines can facilitate geophysical surveys such as magnetics, electromagnetic, gravity, and resistivity. More recently, technologies such as drones have been adapted to accommodate detailed magnetic and electromagnetic surveys which can be flown close to the ground surface without the need of cut lines. Other surveys such as resistivity still require a level of precision that rely on the use of cut lines to accommodate crews and equipment.

In order to conduct mineral exploration activities on Crown land within Saskatchewan, surface disturbance permits are required from the Ministry of Environment before any work can be started. The Mineral Exploration Guidelines for Saskatchewan provides information to assist in the planning, initiation, and completion of a mineral exploration program in a fashion that will help minimize environmental impacts and meet relevant legislative requirements. The Mineral Exploration Guidelines include a variety of best management practices including those related to access and forest clearing/harvesting operations.

For context and to relate this information back to Section 2.1 Baseline Characterization, the majority of the straight linear features digitized in the LSA and RSA as part of the baseline anthropogenic mapping were cutlines. These lines were buffered by 1.75 m to create polygons.

2.3 Appendix 9-B

Appendix 9-B of the draft EIS presents the baseline inventory for wildlife and vegetation which was completed by Omnia Biological Services (Omnia) from 2016 to 2019. The baseline report is meant to summarize the findings from targeted studies and field surveys. The objectives of the terrestrial baseline surveys were to:

- Characterize the existing terrestrial environment in the Project Area,
- Inform pre-feasibility engineering design work,
- Inform environmental effects and technical assessments,
- Establish a framework to facilitate future environmental effects monitoring, and
- Support the development of project specific mitigation strategies .

Accordingly, **the baseline report was not intended to provide an assessment of Project effects**. It is recognized that Appendix 9-B, Section 2.3 Linear Feature Natural Regeneration Assessment, is not aligned with the overall objectives of the baseline report and moreover, is not meant to be read in conjunction with, or contribute to, the effects assessment presented in the EIS.

In addition, there are incorrect statements contained in Appendix 9-B, Section 2.3 Linear Feature Natural Regeneration Assessment, which are a result of incorrect interpretation of methodological approach to consider caribou habitat disturbance. These statements were effectively outside the scope of the baseline scope and report objectives and in retrospect should not have been reported.

Here is one of the statements in Appendix 9-B, Section 2.3 Linear Feature Natural Regeneration Assessment which has caused confusion around existing disturbance on the landscape:

For SK1, in 2018, ECCC indicated that to ensure sustainable caribou populations total buffered anthropogenic disturbance should not exceed five percent and that total disturbance (natural + buffered anthropogenic) should not exceed 40 percent. Currently, under this scheme, the Denison project area is considered to be completely disturbed when taking into account buffered anthropogenic disturbance in the LSA and is 82% disturbed in the RSA. Linear disturbances, in the form of exploration lines, temporary exploration trails and all season and seasonal roads were most common.

Denison provides the following clarifications and corrections:

- The baseline information used an outdated recovery strategy. The Omnia baseline report was finalized in 2019 and the most recent recovery strategy available at that time and referenced in the report was from 2012 (EC 2012). The 2020 amended recovery strategy (ECCC 2020) replaces the 2012 Recovery Strategy (ECCC 2012).
- The anthropogenic mapping completed to support the draft EIS was done at a higher resolution/scale compared to ECCC's approach in the amended recovery strategy (ECCC 2020).

- As noted above, **anthropogenic mapping was done using digitization at the 1:5,000 scale** to support the EIS.
- ECCC (2020) mapped total disturbance levels on boreal caribou ranges across their distribution in Canada as a predictor of self-sustainability for boreal caribou local populations. The total disturbance footprint was measured as the combined effects of fire that has occurred in the past 40 years and **buffered (500 m) anthropogenic disturbance defined as any human-caused disturbance to the landscape that could be visually identified from Landsat imagery at a scale of 1:50,000.**
- Contrary to what was shown Section 2.3 of Appendix 9-B, applying a 500 m buffer to geophysical cut lines digitized at 1:5,000 scale is not consistent with the amended recovery strategy (ECCC 2020). **At the 1:50,000 using Landsat imagery, geophysical cutlines would not be visible.**
- Given the above, the information presented in the Omnia baseline report (Appendix 9-B, Section 2.3 Linear Feature Natural Regeneration Assessment) was erroneous in that it was beyond the scope and objective of the baseline program. In fact, this section of the baseline report reflects and is related to Denison's initiation of a proactive, multi-year research program to better understand how wildlife use linear features. We have attached an interim report from Omnia for YNLR's reference. Among other things the report includes information on wildlife landscape use and movement from trail camera data that indicates considerable use of and movement along linear features. This interim report and the linear feature deactivation work is also discussed in the conceptual woodland caribou mitigation plan. The baseline report should have focused on the results of surveys and existing information that describe the existing conditions in the project areas and should not have extended beyond this scope. The assessment of potential Project effects on the various terrestrial Valued Components (VCs) is included in the main part of Section 9 and as indicated Appendix 9-B, Section 2.3 Linear Feature Natural Regeneration Assessment, was not meant to be read in conjunction with, or contribute to, the effects assessment presented in the EIS.

Denison recognizes that a number of YNLR's comments reference Appendix 9-B and regrets the confusion it has caused during YNLR's review of the draft EIS. Denison will revise Appendix 9-B to remove the discussion on cumulative effects and buffered anthropogenic disturbances. We refer YNLR to the analysis and assessment completed by the environmental assessment (EA) technical leads and biologists at EDI Environmental Dynamics Inc., as presented in Section 9 of the draft EIS.

2.4 Assessment of Potential Effects on Woodland Caribou and their Habitat

All past anthropogenic disturbances (which includes cutlines to support mineral exploration) were considered in the various terrestrial environment assessment components. These human

disturbances were mapped and considered/addressed appropriately in Section 9 including the Existing Environment, Residual Effects Characterization, and Cumulative Effects Assessment sections, as they relate to Terrain, Soil and Organic Matter/Peat (Section 9.1); Vegetation and Ecosystems, Listed Plant Species and Wetlands (Section 9.2); Ungulates, Furbearers and Woodland Caribou (Section 9.3); Raptors, Migratory Breeding Birds, and Bird Species at Risk (Section 9.4). **The cutlines were classified as previously disturbed areas and considered as low-quality habitat or no habitat, depending on the species being assessed and their habitat requirements.**

An anthropogenic disturbance layer is included on draft EIS, Figure 9.2-6, which includes geophysical cutlines. Please note that anthropogenic disturbance features were mapped at IKONOS 1:5,000. This anthropogenic disturbance layer is not listed under available habitat types for any of the wildlife or avian VCs in subsequent assessments (e.g., Figures 9.3-9 to 9.3-14, Figures 9.4-8 to 9.4-11, Figures 9.4-13 to 9.4-15), except for Common Nighthawk (Figure 9.4-12) that is a species known to use anthropogenic features.

In terms of the woodland caribou population in SK1, the likelihood of self-sustainability for the Boreal Shield range (SK1) has been updated from “unknown” (EC 2012) to “likely” in the amended recovery strategy (ECCC 2020). The SK1 range comprises more than 18,000,000 ha and is characterized by high fire disturbance and low anthropogenic disturbance (ECCC 2020). For SK1, the amended recovery strategy (ECCC 2020) identifies 40% undisturbed habitat in the range as the disturbance management threshold, which provides a measurable probability (71%) for the local population to be self-sustaining. This threshold is considered a minimum threshold because at 40% undisturbed habitat there remains a risk (29%) that the SK1 local population cannot be self-sustaining. According to ECCC (2020) disturbed habitat is habitat showing: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). In contrast, according to ECCC (2020) undisturbed habitat is habitat not showing any: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). The cumulative effects assessment in the draft EIS showed that the Project is expected to add 0.001% of anthropogenic disturbance at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit (Section 9.3.7.3.3 of the EIS).

Specific to woodland caribou, the draft EIS evaluated and assessed potential Project-related effects on the boreal population of woodland caribou following standard environmental assessment (EA) methodology. The assessment of potential effects considered both direct (i.e., habitat loss) and indirect effects (i.e., habitat alteration) on caribou and their habitat, while assuming that caribou were present year-round and during all of their life stages (i.e., calving, rearing, mating, over wintering). In this way, the EIS took a precautionary or conservative approach to understanding/addressing the likely residual effects (i.e., effects remaining after mitigation measures were considered) of the Project on caribou and their habitat. This approach provides is appropriate as a planning tool to inform/support future Project-related

regulatory approvals processes and to guide the scope and nature of follow-up monitoring. After consideration of measures to avoid and mitigate the potential for effects on caribou and their habitat it was concluded that the likely residual effects of the Project on caribou and their habitat were **not significant**. While the EIS did not consider specific additional opportunities to offset the non-significant effects, Denison has been working to develop a Conceptual Caribou Mitigation Plan (see Section 5 below). The plan was submitted to the provincial and federal review teams as part of the response to federal information requirements in August 2023 as the Conceptual Caribou Mitigation Plan and Denison has been in close contact with the Saskatchewan Ministry of Environment (SK ENV), as stewards of woodland caribou from a regulatory perspective.

3 Spatial Scale for the Caribou Assessment

Several of YNLR comments were related to the spatial scale of the caribou assessment. This section presents an overview of the approach taken in the terrestrial assessment and specifically where the SK1 range was considered in the caribou assessment.

The rationale for the definition of study areas for the purpose of the assessment of the Terrestrial Environment valued components (VCs) is described in Section 9.1.1 of the draft EIS. The Project Area (169 ha or 1.69 km²) and LSA were delineated based on the expected extent of potential direct (footprint) and indirect (sensory disturbance) Project effects; whereas, the RSA considered an 8 km buffer around the Project Area to provide an appropriate spatial scale upon which potential Project effects could be evaluated at the landscape scale where key Terrestrial Environment VCs reside and move within and upon which cumulative effects could be assessed.

Boreal caribou occur as one continuous population across the SK1 range (18,034,870 ha), including within the Terrestrial RSA. After consideration, it was decided by Denison and its Subject Matter Experts at EDI Environmental Dynamics Inc. to use the Terrestrial RSA for the cumulative effects assessment for caribou rather than the entire SK1 range. This decision was made largely on the basis that it would not be feasible / appropriate to use a such large area like the SK1 range to assess cumulative effects since consideration of such a large spatial extent would likely "dilute" the contribution of the Project to potential effects at that scale. In support of this decision, comparison of the Project-specific habitat effects (i.e., the Project Area plus a 500 m buffer to account for sensory disturbance) relative to the scale of the SK1 range (as the applicable management unit for portion of the woodland caribou population that uses the Terrestrial RSA) was made. The comparison indicated that the Project is expected to add 0.001% of anthropogenic disturbance at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit (Section 9.3.7.3.3 of the EIS). As can be seen, the default conclusion at the range scale could only be that the Project does not contribute to cumulative effects at a practical measurable level.

In addition, it is appropriate to also consider the assessment of terrestrial environment from the perspective of Land and Resource Use per Section 11 of the draft EIS, since the two (Terrestrial Environment and Land Are Resource Use) are so intimately related. For context the Terrestrial Environment RSA, fits within the Indigenous Land and Resource Use RSA. Section 11 of the

EIS is focused on Land and Resource Use and includes consideration for various terrestrial VCs and key indicators (KIs) as resources. With respect to Indigenous Land and Resource Use, the definition of spatial boundaries is offered in Table 11.2-2, which notes that the LSA is inclusive of the area in which direct and indirect effects to relevant VCs could likely occur, and includes the maximum combined extent of supporting VCs associated with the aquatic, terrestrial, noise, and health LSAs. Additionally, it is inclusive of trapping, fishing, and travel through and adjacent to the Project Area. The RSA is inclusive of trapping block N-18, which represent a familiar reference for local Indigenous communities and capture the broad land usage patterns of local communities.

4 Cumulative Effects Assessment under the Canadian Environmental Assessment Act, 2012

The Wheeler River Project EIS is subject the *Canadian Environmental Assessment Act, 2012*. In this assessment framework, the Project-specific cumulative effects assessment (CEA) considers whether residual adverse effects of the Project on a given VC will overlap spatially and/or temporally with residual adverse effects on the VC resulting from other past, present, and reasonably foreseeable projects or activities. The CEA follows standard methodology as per provincial (e.g., Guidelines for an Environmental Assessment [Government of Saskatchewan 2022]) and federal guidance (e.g., Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012 [Government of Canada 2019]).

For residual effects to be considered in the CEA for the Project, the following criteria had to be met:

- potential exists for a residual adverse effect of the Project on a VC;
- the residual adverse effect can be demonstrated to act cumulatively with the residual adverse effects from other projects or activities on the same VC;
- other projects or activities must have been, or are expected to be, carried out in the reasonably foreseeable future; and,
- the cumulative effect is likely to occur.

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.

The steps of the CEA for each VC are:

1. Determine the spatial boundaries for the CEA, which is VC specific, and typically the RSA for the VC.
2. Determine the project inclusion list of all other past, present, and reasonably foreseeable projects and/or activities that are expected to have adverse residual effects that extend into the VC RSA.

3. Consider all Project-related residual effects that were identified during the effects assessment for each VC, regardless of significance.
4. Identify the potential for interaction (i.e., must overlap spatially and temporally) of the Project-related residual effects with those of other projects and activities identified in Step 2 above.
5. Identify and describe the cumulative effects, and if practical, identify technically and economically feasible mitigation measures (i.e., in addition to those already identified to mitigate potential Project effects) to avoid, reduce, or otherwise mitigate the predicted cumulative effects.
6. Qualitatively assess and evaluate (i.e., characterize) the cumulative effects with respect to the likely nature and degree of change from the existing (baseline) environment as a result of the Project's residual effects in combination with the residual effects of other relevant future projects and activities.
7. Determine the significance of the cumulative effect using characterization criteria as defined for the residual effects evaluation.

In the draft EIS, Denison included a number of project activities as existing/present and reasonably foreseeable. This includes historic anthropogenic disturbance associated with exploration activity, drilling, and access creation in support of past exploration and mining activities have occurred within the Athabasca Basin since the 1940s when uranium was first discovered in the region.

4.1 Woodland Caribou CEA

The CEA framework described above provides the framework upon which the CEA for woodland caribou was conducted. Residual effects resulting from the Project in combination with those from ongoing and reasonably foreseeable projects and activities that were identified (see draft EIS, Section 9.3.7.2) may act cumulatively to potentially affect woodland caribou in the Terrestrial RSA. The key endpoints through which the CEA was considered included the alteration and/or loss of habitat and change in mortality. For reference, for alteration and/or loss of habitat the draft EIS considers existing habitat disturbances due to past and ongoing anthropogenic development, which includes old exploration trails and disturbances associated with line cutting, drilling, and access development.

The woodland caribou population in the region is reported to be stable and their anthropogenic habitat disturbance is currently estimated at 1.5% in the Terrestrial RSA, which is below the 5% threshold of anthropogenic disturbance recommended as a requirement to sustain viable populations (ECCC 2019). The Project will add another 0.4% of anthropogenic disturbance (considering the Project Area of 169.6 ha) adding up to 1.9% of anthropogenic disturbance in the Terrestrial RSA. 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**.

4.2 How Indigenous Perspectives Influenced the Cumulative Effects Assessment

Cumulative effects assessment is important to Indigenous communities in general because incremental changes to the environment can weaken resource economies, affect important resources such as plants, fish, and wildlife, affect rights-based and cultural activities, and affect both the health of wildlife and humans (Indigenous Centre for Cumulative Effects 2021). Indigenous perspectives can be complementary to the CEA for the Project, and Denison acknowledges the important relationship of the Indigenous Communities of Interest to the lands and waters. The Indigenous Communities of Interest of English River First Nation (ERFN) and the Kineepik Métis Local #9 at Pinehouse (KML) have shared their Indigenous Knowledge on past, present, and predicted cumulative effects through the following sources:

- Wheeler River Project – Summary of Health and Socio-Economic Study Results (ERFN and SVS 2022a);
- Wheeler River Project - Summary of Traditional Knowledge Study Results (ERFN and SVS 2022b);
- Kineepik Valued Ecosystem Components – KML Pre-statement for Denison EIS (KML and NVP 2022); and
- Response to the Environment Impact Assessment For the proposed Ministry of Highways 914 Extension Project (KML and Limnos Environmental 2022).

These perspectives on cumulative effects have been summarized in Section 3.4.8 of draft EIS. Denison and the Communities of Interest agreed on the high value of this contribution being part of the EIS.

Denison recognizes that Indigenous Knowledge systems offer an alternative source of knowledge, often complementary to western science (Eckert et al. 2020). The CEA for the Project followed standard methodology as per provincial (Government of Saskatchewan 2022) and federal guidance (Government of Canada 2019). Among the sources of information to consider, the federal guidance notes the importance of “Aboriginal traditional knowledge, community knowledge and scientific knowledge, or simply an expression of concern regarding potential cumulative effects to a particular VC” (Government of Canada 2019). All sources of information were considered by discipline leads as described in the respective draft EIS sections and in Section 4, Engagement. The CEA for all VCs completed for the Project incorporated, as appropriate, the characterization of activities/events that have shaped the existing environment and continue to influence the VCs used for the EIS.

5 Conceptual Caribou Mitigation Plan

Following submission of the draft EIS in October 2022, Denison has met with Saskatchewan Ministry of Environment (SK ENV) staff to develop a framework for future woodland caribou offset. This information has been presented to the provincial and federal review teams as part of the response to federal information requirements in August 2023 as the Conceptual Caribou Mitigation Plan (**Error! Reference source not found.**).

The Conceptual Caribou Mitigation Plan (the Plan), developed proactively by Denison, has a different objective than the draft EIS. The Plan builds on the assessment of potential Project effects and commitments to consider additional mitigation (offset) to account for non-significant residual effects highlighted in the draft EIS. The Plan is expected to be advanced with ongoing consultation with the SK ENV, as SK ENV finalize the caribou range plan for SK1. The EIS is a conservative planning tool, whereas the Plan is a practical, living document designed to define management works associated with caribou. The Plan is not a requirement for EA determination *per se*, but is provided as a guidance document to help Denison proactively describe and inform the development and implementation of appropriate mitigation measures related to caribou and their habitat.

The Plan is an evergreen document. It will be consistent with the management goals of SK ENV for the SK-1 caribou conservation unit and will be developed/refined in consultation with local communities including English River First Nation and Kineepik Métis Local in Pinehouse and regulators. As noted above, the boreal caribou range plan for SK-1 is under development and it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with the province to meet the management objectives and management strategies for the SK1 range.

Denison is continuing to work with SK ENV to estimate habitat offset scenarios based on the current Project design which will be refined as the Project advances. A boreal caribou habitat offset calculator is under development by SK ENV and Denison is collaborating with SK ENV to define key scenario attributes. SK ENV will engage with Indigenous communities and nations as the province develops and refines the range management plan for SK1.

6 Closing

Denison is confident in the methodology used in the terrestrial assessments and the assumptions used to conduct the woodland caribou assessment were conservative and the assessment followed a precautionary approach. The CEA was conducted in a manner consistent with the requirements of CEAA 2012 and related guidance documents for a Project-specific CEA and appropriately assessed potential cumulative effects for woodland caribou at the RSA and range (SK1) scales. The EIS concluded that the Project could be implemented in consideration of proposed mitigations whereby **both Project-related and cumulative residual effects would be not significant.**

7 References

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Kineepik Métis Local (KML) and Northern Village of Pinehouse Lake (NVP). 2022. Response to the Environment Impact Assessment. For the Proposed Ministry of Highways 914 Extension Project. Submitted February 11, 2022.



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Attachment A: Ya'Thi Néné Lands and Resource Office Comments Related to Woodland Caribou Habitat

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
401.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Fig 9. 2-6, p. 9-83	Terrestrial Environment	Comment #53, Appendix A: YNLR is concerned about the potential residual and cumulative effects of the extensive seismic network on the soils of the RSA and LSA. Were these and other potential network effects considered in the analyses?
402.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Appendix 9B, p. 60 Also, p. 9-68, Fig 9. 2-9, 9-133, 9-139 and 9-149	Terrestrial Environment	Comment #54 and 55, Appendix A: Appendix 9B of the EIS 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 and highlighted concerns about the broad network of linear disruptions in numerous places across the EIS. 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, particularly from edge effects. Were these and other possible effects of the network considered? If so, how were they included?
403.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9- 168	Terrestrial Environment	Comment #56, Appendix A: 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.

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
404.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Fig 9. 2-9	Terrestrial Environment	Comment #57, Appendix A: Was the current RSA anthropogenic disturbance estimate (599 ha) inclusive of the many kilometres of existing seismic cut lines? 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.
405.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9- 239	Terrestrial Environment	Comment #58, Appendix A: 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.
406.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, 9. P- 239	Terrestrial Environment	Comment #59, Appendix A: Buffered disturbance is included in Appendix 9B but appears to have been ignored in the effects assessment. 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?
407.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment Table 9.3-23 and p. 9-270	Terrestrial Environment	Comment #60, Appendix A: Is the amount of initial 'available woodland caribou habitat' 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.
408.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment, p. 9- 275, 9-280, 9-300, Section 11.0 Land and Resource Use,	Terrestrial Environment Land and Resource Use	Comment #61, 62, 82, 83, Appendix A: 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. YNLR questions the optimistic conclusions drawn by Denison regarding the ongoing availability of woodland caribou for traditional use. · The buffered direct habitat loss alone eliminates the LSA and RSA

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
		p. 11- 46 and 11-		<p>for caribou habitation for decades to come (Appendix 9B), so how can it 'sustain the regional woodland caribou population' in any way?</p> <ul style="list-style-type: none"> · 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. <p>YNLR disagrees with this overall residual effects conclusion for these wildlife VCs, especially in regard to woodland caribou (Appendix 9B), for the following reasons:</p> <p>(i) Comment #64, Appendix A: 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.</p> <p>(ii) Comment #83, Appendix A: 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. A woodland caribou 'management' plan is not sufficient. YNLR believes that, at a minimum, Denison should commit to an aggressive caribou habitat offset plan before work on the Project begins. 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. 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.</p>
409.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment,	Terrestrial Environment	<p>Comment #62, 63, 64, 66, 67 and 68, Appendix A: 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</p>

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
		p. 9- 280, 9-287 and 9-302		<p>type supports this observation.</p> <p>YNLR disagrees with this overall residual effects conclusion for these wildlife VCs, especially in regard to woodland caribou (Appendix 9B), for the following reasons:</p> <ul style="list-style-type: none"> · Comment # 63 and 64, Appendix A: The extent of past seismic line cutting is very high for both the LSA and RSA. However, 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. · Comment #67, Appendix A: Most of these mitigation measures (listed on p. 9-308) 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. <p>Comment #69, Appendix A: Concern about the extensive network of seismic cut lines were also raised by Indigenous People at several places in the EIS.</p>
410.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment	Terrestrial Environment	<p>Comment #65, Appendix A: Is it not possible to conduct modern mineral exploration without cutting miles and miles of seismic lines across the boreal forest?</p>

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
411.	YNLR (March 4, 2023)	Section 9.0 Terrestrial Environment	Terrestrial Environment	<p>Comment #68, Appendix A: Section 9.3.9 of the draft EIS indicates that 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:</p> <ul style="list-style-type: none"> · 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. <p>YNLR believes this summary to be overly optimistic and somewhat inaccurate for the following reasons:</p> <ul style="list-style-type: none"> · 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

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
				<p>species. The EIS maps themselves clearly show an avoidance of these seismically-disturbed areas by woodland caribou.</p> <p>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.</p>

Number	Source	Reference to EIS1, appendix, or TSD	Reference to EIS Section	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)
419	YNLR (March 4, 2023)	Appendix 16-A Summary of Cumulative Effects	Appendix 16-A Summary of Cumulative Effects	<p>Comment #91, Appendix A: 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.</p> <p>As with the summary of the residual effects, <u>the cumulative effects of the Project on all of these VCs/Kis are concluded to be non-significant in the EIS.</u></p> <p>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.'</p>



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Attachment B: Pilot Program: Linear Feature Mitigation Interim Report – Status Update and Preliminary Results



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Attachment C: Conceptual Caribou Mitigation Plan

**Denison Mines Corporation
Wheeler River Project**

**Pilot Program: Linear Feature Mitigation
Interim Report- Status Update and Preliminary Results**

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Denison Wheeler River Project.

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1 INTRODUCTION

Federal and provincial planning documents and woodland caribou (*Rangifer tarandus caribou*) population assessments have indicated that much of the Saskatchewan woodland caribou population is at risk from landscape-level disturbance. There exist no guidelines for evaluating reclamation requirements or outlining what the criteria for reclamation are. Omnia Ecological Services (Omnia) has been engaged by Denison Mines Corporation (Denison) to continue to support the project application (e.g., assessment of impacts and regional mapping/inventory) with respect to reclamation/offset planning to assist with developing potential woodland habitat reclamation selection and criteria protocol through the use of cost effective and practical functional habitat restoration/mitigation options. If successful, these mitigation techniques could be deployed at a larger scale within the SK Boreal Shield and may assist government in developing mitigation/reclamation criteria.

A pilot project of potential mitigation options to disrupt predator-prey movement patterns on linear features by creating a physical, visual, and/or line-of sight barriers has been deployed at 12 sites within the Wheeler River study area ([Figure 1](#)). Detailed background information and full details of site-specific treatments, including preliminary planning and consultation, can be accessed in Omnia (2022). Also included in that report are preliminary findings from the first five months of monitoring.

The objectives of this interim report are to outline preliminary results gathered from monitoring data thus far (year 1) and outline program follow-up requirements and recommendations for future consideration.

2 MONITORING

A site visit was completed in May 2022 as part of the planned bi-annual inspection/data collection with the following objectives:














- Revisit and check the status of all 12 treatment sites.
- Make any repairs or modifications as required.
- Remove and replace covert camera memory cards to collect wildlife use data collected since deployment.
- Replace covert camera batteries to support ongoing monitoring.
- Measure height and assess health status of planted Jack pine seedlings.

2.1 Methods

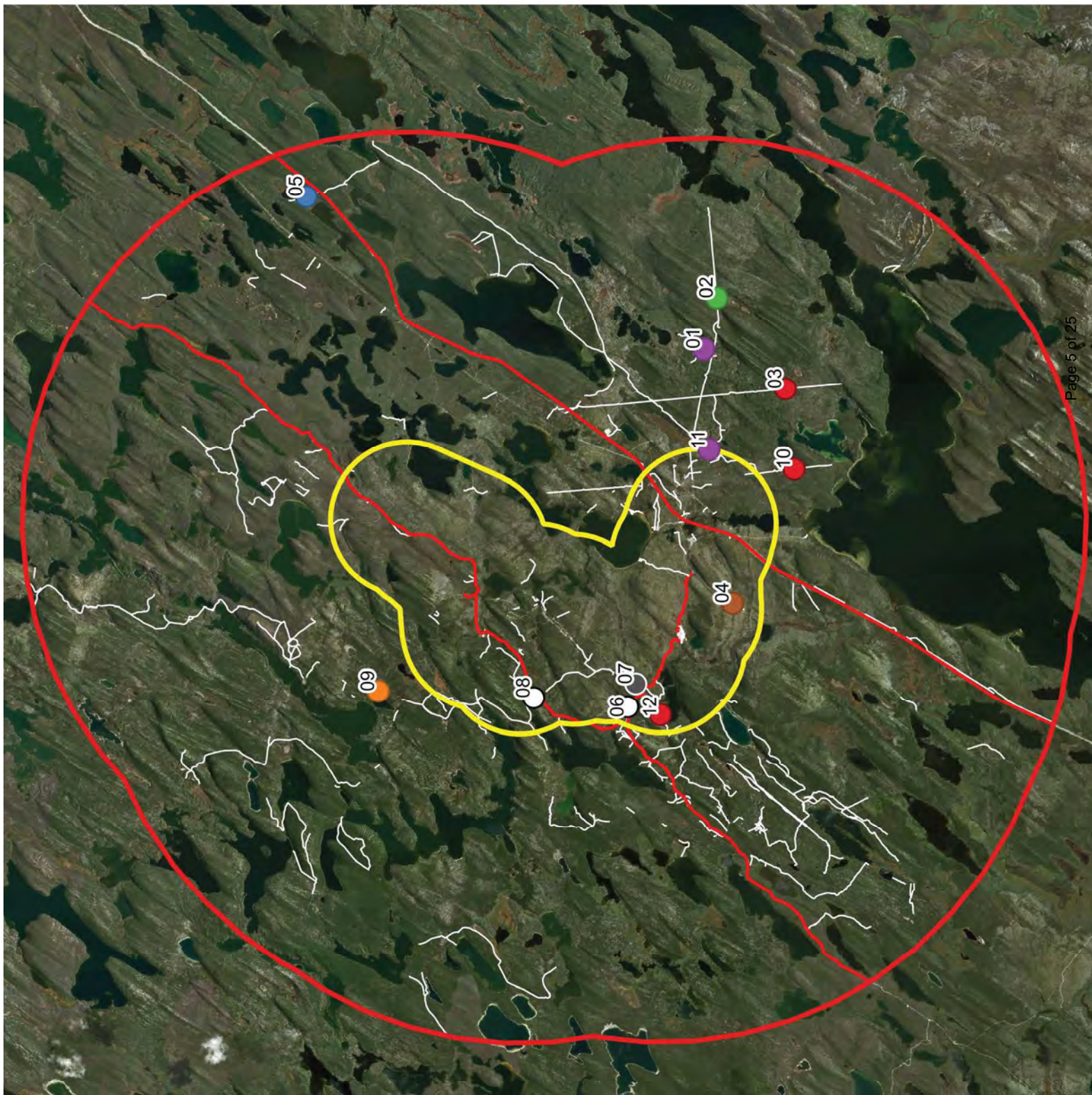
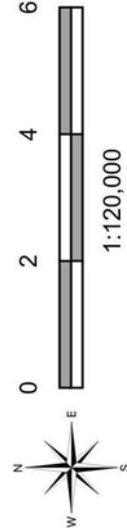
The linear feature mitigation sites were visited from May 24-25, 2022. Photographs were taken at each site and notes were taken on overall conditions of the installation, durability, effect of snow cover/melt, issues encountered, and modifications or repairs conducted. Any signs of wildlife use in the area were also noted (i.e., tracks, pellets). Covert camera cards were replaced and camera setups were adjusted where required to prevent unnecessary false trigger events (such as from burlap flapping in the wind). All camera batteries were replaced. Camera photographs were retrieved and analyzed for wildlife use along the 12 treated linear features (LFs) and six reference/untreated parallel linear features.

Figure 1. Installed mitigation features for the Denison River Project
 linear feature reclamation and mitigation treatment plan

Legend

- | | | | |
|---|---------------------------|---|------------|
|  | Local Study Area (LSA) |  | Road |
|  | Regional Study Area (RSA) |  | Rough Road |
| | Treatment Type |  | Trail |
-
- | | |
|---|---|
|  | Burlap fence |
|  | Coarse Woody Debris + Planting |
|  | Coarse Woody Debris + Planting + Burlap Fence |
|  | Tree Tip / Wood Structure |
|  | Tree Tip / Wood Structure + Planting |
|  | Tree Tip / Wood Structure + Planting + Burlap Fence |
|  | Trench Pile + Planting |
|  | Trench Pile + Planting + Burlap Fence |

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For treated and untreated LFs, each wildlife trigger event was characterized as a “use” event if the animal appeared to be travelling on the line and/or displaying non-avoidance behavior, such as approaching/interacting with the burlap or other treatment features. Behavior such as crossing the LF, traveling in the adjacent forest, or paralleling the LF was characterized as “non-use” of the LF. Cameras were programmed to take five photographs per trigger event, often allowing for movement trajectory to be determined. However, if field of view was limited, body language and movement cues of the animals were used to best determine appropriate categorization, such as angle of head/body, no assumption of sharp turns, etc. Photograph analysis findings were compared to results gathered from multi-year baseline linear feature camera monitoring across the project area, and between treated and reference sites. Effects of treatments on wildlife use of LFs was then analyzed across all species of interest and between individual species types.

Each seedling that was planted when treatments were installed in July 2021 was measured for height, and a relative health score was assigned to each seedling: 1=healthy, 2=average, 3=poor 4=dead/missing. Evidence of browsing events by wildlife were also recorded.

2.2 Results

2.2.1 Treatment Visits

[Table 1](#) summarizes the overall status of the treatment types, wildlife sign observations and modifications completed. Coarse woody debris (CWD) treatments maintained reasonable coverage and withstood snow pack/snowmelt ([Photograph 1](#)). Tree hinging/structures treatments were holding up very well and only a few structures/tree hinges had fallen over and needed reinforcing ([Photograph 2](#)). Needles on the trees that were hinged were yellowing but remained intact ([Photograph 3](#)). Trench and pile treatments were holding up very well and didn't appear compressed following the winter snow ([Photographs 4](#)). Burlap installations, both on their own and when combined with other treatment types, required minimal repairs ([Photograph 5](#)).

Repairs consisted of:

- Replacement of ripped/ deteriorating burlap panels
- Replacing wooden lath ripped off by a bear (Site 10, [Photograph 6](#))
- Adding screws and staples to reinforce, where required

2.2.2 Wildlife Photograph Analysis

Overall

Photographs were analyzed from 18 different cameras totaling 4,861 camera days. One hundred-ninety-four (194) detections were recorded of 13 different species, averaging four detections per 100 cameras nights. The most commonly detected species from all cameras, treatment and reference, was snowshoe hare with 56 detections, followed by woodland caribou with 44 detections, and black bear with 25 detections ([Table 2](#)). [Table 2](#) summarizes the detections rates of species of interest (caribou, moose, black bear, wolf) by treatment type / reference linear feature. Detection rates of species of interest and human (ATV) use were compared with baseline covert camera results from multi-year linear feature monitoring conducted in the Denison Wheeler

River study area ([Table 2a](#)). Results were separated into desired non-use and use of linear feature type (treated versus untreated monitoring/reference trails). The results for trails (approximately 5m wide) were included for direct comparison and data from hand-cut lines and roads were excluded. A similar comparison was completed for treatments where no burlap was present, either on its own or in combination with other blocking techniques ([Table 2b](#)). This was to assess for trends without the potential wildlife attractant effects of the burlap. When treatments including burlap were included in the analysis, detection rates of all species of interest on treated lines are less than those of multi-year linear feature monitoring in the area. Bear use of treated lines was reduced with 61% compared with untreated lines, moose use was reduced with a 92%, and caribou use was reduced with 94% ([Table 2a](#)). No wolves were detected using treated lines. Overall use of treated lines by species of interest was reduced by approximately 85% when compared to monitoring rates. When installations including burlap are excluded from analysis, the reduction in detection rates along the treated sites are even more pronounced. No bears or wolves were observed using treated lines, while only a single caribou and moose were detected using treated lines.

Treatment Sites

[Figures 2 and 3](#) highlight the relative effectiveness of the individual treatment types on wildlife species of interest detections and their use of the treated linear features. Non-use of the treated line by wildlife via travel in the adjacent forest, crossing, or paralleling the line was the desired effect and was therefore rated as positive. Use of a treated LF via traveling down the line/interacting with the treatment features was an undesired effect and was therefore rated as negative.

[Figure 2](#) shows the results of the treatments for all species of interest combined. CWD treatment sites had the most wildlife detections (20) of three species, (bear, caribou and moose) and all interactions were positive (non-use of the line). Tree hinging/structures had ten detections of bear and caribou, 92% of these interactions were rated as positive. Trench and pile treatments had three moose detections; two thirds positive. Trench and pile + burlap had a split response between bears (all use) and moose (all non-use). CWD + burlap and burlap only had all negative interactions.

[Figure 3](#) shows the results of the treatments for each species of interest. Caribou showed positive interactions (avoidance) with CWD and tree hinging/structures (100% and 83% of detections, respectively) and a negative interaction with burlap (100% of detections). Moose response to CWD and trench and pile + burlap was 100% positive, and was two-thirds positively associated with trench and pile. Black bears responded positively to CWD and tree hinging/structures, and negatively to CWD + burlap, trench and pile + burlap, and burlap only. Wolf responded negatively to burlap.

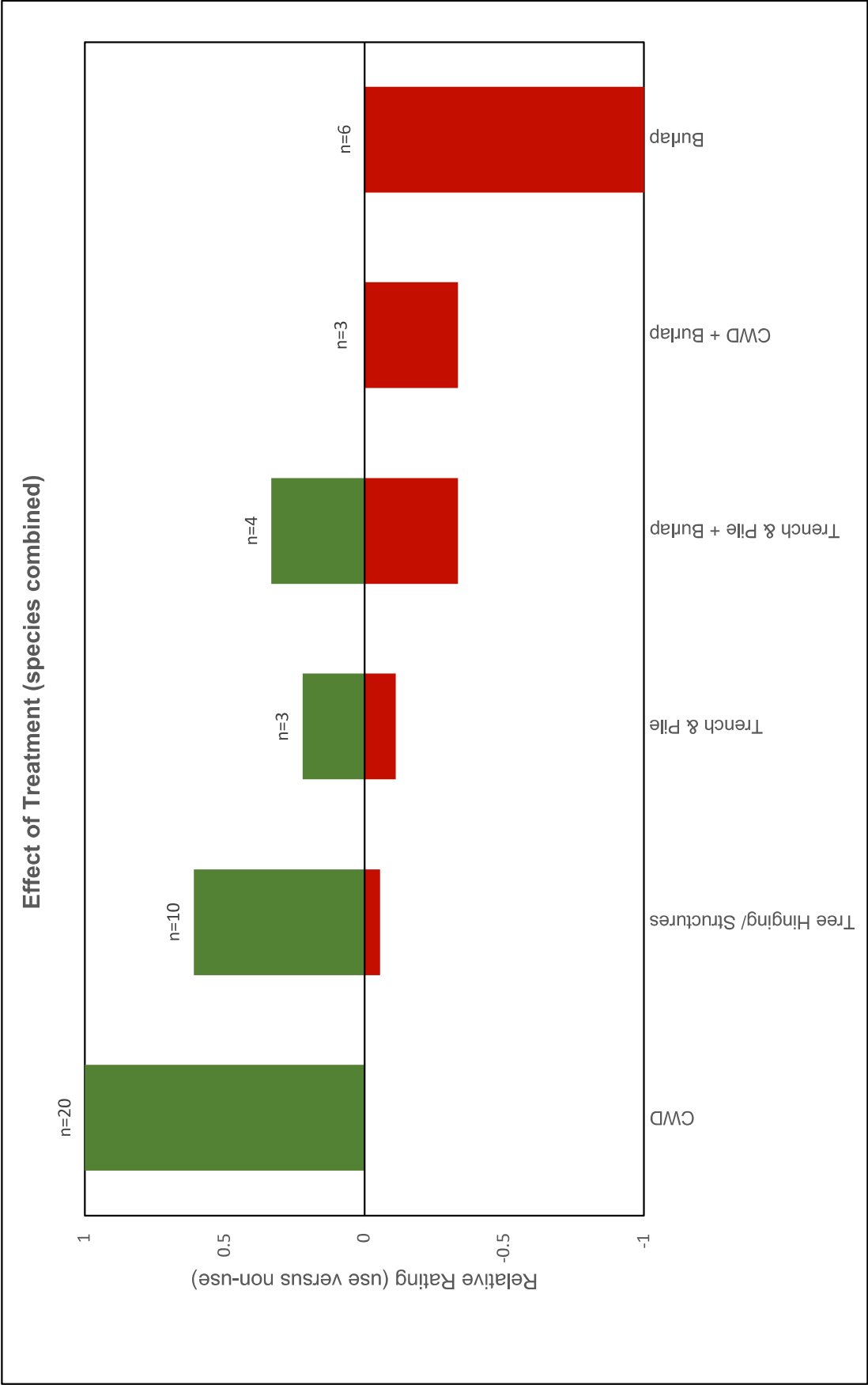


Figure 2. Wildlife detections by treatment type, all species combined (caribou, moose, black bear and wolf). Green/positive indicates desired avoidance of the treated LF; red/negative indicates undesired use of treated LF.

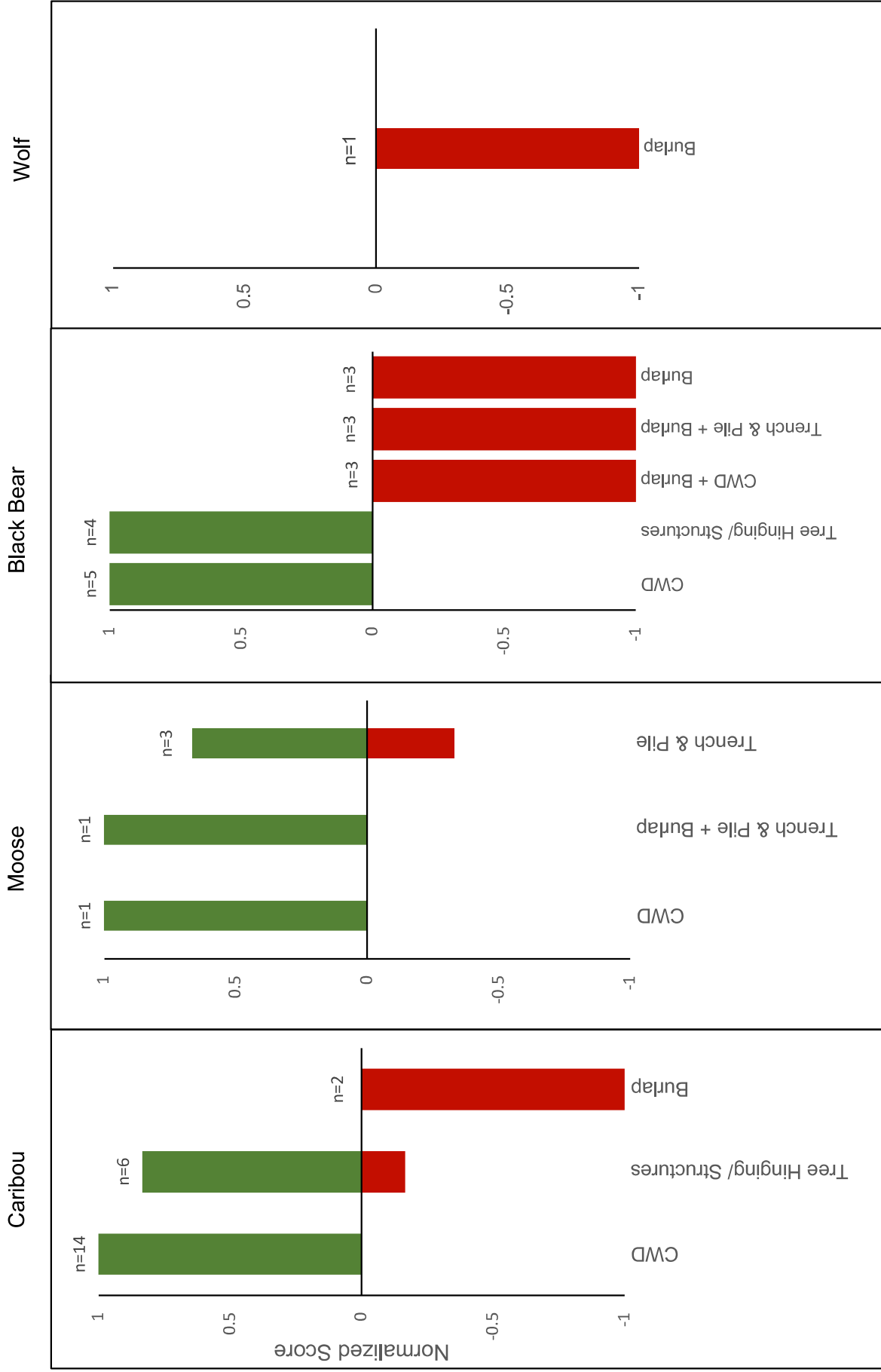


Figure 3. Caribou, moose, black bear and wolf detections by treatment type. Green/positive indicates desired avoidance of the treated LF; red/negative indicates undesired use of treated LF.

2.2.3 Seedling Health Assessment

A total of 476 seedlings were counted and measured, out of the initial 500 planted. Seedling height averaged 15cm (range 12-18cm) when planted and average height when measured in May 2022 was 18.8 cm ([Table 4.](#)). Average health status was 1.8. [Photograph 7](#) illustrates representative examples of each health status, ranging from 1-4, healthy, average, poor, and dead, respectively. Mortality/loss averaged 4.8%.

3 SUMMARY PRELIMINARY CONCLUSIONS – Year 1

- Detection rates of all species of interest on treated lines (including burlap) are less than those of multi-year linear feature monitoring in the area (bears 61% reduction, moose 92% reduction and caribou 94% reduction; no wolves). When burlap is removed from analysis, the frequency of detection on treated lines is further reduced (no bears or wolves; only 1 caribou and 1 moose)
- CWD, tree hinging/structures, and trench & pile treatments elicited all/mostly positive avoidance responses from species of interest.
- Burlap, when used alone or in combination with other treatments, elicited the most negative responses from species of interest. Although preliminary, early results indicate that burlap may act as an unwanted attractant for curious wildlife or is not perceived as a barrier to species movement ([Photograph 8](#)).
- Burlap remains the most labor-intensive treatment in terms of maintenance and repairs required.
- Overall planted seedling health was strong and growth progression is promising.

4 NEXT STEPS

- Continuation of multi-annual site visits to monitor the status of treatment types, make repairs or adjustments as necessary.
- Continuation of multi-annual inspection/service and data collection of covert cameras and analysis of covert camera photographs.
- Assess potential impacts of a 2022 forest fire on several treatment locations/cameras and determine suitability for continued monitoring and/or redeployment.
- Analysis of potential snow depth/weather effects on wildlife activity over time are anticipated as more winter data is collected.
- Evaluate seedling status once again in 2023 to ensure status.
- Verify tree-hinge/structure counts to ensure replicability at other sites.
- Quantify coarse woody debris (CWD) stem counts and volume estimates to ensure replicability at other sites.
- Monitoring is ongoing and an increased monitoring period, and associated sample size, will facilitate further analysis, including potential use of statistics.

TABLES

Table 1. Summary of treatment status, observations, and modifications.

Treatment	# Linear Features	Overall	Wildlife Sign	Modifications
CWD	2	Holding up well after snow melt, minor compression	Faint caribou tracks at start of treatment, appear to deflect away from treatment; other caribou tracks on edge	none
CWD + Burlap	1	CWD holding up well, burlap corners lifted	none	reinforced burlap
Tree Hinging/ Structures	3	In great shape; needles on tree hinges yellowing but intact	none	Lifted/ reinforced a few structures/hinges that had fallen
Trench & Pile	2	Holding up very well, no compression	moose tracks avoid treatment and stay on parallel trail	none
Trench & Pile + Burlap	1	Trenches in good shape, burlap had a few holes	none	replaced 2 burlap panels
Burlap	3	Repairs made in December 2021 held up well, minor repairs needed	none	reinforced stakes pulled off by a bear, added more screws/ fixed burlap holes where needed

Table 2. Wildlife detection results by treatment type/ reference.

Treatment	# Linear Features	Camera Days	Detections/ 100 Camera Nights												ATV	Comments
			Bear			Caribou			Wolf			Moose				
			Non-Use	Use	Total	Non-Use	Use	Total	Non-Use	Use	Total	Non-Use	Use	Total		
CWD	2	613	0.82	0	0.82	2.28	0	2.28	0	0	0	0.16	0	0.16	0	-
CWD + Burlap	1	306	0	0.98	2.27	0	0	0	0	0	0	0	0	0	0	-
Tree Hinging/ Structures	3	745	0.54	0	0.54	0.67	0.13	0.81	0	0	0	0	0	0	0	-
Trench & Pile	2	610	0	0	0	0	0	0	0	0	0	0.33	0.16	0.49	0	-
Trench & Pile + Burlap	1	305	0	0.98	0.98	0	0	0	0	0	0	0.33	0	0.33	0	-
Burlap	3	622	0	0.48	0.48	0	0.32	0.32	0	0.16	0.16	0	0	0	0	-
TOTAL Treatments	12	3201	0.28	0.28	0.56	0.59	0.09	0.69	0	0.03	0.03	0.12	0.03	0.16	0	ROC 97
TOTAL Reference	6	1660	0.24	0.18	0.42	0.60	0.72	1.33	0	0.18	0.18	0	0.12	0.12	1.02	removed Site 6 reference camera Dec2021

Table 3a. Comparison of caribou mitigation trial covert camera wildlife detections with baseline linear feature wildlife use inventory results.

Denison Program	Associated Feature	Total Camera Days	Bear		Caribou		Wolf		Moose		Species of Interest (bear, caribou wolf, moose)		All Animals*		ATV	
			Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days
Caribou Mitigation Trial	Treatment- Non-Use	3201	9	0.28	19	0.59	1	0.03	4	0.12	33	1.03	89	2.78	0	0.00
	Treatment- Use		9	0.28	3	0.09	0	0.00	1	0.03	13	0.41	39	1.22	0	0.00
Covert Camera Monitoring 2019-2021 + Reference Cameras	Trail- Use	6115	44	0.72	95	1.55	18	0.29	22	0.36	179	2.93	509	8.32	122	2.00

*includes mesocarnivores, small mammals, hares, birds, etc

ROC 971

Table 3b. Comparison of caribou mitigation trial covert camera wildlife detections with linear feature monitoring results, all burlap installations excluded.

Denison Program	Associated Feature	Total Camera Days	Bear		Caribou		Wolf		Moose		Species of Interest (bear, caribou wolf, moose)		All Animals*		ATV	
			Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days	Total	/100 cam days
Caribou Mitigation Trial	Treatment- Non-Use	1837	9	0.49	19	1.03	1	0.05	3	0.22	32	1.74	83	4.52	0	0.00
	Treatment- Use		0	0.00	1	0.05	0	0.00	1	0.05	2	0.11	19	1.03	0	0.00
Covert Camera Monitoring 2019-2021 + Reference Cameras	Trail- Use	6115	44	0.72	95	1.55	18	0.29	22	0.36	179	2.93	509	8.32	122	2.00

*includes mesocarnivores, small mammals, hares, birds, etc.

Table 4. Seedling health assessment results.

Plot ID	Treatment	# Planted July 2021	# Seedlings May 2022	Average Height (cm)	Average Status ^a	% browsed	% Missing / Dead	Comments
1	CWD	65	61	19.9	1.5	36.1	6.2	
2	Tree Hinging/Structures	70	67	12.3	2.4	97.0	4.3	
4	CWD + Burlap	65	62	17.9	1.9	14.5	4.6	
6	Trench & Pile	60	57	22.2	1.54	33.3	5.0	
7	Trench & Pile + Burlap	60	60	21	1.2	1.7	0.0	ROC 971
8	Trench & Pile	60	59	22.3	1.3	32.2	1.7	
9	Tree Hinging/Structures	60	53	12.7	2.2	88.7	11.7	lost ~5 due to burlap log being cut down and landing on seedlings
11	CWD	60	57	21.8	2	75.4	5.0	
Total / Average		500	476	18.8	1.8	47.4	4.8	

a: 1= healthy, 2=average, 3=poor, 4=dead

REFERENCES

Omnia Ecological Services. 2022. Linear Feature Mitigation Trial. Project Update Report. Prepared for Denison Mines Corporation. 58pp.

FIELD PROGRAM PHOTOGRAPHS



Photograph 1. Status of CWD treatment May 2022.



Photograph 2. Status of tree hinge/structures treatment May 2022.



Photograph 3. May 2022 status of needles on tree that was hinged.



Photograph 4. Status of trench & pile treatment May 2022.



Photograph 5. Burlap repairs May 2022, before and after.



Photograph 6. Wooden lath removed by bear.



Photograph 7. Seedling health assessment examples 1-4, left to right, respectively.



Photograph 8. Burlap challenges with wildlife.



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Denison Mines Corp.

Conceptual Caribou Mitigation Plan

Version 1

June 2023

Revision History

Version	Date	Description of Revision
1	June 30, 2023	Conceptual plan to support provincial and federal review of the draft environmental impact statement

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Acronyms and Abbreviations

Term	Definition
Anthropogenic	Caused or produced by humans
BSCs	biological soil crusts
Boreal Caribou	The boreal ecotype of woodland caribou occurs within the boreal forest of Canada. These non-migratory caribou form small aggregations throughout the year and disperse for solitary calving.
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	A committee made up of experts from academic, government and non-government organizations that assess the conservation status of wildlife species that may be at risk of extinction in Canada.
Critical Habitat	The habitat that is necessary for the survival of a listed wildlife species and is identified as the species critical habitat in the recovery strategy or action plans for the species.
DERT Project	Developing Eco-Restoration Together Project
Disturbed habitat (per ECCC 2020)	Habitat showing: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer).
ECCC	Environment and Climate Change Canada
EA	environmental assessment
EIS	environmental impact statement
EMS	environmental management system
ENV	Saskatchewan Ministry of Environment
ha	hectare
Local Populations (ECCC 2020)	Group of boreal caribou occupying a defined area distinguished spatially from areas occupied by other groups of boreal caribou. Local population dynamics are driven primarily by local factors affecting birth and death rates, rather than immigration or emigration among groups. In this recovery strategy, “local population” refers to a group of boreal caribou occupying any of the three types of boreal caribou ranges (i.e., conservation unit, improved conservation unit, local population unit).

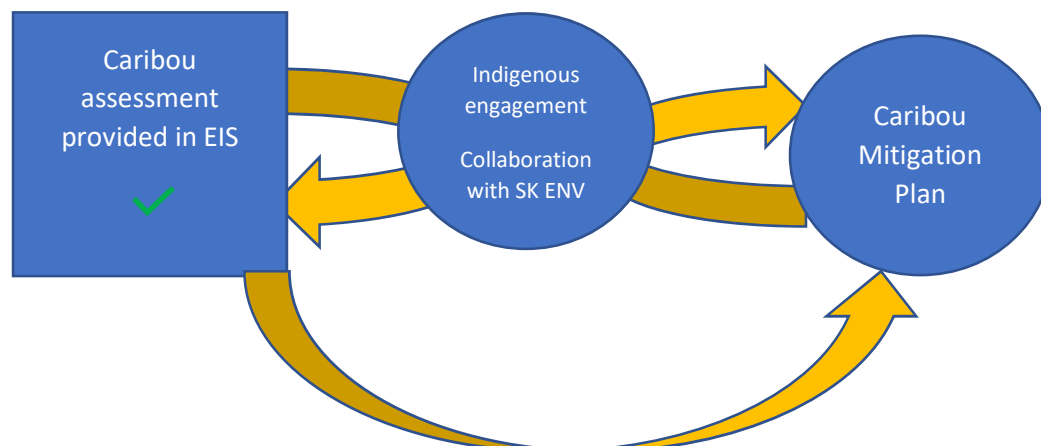
Plan	Conceptual Caribou Mitigation Plan
Project	Wheeler River Project
Range (per ECCC 2020)	<p>The geographic area occupied by a group of individuals that are subject to similar factors affecting their demography and used to satisfy their life history processes (e.g., calving, rutting, wintering) over a defined time frame.</p> <p>Environment and Climate Change Canada (2011) identified three types of boreal caribou ranges categorized based on the degree of certainty in the delineated range boundaries (i.e., conservation unit, improved conservation unit, local population unit).</p>
Recovery strategy	A planning document that identifies what needs to be done to stop or reverse the decline of a species.
SARA	Species at Risk Act
Self-sustaining local population (ECCC 2020)	A local population of boreal caribou that on average demonstrates stable or positive population growth over the short-term (≤ 20 years) and is large enough to withstand stochastic events and persist over the long-term (≥ 50 years), without the need for ongoing active management intervention.
Threatened species	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Undisturbed habitat (per ECCC 2020)	Habitat not showing any: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). Disturbance within the 500 m buffer would result in a reduction of the undisturbed habitat.

1 Introduction

The Wheeler River Project (the Project) environmental impact statement (EIS) evaluates and assesses potential Project-related effects on the Boreal population of woodland caribou (*Rangifer tarandus caribou*; referred to herein as caribou or boreal caribou) following standard environmental assessment (EA) methodology. The assessment of potential effects considered both direct (i.e., habitat loss) and indirect effects (i.e., habitat alteration) on caribou and their habitat, while assuming that caribou were present year-round and during all of their life stages (i.e., calving, rearing, mating, over wintering). In this way, the EIS took a precautionary or conservative approach to understanding/addressing the likely residual effects (i.e., effects remaining after mitigation measures were considered) of the Project on caribou and their habitat and is using this approach as a planning tool to inform/support future Project-related regulatory approvals processes and follow-up monitoring. The EIS has demonstrated that the Project, as proposed and assessed, is predicted to minimize the potential for environmental adverse effects on caribou and their habitat before any Project specific construction occurs. The conclusions of the assessment predicted that the likely residual effects of the Project on caribou were not significant.

This Conceptual Caribou Mitigation Plan (the Plan), developed proactively by Denison, has a different objective than the EIS. The Plan builds on the assessment of potential Project effects and commitments to mitigate such effects made in the EIS and is expected to be advanced with ongoing consultation with the Saskatchewan Ministry of Environment (ENV), as ENV finalize the caribou range plan for SK1. The EIS is a conservative planning tool, whereas the Plan is a practical, living document designed to define management works associated with caribou. The Plan is not a requirement for EA determination but is provided as a guidance document to help Denison proactively describe and inform the development and implementation of appropriate mitigation measures related to caribou and their habitat.

The Plan is an evergreen document. It will be consistent with the management goals of ENV for the SK-1 caribou conservation unit, and will be developed/refined in consultation with local communities including English River First Nation and Kineepik Métis Local in Pinehouse and regulators (e.g., ENV). As noted above, the boreal caribou range plan for SK-1 is under development and it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with the province to meet the management objectives and management strategies for the SK1 range.



2 Guidance and Regulatory Framework

A brief review highlighting federal and provincial considerations of boreal caribou is provided below for reference.

2.1 Federal

Boreal caribou have been designated as *threatened* under the federal *Species at Risk Act* (SARA). Environment and Climate Change Canada (ECCC) released amended recovery strategy for woodland caribou in 2020 (ECCC 2020). A recovery strategy is a planning document that identifies what should be done to stop or reverse the decline of a species.

The Project is located in the Boreal Shield West ecoregion of the Boreal Shield ecozone. The Boreal Shield West ecoregion stretches from Alberta to Ontario (Figure 2-1).

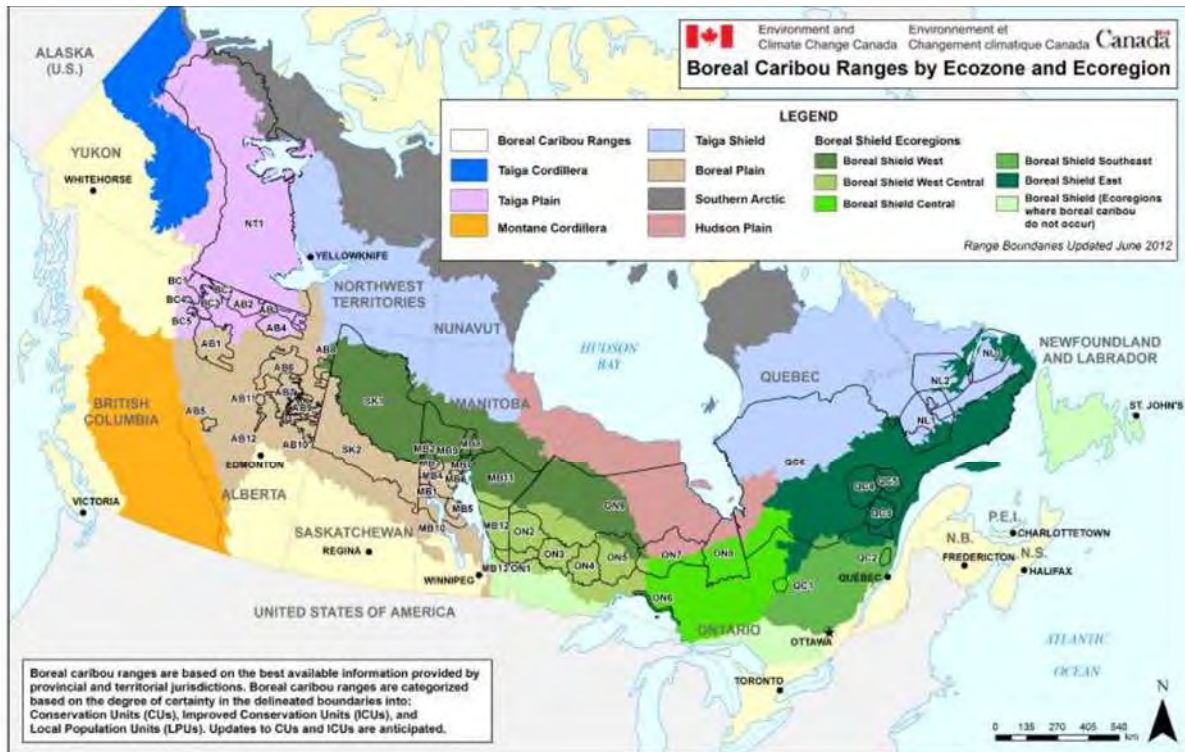


Figure 2-1: Boreal Caribou Distribution Across Ecozones and Ecoregions in Canada (source: ECCC 2020)

The SK1 range comprises more than 18,000,000 hectares (ha) and is characterized by high fire disturbance and low anthropogenic disturbance (ECCC 2020). The likelihood of caribou self-sustainability in the boreal shield range in SK1 is “likely” (ECCC 2020). For SK1, the amended recovery strategy (ECCC 2020) identifies 40% undisturbed habitat in the range as the disturbance management threshold, which provides a measurable probability (71%) for the local population to be self-sustaining. This threshold is considered a minimum threshold because at 40% undisturbed habitat there remains a risk (29%) that the SK1 local population cannot be self-sustaining. Disturbed habitat (ECCC 2020) is habitat showing: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the

anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). Undisturbed habitat (ECCC 2020) is habitat not showing any: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). Disturbance within the 500 m buffer would result in a reduction of the undisturbed habitat.

Studies (e.g., McLoughlin et al. 2019) indicate that the SK1 local caribou population is likely self-sustaining at current levels of disturbance (60% total disturbance), with a 71% probability of persistence. Environment and Climate Change Canada's analyses also indicate that the SK1 local population is sensitive to small increases anthropogenic disturbance and sensitive to small decreases in adult survival. For these reasons, a higher probability of persistence was selected for critical habitat identification in SK1 (71%) than was selected for the other 50 ranges across Canada (60%) (ECCC 2019).

The precise location of the 40% undisturbed habitat within the range is expected to vary over time. The habitat within the SK1 range should exist in an appropriate spatial configuration such that boreal caribou can move throughout the range and access required habitat when needed. The key to this habitat delineation is achieving and maintaining an overall, ongoing range condition that allows for the dynamic habitat supply system, containing the biophysical attributes upon which caribou depend, to remain sustainable. It is this dynamic habitat supply system within the SK1 range that is the habitat condition considered to be necessary for the caribou.

2.2 Provincial

The responsibility for woodland caribou management lies with the Province of Saskatchewan. Broadly, the province is responsible for developing range plans or management plans which build on the federal recovery strategy by setting goals and objectives for maintaining sustainable population levels.

The Saskatchewan Conservation Data Centre (SK-CDC) is responsible for evaluating and assigning a conservation rank to each taxon, resident or transient, found in the province. Woodland caribou's subnational or S-rank conservation rank is S3. This ranking indicates that, provincially, the species is vulnerable/rare to uncommon which is associated with a moderate risk of extinction or extirpation due to a restricted range, relatively few populations, recent and widespread declines, threats, or other factors. Currently, the caribou population in SK-1 is stable (ENV 2023) and the range plan is under development. Engagement is a key component of the range plan process and will be completed with representatives from First Nation, Métis, industry, non-governmental organizations, and communities.

The provincial goal is to sustain and enhance woodland caribou populations, and maintain the ecosystems they require, throughout their current range (ENV 2013). Through the woodland caribou range assessment and range planning program, the province is:

- Gaining a better understanding of woodland caribou ecology;
- Working toward meeting objectives identified in provincial and federal strategies; and
- Improving how the province manages the species and related habitat.

The province's woodland caribou range assessment and range planning program incorporates two key components:

- Woodland caribou range assessment, which enhances the understanding of woodland caribou populations and their interactions with the environment; and
- Woodland caribou range planning, which provides a framework, strategies and objectives that allow for better decisions involving habitat management and self-sustaining caribou populations.

Although the management objectives and management strategies for caribou in SK1 are not yet defined, Denison is committed to working with ENV as the range plan is developed. The Plan will be updated as the Project advances so that it aligns with the conservation objectives as determined by the province as the primary steward of caribou in the province.

3 SK 1 Caribou Population – Background Information

Background information concerning the condition of the SK 1 caribou population is provided below.

3.1 Population Trends

The SK1 Boreal Shield management unit contains high-quality conifer-dominated caribou habitat with greater than 40-year-old stands of jack pine and black spruce forests suitable for lichen colonization, black spruce swamps, and open muskegs supporting relatively high densities of caribou, at 36.9 caribou/1,000 km² or approximately 4,000 caribou across the SK1 Boreal Shield Woodland Caribou Management Unit (McLoughlin et al. 2019).

Research has shown that up to 70% of the year-round diet of caribou may consist of ground and arboreal lichens. If the quantity of available lichen forage is low, caribou can exist without relying entirely on lichens (McLoughlin et al. 2019). Due to their physiology, lichens are resilient to periods of drought and cold temperatures, but because of their slow growth rate, exhibit a slow recovery time after depletion and fire events. In the SK1 range, McLoughlin et al. (2019) found that stand types with the highest potential for adequate lichen biomass for caribou are jack pine and poorly drained black spruce sites.

McLoughlin et al. (2019) observed that, from 2014 to 2018, the caribou population exhibited a high average adult female survival rate and moderate recruitment (0.192 calves per cow in March), ranging from a low of 0.134 calves/cow in March 2016 to 0.244 calves/cow in March 2018. These demographic parameters led the authors to assess the SK1 Boreal Shield caribou population as being stable at the time of their study (McLoughlin et al. 2019).

While calving areas have not been documented within the SK1 range, it is recognized that caribou may use open fen and treed bog habitat types for calving during the spring/summer period. In Saskatchewan, caribou habitat used during the calving season in the SK2 range demonstrated a strong selection for treed muskegs, but avoidance of jack pine, mixed hardwood stands, and roads (Dyke 2008).

Neufeld et al. (2021) summarized results from aerial surveys over a period of eight years in an 87,193 km² study area in the Athabasca Plain and Churchill River Upland ecoregions in the north, that are inclusive of the Terrestrial RSAs that were used in the EIS. During 11 of 16 aerial caribou surveys conducted between 2008 and 2015, woodland caribou were detected in the surveyed areas. The average density of the 16 surveys was estimated at 36.9 caribou/1,000 km² (95% CI = 26.7 to 47.2 caribou/1,000 km²). Across the Neufeld et al. (2021) study area and all years, estimated caribou densities were higher in comparison to averages reported for most other boreal woodland caribou ranges in Canada (i.e., caribou density reported in other areas ranged 4.3 to 18.7/1,000 km²) indicating that caribou can tolerate natural disturbance. One exception to the relatively high caribou densities in northern Saskatchewan was noted: the 2,285 km aerial the Millennium Project in March 2014, 10 km west of the Terrestrial RSA, resulted in lower woodland caribou densities at 5 caribou/1,000 km² (Neufeld et al. 2021).

Eight of the sixteen caribou surveys reported the ratios of male to female and calf to female in their results with the average male:female ratio calculated at 0.571 (95% CI = 0.444 to 0.699) and calf:female at 0.195 (0.158 to 0.232). Again, the 2014 Millennium survey reported a different male:female ratio, outside the reported range (1.6), concurring with the reported low caribou densities.

3.2 Predation

In addition to relatively low predator densities in their study area, McLoughlin et al. (2019) found some spatial separation between caribou and wolves. Caribou did not seem to avoid existing linear features (such as roads, trails, and transmission lines) in the area, while wolves established their territories away from linear features. Unlike caribou, who preferred mature conifer stands, wolves selected for wetlands and patches of deciduous-mixed forest, avoiding stands of mature conifers. Other prey species, such as moose, also occurred at relatively low densities (i.e., 45.7 moose/1,000 km²) (McLoughlin et al. 2019).

McLoughlin et al. (2019) observed that mortality of adult caribou occurred mostly during the snow-free season and only 1 of 94 collared caribou was harvested by a hunter during the four years of the study.

While predation is believed to be a key limiting factor for woodland caribou (Bergerud 1974; Stuart-Smith et al. 1997, DeMars et al. 2011 from ECCC 2020), Neufeld et al. (2021) suggested that habitat- or disturbance-mediated apparent competition only plays a minor role in the Saskatchewan woodland caribou population. Habitat- or disturbance-mediated apparent competition occurs when natural (e.g., forest fires) and anthropogenic (e.g., human development or activities) disturbances increase the abundance of other ungulates, which in turn may increase predator densities, which then increases predation risk to caribou. Neufeld et al. (2021) concluded that Northern Shield and Taiga ecoregions are of low productivity where caribou may compete with only one ungulate species (i.e., moose) and therefore, caribou and wolf dynamics do not follow general habitat- or disturbance-mediated apparent competition models.

3.3 Harvest

Indigenous peoples in Saskatchewan have an inherent right to harvest woodland caribou for subsistence purposes (ENV 2013). No other harvest of woodland caribou is currently permitted. Under provincial and federal recovery planning and effective species management, self-sustaining caribou populations will support long-term subsistence use of the species and protect treaty rights. Subsistence harvest levels are assumed to be low but actual numbers are not available because most communities or Indigenous groups are not collecting and/or publishing this information.

4 No Net Loss and Mitigation Hierarchy

A generic biodiversity mitigation hierarchy (OECD 2016) to achieve no net loss is provided in Figure 4-1. As shown in the hierarchy, an offset can be used to achieve no net loss if residual effects remain following efforts to avoid, minimize, and restore potential project effects. This generic hierarchy is generally consistent with the approach of ENV to manage effects on caribou and their habitat.

The balance of Section 4 of this Plan outlines Denison's approach to avoid, minimize, and restore caribou habitat per commitments made in the draft EIS associated with the Wheeler River Project.

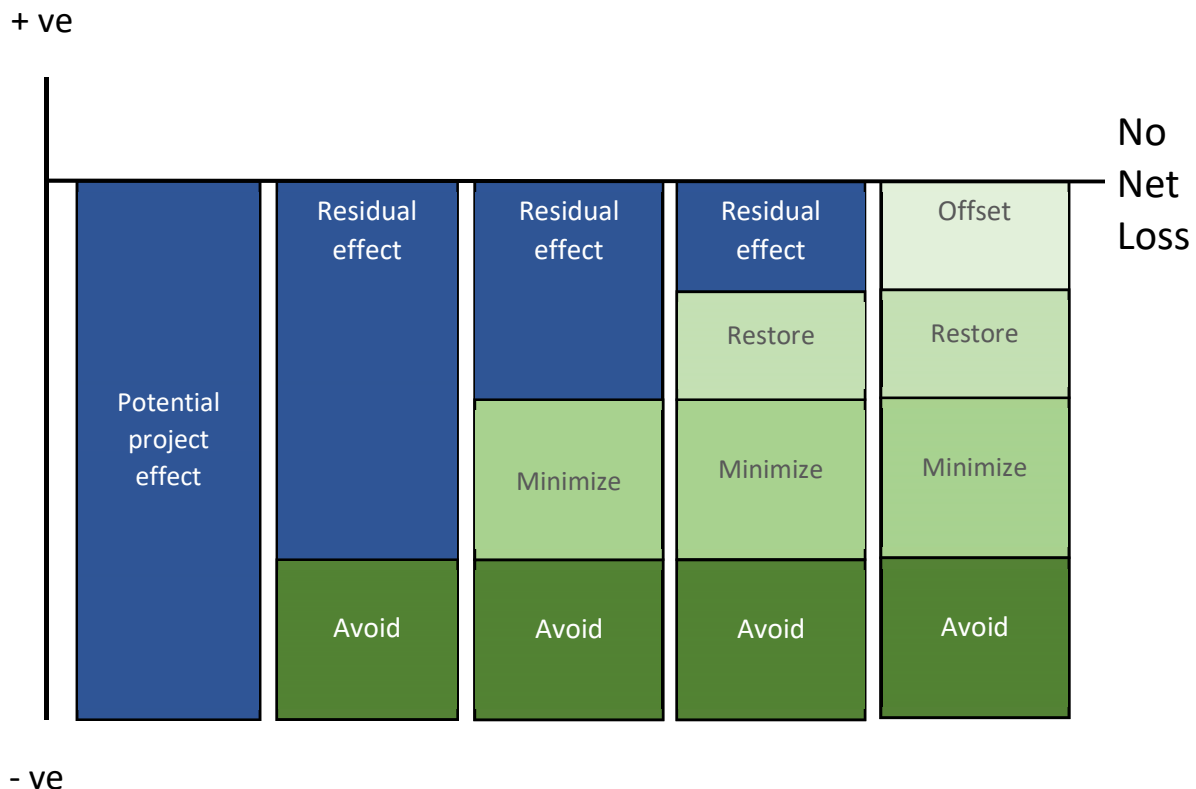


Figure 4-1: Generic No Net Loss and Mitigation Hierarchy (modified from OECD 2016)

4.1 Avoid

Potential adverse effects on the caribou have been avoided to the extent possible through Project design, including:

- Selection of in-situ recovery (ISR) mining avoids some direct and indirect effects compared to conventional underground or open-pit mining methods. ISR mining avoids the need for spatially expansive infrastructure such as waste rock piles and tailings management facilities reducing the Project footprint (i.e., avoids direct effects on caribou and their habitat). ISR mining also reduces the potential for interactions between caribou and Project components / activities as it concerns sensory disturbance as it is inherently a less intensive form of mining with reduced noise/light/vibration generation (i.e., avoids indirect effects on caribou and their habitat).

- Site clearing and other works that involve disturbance of vegetation and/or soil will be completed during least-risk timing windows for caribou (for example, outside of wintering/calving period from April 1-July 31, per ENV 2013), where practical, to avoid disturbance during sensitive time periods.
- Pre-disturbance wildlife surveys will be completed to identify caribou presence and work will be postponed if caribou are present.

4.2 Minimize

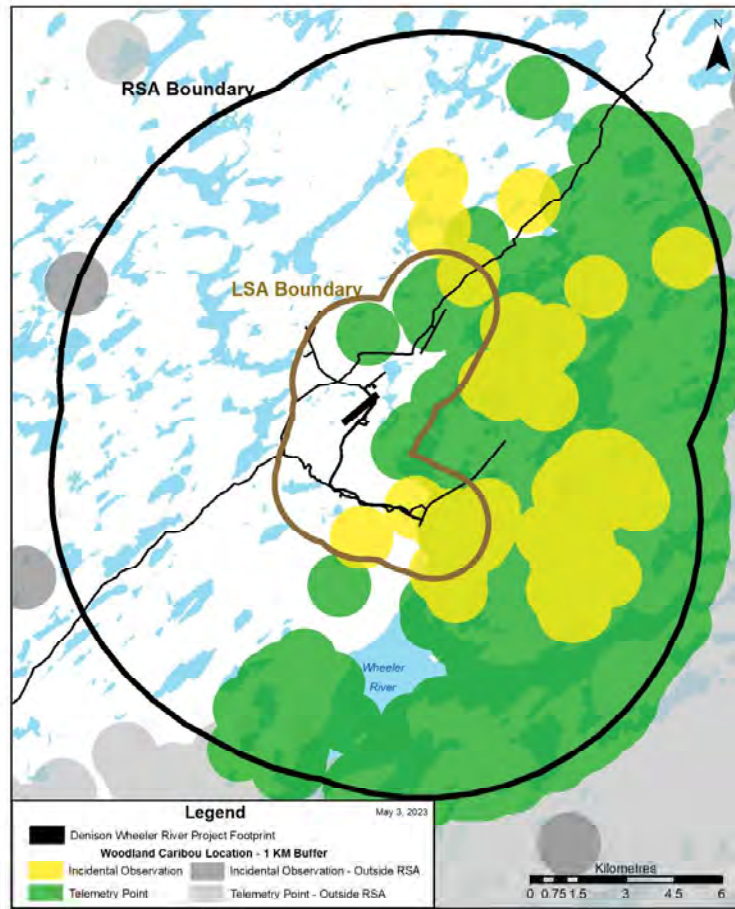
Additional mitigation measures to minimize effects on caribou and their habitat and tailored to Project features have been incorporated into the various Project management and monitoring plans within the Environmental Management System (EMS) including but limited to erosion and sediment controls, soil and vegetation monitoring, Decommissioning Plan, air quality monitoring, fuel spill control and response, Radiation Protection Plan, surface water and effluent monitoring, and Waste Management Plan.

The Project's EMS plans provide direction on monitoring and adaptive management so that issues are identified and mitigation measures are developed and implemented in a timely and effective manner. Mitigation measures specific to caribou are applicable during all Project phases, within all seasons and expected to be effective following appropriate implementation. Examples of the measures to minimize Project effects on wildlife in general, and caribou in particular, are highlighted below.

4.2.1 Disturbance Footprint

- Siting Project components in close proximity to the ISR mining area minimizes indirect effects on caribou and their habitat. The Project components are also west of the known home range of woodland caribou (based on tracking data received by the Ministry of Environment; Figure 4-2), although the absence of data does not mean the absence of caribou and Denison has observed caribou in the area. . Appropriate siting is anticipated to minimize the potential for interactions with woodland caribou and Project activities.
- The Project footprint (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable, resulting in limited/minimal habitat loss/disturbance and noise propagation.
- Portions of the proposed Project footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.

Denison-Wheeler Study Area - Woodland Caribou Location Data



RSA Boundary		
Data Type	Years	Number of Locations
Incidental Observation	1987, 2017 – 2022	89
Telemetry Point*	2013 – 2016	3,848

*Data from 15 individual woodland caribou cows

LSA Boundary		
Data Type	Years	Number of Locations
Incidental Observation	2017 – 2022	19
Telemetry Point*	2013, 2015 – 2016	62

*Data from 4 individual woodland caribou cows

NOTE: Absence of data does not mean absence of woodland caribou.

Figure 4-2 Saskatchewan Ministry of Environment Woodland Caribou Location Data Provided to Denison

4.2.2 Wildlife and Habitat Protection

- Project activities have been assessed for their potential to disturb or remove wildlife and/or wildlife habitat (e.g., site clearing, soil disturbance) to determine potential effects on wildlife and wildlife habitat and the assessment, including proposed mitigation measures, for the Project will guide Project activities.
- Pre-disturbance wildlife clearance surveys will be conducted within the Project Area; results of the clearance surveys will inform the development and implementation of appropriate mitigation (e.g., delay of work) to address the identified issue (e.g., presence of caribou).
- Personal firearms for employees and contractors will be prohibited within the Project Area to prevent hunting activities.
- Policies will be implemented prohibiting employees and contractors from feeding, approaching, or harassing wildlife species within the Project Area.
- To support wildlife habitat regeneration, progressive restoration including ecosystem-based revegetation will be conducted on disturbed areas as soon as practicable in accordance with the Decommissioning Plan.

4.2.3 Wildlife Deterrence and Prevention of Wildlife Entrapment

- In addition to installing secure fencing around all contaminated areas to prevent accidental contaminant exposure, buildings and other Project components will be designed and maintained to exclude wildlife from using buildings for refuge or shelter, and to deter wildlife from potentially becoming entrapped.

4.2.4 Sensory Disturbance

- Noise emitting Project activities will be managed to minimize sensory disturbance of wildlife, especially during sensitive time periods, such as calving. This would include:
 - locating excessive noise generating activities such as the concrete batching operation as far away from sensitive wildlife locations as possible;
 - directing the generator discharge openings away from sensitive locations; and
 - making use of available on-site obstructions to control sound exposure at sensitive areas (i.e., locate sources behind buildings).
- The main sources of noise will be related to transport of people and goods, drilling of holes for the freeze wall and wellfield, operation of the batch plant, operation of the processing plant, and operation of the pumphouses. Low sound emission equipment and the use of silencers or mufflers (whenever practical) will be used to reduce noise associated with Project activities. There will be regular maintenance of equipment to ensure it is in proper working order and not emitting noise unduly.

- Lighting will be focused on work sites and not surrounding areas, to minimize light trespass and other light-related pollution sources.
- Facilities will be illuminated only to meet standards set for the protection of workers to avoid over-illumination.
- Battery-powered, light vehicles and mobile equipment, and an AC powered dual rotary drill will be used for ISR wellfield development instead of a traditional diesel-powered unit, where practical, to reduce air emissions and noise levels and improve energy efficiency.
- Fugitive dust sources that could lead to deposition of dust on vegetation and waterbodies (including potential deposition of trace metals and radionuclides) will be reduced by:
 - dust suppression techniques on site roadways, such as road watering and traffic management;
 - directing processing plant exhaust from drying and packaging areas through a stack prior to release outside of the building;
 - designing the stack height based on results of air dispersion modelling to be an appropriate height for optimal dispersion;
 - making a wash bay available to clean items, equipment, and vehicles that may have been in contact with potentially contaminated materials. Contaminated water from the wash bay will be collected in a sump tank and routed to the water treatment plant for treatment and discharge; and,
 - conducting radiological clearance scanning as required for any items, equipment, and vehicles leaving the Project Area.

4.2.5 Road and Traffic Management

- Traffic and access control measures will be implemented, including managing traffic volume by scheduling truck convoys, using high-volume haul trucks, and restricting public access (e.g., private vehicles, snowmobiles, all-terrain vehicles, and foot traffic) to the Project site and roads with both north and south security access gates. It is important to note that if any individual were seeking access around the Project area to undertake Aboriginal and / or Treaty Rights, Denison staff would facilitate this, provided it was safe to do so given Project activities in the area.
- Appropriate road signage will be installed (e.g., speed limits, identification of wildlife crossings and areas of high activity) along Project roads to minimize the risk of wildlife-vehicle collisions.
- Speed limits will be implemented to reduce the risk of wildlife-vehicle collisions.
- Wildlife will have the right-of-way on Project roads, unless it is unsafe to stop (i.e., if a collision is imminent). Vehicles will not be used to encourage caribou to move off Project roads and processes will be implemented for employees and contractors to slow down and/or stop vehicles/equipment to allow caribou to move away or off the road before resuming normal road speeds for the area.

- Road watering and regular road maintenance to limit dust dispersion.
- Employees and contractors will report and communicate the location and circumstances of any roadkill observed on or alongside Project roads. Large-bodied wildlife carcasses found will be promptly reported to ENV and disposed of as directed to prevent scavenging.
- Vegetation along Project roads will be managed to reduce attractiveness to wildlife (e.g., forage plants) and maintain appropriate sightlines for drivers to minimize wildlife-vehicle collisions.
- Alternative measures on Project roads for de-icing and winter traction (e.g., sand, gravel) or dust suppression (e.g., water) will be implemented, whenever practicable, to limit the use of specialty chemicals and potential exposure of wildlife including caribou to them.
- Appropriately sized gaps in the roadside snowbanks during winter will be maintained to facilitate caribou crossing and escape and, with that, reducing their risk of vehicle collisions.
- New Project site and access roads will be designed to minimize sightlines for predators, whenever practicable, while still maintaining general road safety.
- Ditches and culverts along Project roads will be designed and maintained to minimize pooling of water as roadside pools may attract caribou.

4.2.6 Water Management, Waste Management, Emissions, and Hazardous Materials Management

- Education on and enforcement of proper water, waste, emissions and hazardous materials management practices will be provided to employees and contractors.
- A freeze wall will be established around the uranium deposit to reduce potential for groundwater disturbance or contamination mitigating the likelihood of exposure of caribou to contaminants in local areas of groundwater discharge to surface.
- The ISR wellfield and processing plant will be designed to re-use most of the solutions inside each circuit, reducing water use requirements to the extent feasible. Make-up water will be preferentially sourced from site runoff (instead of freshwater) where possible.
- Contaminated wastes (e.g., mineralized drill cuttings, process precipitates) will be temporarily stored on double lined pads with leak detection capabilities and an associated monitoring program until final disposal at an approved facility. An adjacent pond will be used to collect contact water from these pads.
- All contact water will be routed to the Industrial Wastewater Treatment Plant for treatment and eventual release to the environment. All treated effluent released to surface water will meet federal and provincial regulatory discharge limits. This will mitigate exposure of caribou to Project-related contaminants released to the environment.

- Surface pipelines will be designed to have secondary containment or catchment and have leak detection systems in place at key locations to mitigate the likelihood of the release of such chemicals to the environment that could result in exposure of caribou to the chemicals.
- Double-walled high-density polyethylene (HDPE) or equivalent piping will be used in the wellfields and will be freeze protected and secured to minimize pipe movement to mitigate the likelihood of the piping failure and the associated release of wellfield chemicals to the environment that could result in exposure of caribou to the chemicals.
- Denison is proposing to segregate and compost organic wastes on site in a composting system, reducing the volume of material in the domestic landfill generating odours and thereby minimizing wildlife attractants.
- Domestic waste will be collected and temporarily stored in wildlife-proof containers to avoid attracting wildlife and reduce the risk for human-wildlife interactions. The wildlife-proof containers will be inspected regularly for evidence of wildlife presence or access to waste disposal facilities. If evidence of wildlife presence or access to waste disposal facilities is detected, modified systems will be implemented and/or off-site waste disposal/incineration frequencies will be increased.
- A "no littering policy" for employees and contractors will be implemented within the Project Area.
- Air emissions will be reduced to the extent practical through implementation of the development of air emissions management and monitoring plans within the EMS.
- All vehicles and equipment will be equipped with industry-standard emission control systems; unnecessary idling of vehicles will be prohibited to reduce emissions.
- The use of hazardous materials will be limited as much as possible.
- Appropriate hazardous materials management practices will be implemented in accordance with industry guidelines to minimize the risk of accidental spills or leakage. This will mitigate the likelihood of release to the environment that could result in exposure of caribou to the hazardous materials.
- Hazardous materials will be handled, stored, and disposed of appropriately and in accordance to avoid attracting wildlife (e.g., wildlife-proof containers, exclusion fencing) to mitigate the likelihood of exposure of caribou to hazardous materials.
- Physical deterrents (e.g., fencing) will be employed around contaminated areas (e.g., waste ponds and waste pads), the domestic landfill, or hazardous materials storage areas to discourage wildlife use / interaction. The deterrents will be monitored and maintained .
- Appropriate spill response kits will be positioned adjacent to areas where hazardous materials are stored in accordance with the Spill Response Plan to mitigate the likelihood of

the release of hazardous material to the environment that could result in exposure of caribou to the material.

- A minimum 100 m distance from any waterbody will be maintained for fuel storage, refueling activities, or equipment servicing in accordance with the Spill Response Plan. This will mitigate the likelihood of a fuel spill to water that could result in exposure of caribou to fuel.
- Appropriate fuel, chemical, and materials management practices will be followed in accordance with the Spill Response Plan to minimize the risk of accidental spills or leakage of diesel fuel, other hydrocarbons, and other hazardous materials and mitigate the likelihood of exposure of caribou to such chemicals.
- All vehicles and equipment will be maintained in good working condition (e.g., no leaks) and furnished with industry-standard spill response kits.

4.2.7 Wildlife Education

- Employees and contractors will be provided with wildlife education and awareness training, including education about potential caribou issues on site and training on the mitigation measures summarized with the EMS and specifically in this Plan to avoid or minimize potential Project effects on caribou and caribou habitat.
- Employees and contractors will be educated on waste and hazardous waste management practices / policies that limit human-wildlife interactions and the potential exposure of wildlife to those wastes.
- Designated employees will be trained in appropriate wildlife deterrent techniques to minimize wildlife interactions with the Project.
- Employees and contractors will be requested to report wildlife observations, including prompt reporting of caribou observations and immediate communication to on-site staff. Wildlife encounters and outcomes will be monitored, and logbooks will be used to record wildlife observations. Logbooks and reports will be available to employees. Incidental observations recorded by staff will be entered into Species Detection Loadforms and submitted to the Saskatchewan Conservation Data Centre annually.

4.3 Restore

The temporal bounds for the Project as stated in the EIS are years 1 to 3 for construction, years 3 to 18 for operation, years 18 to 23 for decommissioning, and fifteen years of post-decommissioning monitoring and inspections from years 23 to 38. Importantly, during physical decommissioning the majority of Project components are scheduled to be removed from site which is expected to facilitate restoration activities. Also, because of the selected ISR mining method, there are no large, permanent Project components, such as waste rock piles or tailings management facilities, for which large scale and potentially complex restoration strategies are needed.

Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.

The CDP outlines plans for physical decommissioning (mining area remediation; asset removal; and decontamination, demolition, and disposal), followed by restoration. A summary of the CDP is provided here.

- Ongoing decommissioning of Project components will be completed when possible.
- Denison has committed to progressively restore areas no longer necessary to support/facilitate Operations to limit the amount of disturbance at any given time. Restoration of inactive areas will take place when/as these areas become available. The progress and success of these activities will be assessed regularly at a schedule commensurate with the expectations of the activities per the decommissioning plan. Progressive restoration including ecosystem-based revegetation will be conducted on disturbed areas as soon as safely and logistically practicable with the use of suitable/appropriate native species and in accordance with the decommissioning plan.
- Once the asset removal, decontamination, demolition, and disposal are completed, and the site has been cleared and leveled, restoration activities, including planting, will take place. Currently this would largely be with jack pine seedlings, but the mix of plants will depend on location and available species. Restoration activities monitored until it is deemed self-sustaining and viable wildlife habitat.
- Future discussions will be held with Indigenous and general public Interested Parties to determine the amount of access to the area they wish to maintain in the future (post-decommissioning). Based on results of these discussions, transportation corridors including roads or trails associated with the Project site that are no longer needed will be graded, scarified, and vegetated with native, self-sustaining species as required. Access to facilitate safe post-closure monitoring or requested by appropriate Interested Parties (e.g., to facilitate land use) may be left in place. Access to the site may be restricted by gates and/or berms.
- Laydown areas will be scarified, covered with 0.5 to 1.0 m of stockpiled overburden, and vegetated with native, self-sustaining species. The footprints of other infrastructure, such as the camp, will be scarified and vegetated with native, self-sustaining species as required. The topsoil and brush stockpiled during pre-construction activities will be used during restoration.
- Lessons learned from progressive decommissioning and any site-specific restoration studies will be incorporated into the DDP. Additionally, information from other northern Saskatchewan mine

sites will be examined to help Denison select the restoration tools, including revegetation options, that will contribute towards decommissioning success.

Closure of the entire Project will be completed in accordance with provincial and federal regulations and guidance documents with the fundamental considerations being to confirm physical and chemical stability of the site to protect human health and the environment.

Progressive decommissioning and restoration will be completed throughout the life of the Project, whenever feasible, and reported to the regulatory agencies as part of the annual reporting requirements throughout Operation. Associated activities will focus on the decontamination, demolition, and disposal of unused buildings and infrastructure, as well as the removal of unused equipment and machinery. Progressive decommissioning and restoration are expected to continue and result in positive effects as revegetation is continued and regeneration occurs. Following decommissioning and restoration, wildlife habitat is expected to recover to baseline conditions.

5 Habitat Loss Calculation

5.1 Habitat Loss in Context of the Disturbance Management Threshold for SK1

To support the Plan with respect to the calculation of habitat loss, a mapping exercise was completed to provide context on the Project-related habitat loss in consideration of the woodland caribou range (SK1) disturbance management threshold (ECCC 2020).

5.1.1 Approach

First the Project infrastructure footprint area was delineated and estimated to be 80 ha. Next, a 500 m buffer was applied to the Project footprint, resulting in a total potential disturbance area of 1,350 ha. This is consistent with the approach for determining direct and indirect effects, as outlined in ECCC (2020).

Finally, an analysis was undertaken to quantify the amount of caribou habitat that is currently disturbed within the Project footprint + 500 m buffer. According to ECCC (2020), there are two contributors to disturbed habitat in SK1: 1. anthropogenic disturbance + 500 m buffer and 2. fire disturbance in the last 40 years, without a buffer. The two factors for disturbed habitat were considered as follows:

1. Existing anthropogenic disturbance + 500 m: For anthropogenic disturbance calculations to inform the Plan, mapping was completed and evaluated to determine the existing anthropogenic disturbance. Although the EIS considered anthropogenic disturbances on IKONOS imagery at the 1:5,000 scale, the mapping exercise to support habitat loss calculations in the Plan used anthropogenic disturbances visible on Landsat at the 1:50,000 scale, to be consistent with the definitions of disturbed habitat from the amended recovery strategy (ECCC 2020).
2. Fire disturbance in the last 40 years, without buffer: To determine ecosites that were in a regenerating phase or having experienced fire disturbance in the last 40 years, the ecosites BS3/BS7-Jack pine-blueberry/Black spruce-blueberry/lichen were used, based on previous ecosite classification work completed to support the EIS.

5.1.2 Results

As shown in Table 5-1 and Figure 5-1, the proposed Project footprint + 500 m buffer is almost entirely located within existing, buffered anthropogenic disturbance. This means the Project footprint + 500 m buffer is located within already disturbed habitat, according to ECCC (2020). Additionally, the mapping exercise shows that approximately half of the Project footprint + 500 m buffer is located within regenerating forest, i.e., forest burned less than 40 years ago (Figure 5-2).

Table 5-1: Existing Disturbed Habitat within Buffered Project Footprint

	Area within Project Footprint + 500 m buffer (1,350 ha)
Existing anthropogenic disturbance (+ 500 m buffer)	1,298 ha
Regenerating forest (fire disturbance in the last 40 years; no buffer)	730 ha



Conceptual Caribou Mitigation Plan

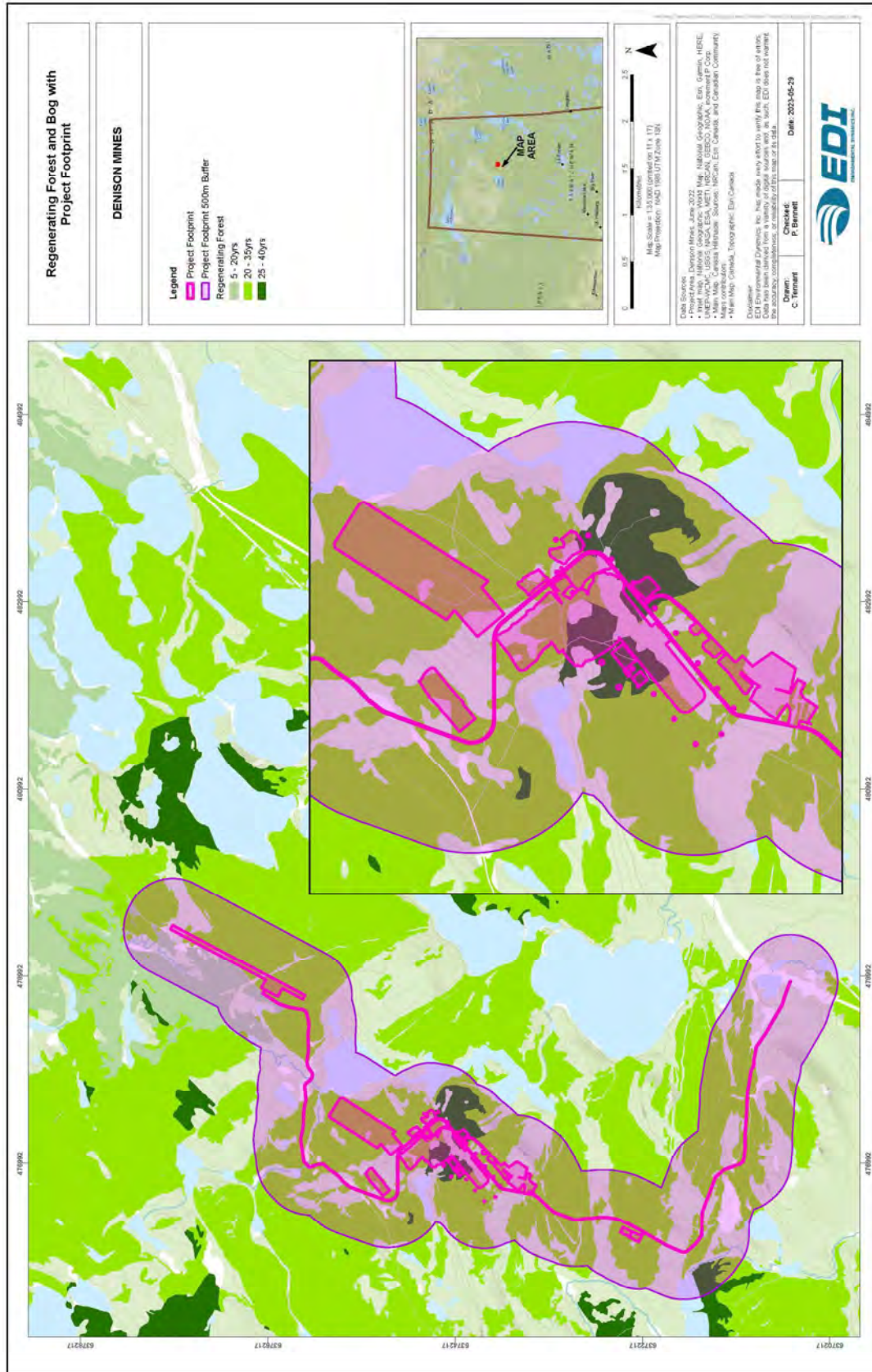


Figure 5-2: Proposed Project Footprint (+ 500 m buffer) with Regenerating Forest

Based on the above analysis using ECCC (2020) criteria, should the Project proceed, the disturbance management threshold for SK1 range would remain unchanged.

Additionally, ECCC (2020) identified the caribou population in the SK1 range as being self-sustaining at a threshold of 40% undisturbed habitat and recommended that total anthropogenic disturbance in the SK1 Boreal Shield range should not exceed 5% with the remainder (i.e., 55%) being attributed to natural disturbance (while maintaining a minimum of 40% undisturbed habitat in the range). ECCC (2020) calculated that approximately 58% of the SK1 Boreal Shield range is currently affected by past forest fires and 3% of the range is affected by anthropogenic disturbances. For additional context, the size of the SK1 Boreal Shield range is estimated at 18,034,870 ha (ECCC 2020). The Project footprint + 500 m buffer (1,350 ha) would represent an estimated Project-related disturbance of 0.007% at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit.

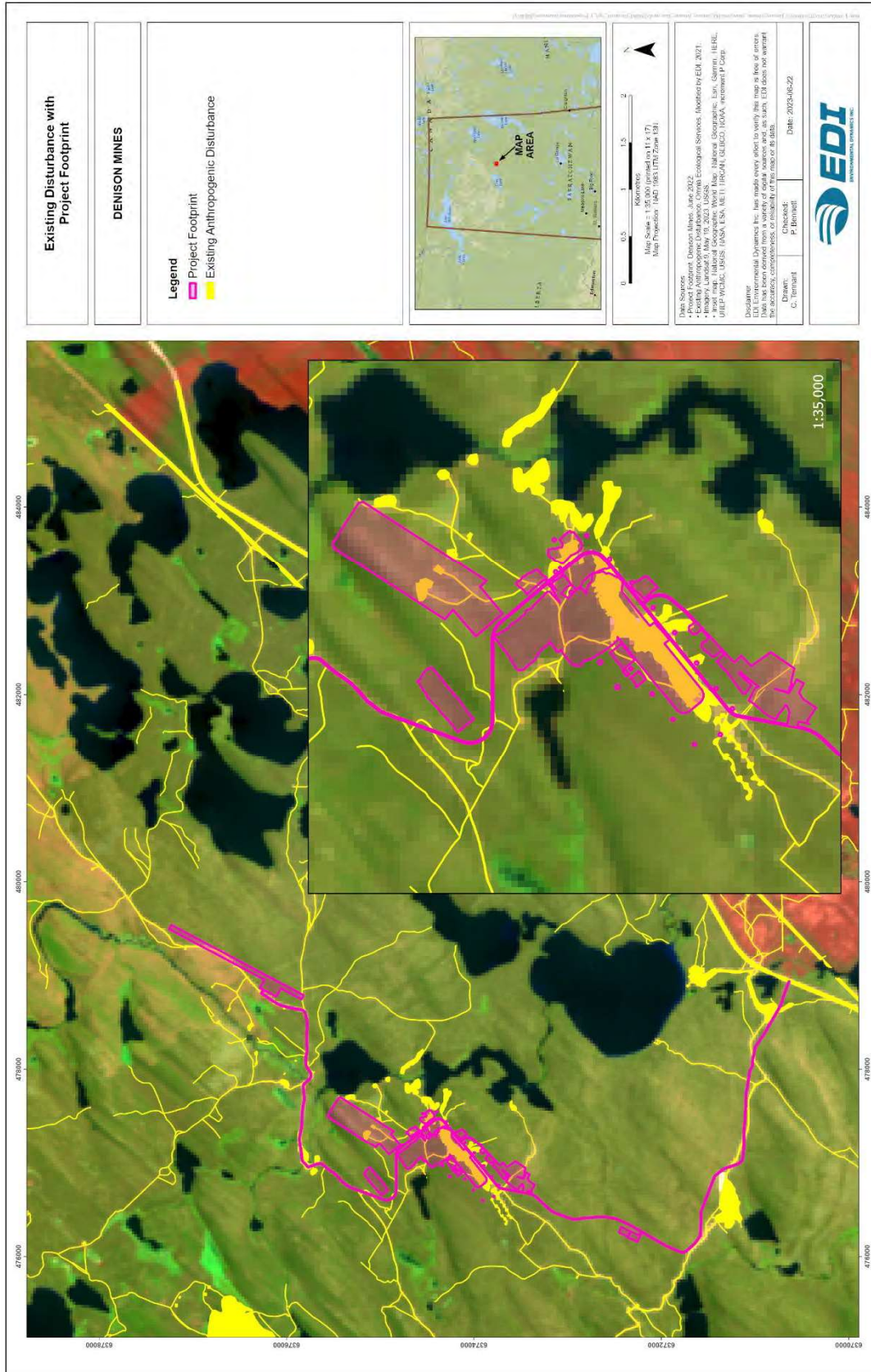
5.2 Direct Loss Calculation

The Project infrastructure footprint has been delineated and the area was determined to be 80 ha. Of this area, 12 ha are comprised of previously disturbed land resulting from past activities (e.g., access, exploration camp and laydown areas). The remainder of the Project footprint is comprised of regenerating forest (forest less than 40 years old) habitat which is typically considered to be low quality habitat for caribou (Figure 5.3).

Table 5-2: Land Cover Types within the Project Footprint

	Total Area
Project footprint	80 ha
Existing anthropogenic disturbance	12 ha
Regenerating forest habitat (i.e., low quality caribou habitat)	68 ha

Denison understands that the Project will likely result in a limited residual effect on caribou and their habitat within the RSA; however, these effects are considered to be small in a relative sense when considered in the context of the SK1 range, as described in Section 5.1.



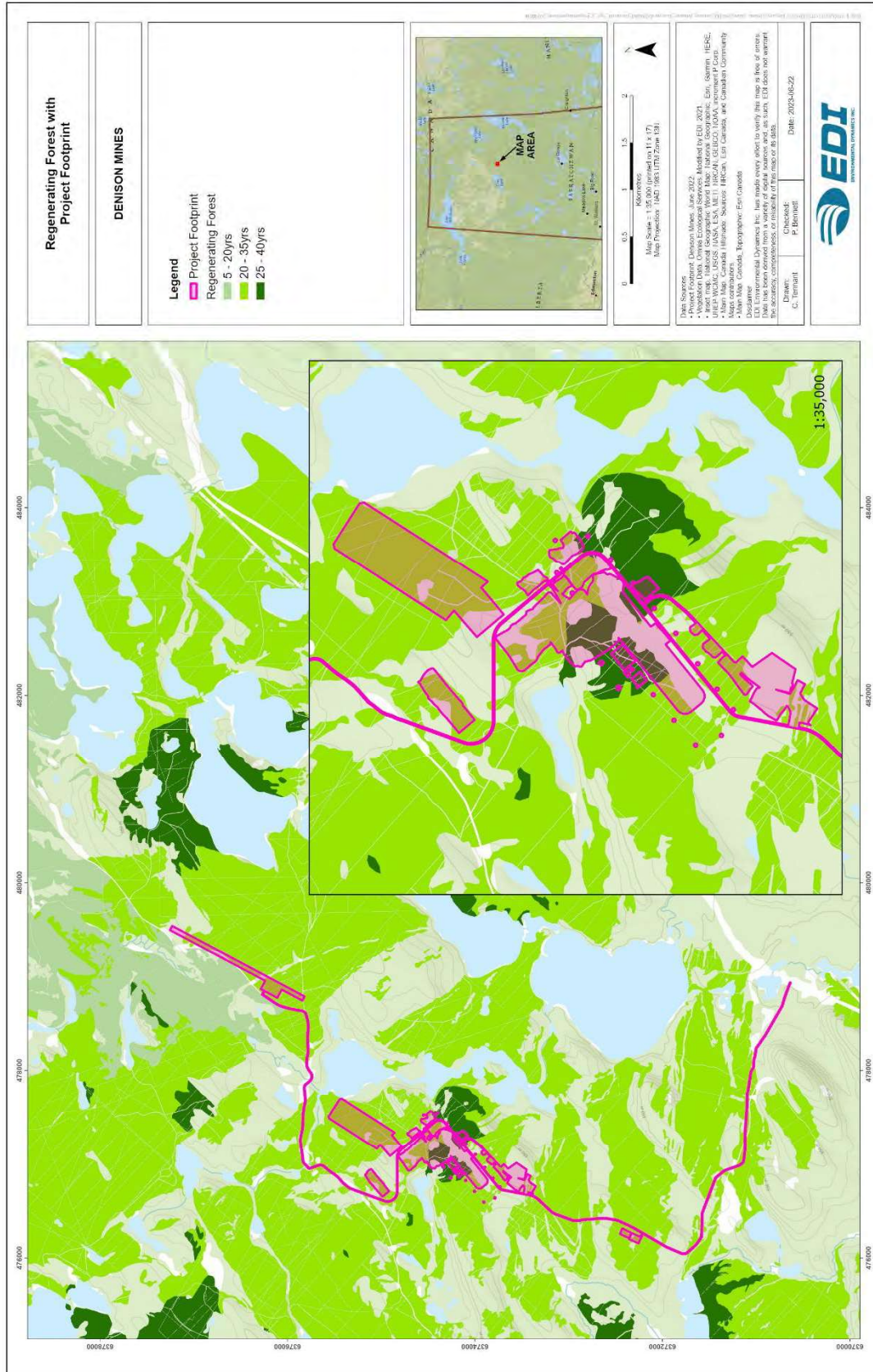


Figure 5-4: Proposed Project Footprint with Regenerating Forest

It is Denison's understanding that currently there are no provisions/requirements for caribou habitat offset by the ENV for projects within the SK1 range. Denison recognizes the importance of woodland caribou to Indigenous groups, the general public, other Interested Parties in Saskatchewan, and Canada. As such, as part of this Plan, Denison is proposing to continue to work with ENV to determine an appropriate offset based on the habitat loss as a result of the Project. Denison expects that the proposed offset calculations would likely include aspects of additionality, temporal considerations, spatial considerations, and other aspects, depending on the expectations/requirements of the caribou habitat offset process that the ENV is currently refining/finalizing. The proposed offset calculations are expected to be refined through ongoing communications with ENV to appropriately address issues at the provincial level related to caribou and habitat.

Future versions of the Plan will include detailed options to develop and advance restoration work and initiatives to provide responsible, proactive environmental stewardship. These offsets (Figure 5-5) are expected to be further refined/defined through Plan updates as the Project proceeds and consultations with ENV advance. Some initial options are presented at a conceptual level in Section 6.

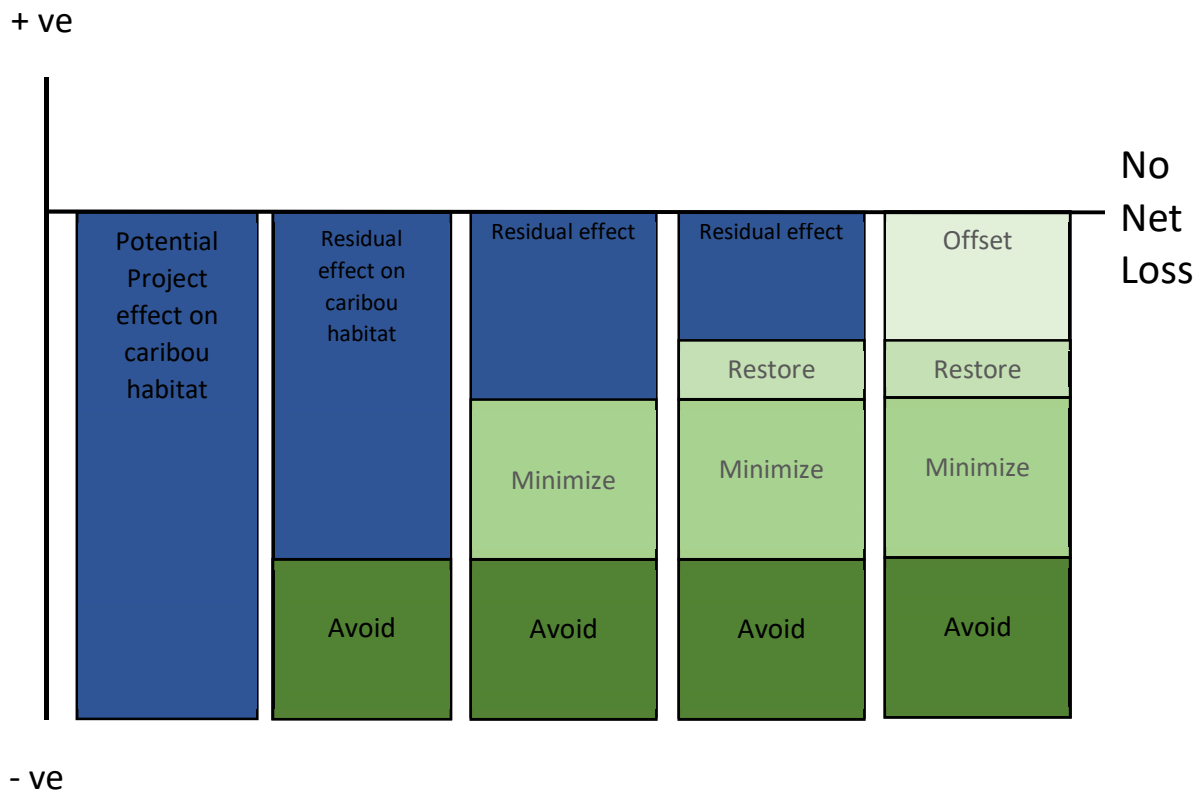


Figure 5-5: Wheeler River Project Conceptual Caribou Mitigation Plan to Achieve No Net Loss

6 Offset Framework

This section provides a discussion on offset options will become more defined as the Plan advances, in consultation with ENV. This is expected to offset residual effects over the life-of-the-Project and enhance the restoration activities occurring within the Project footprint to result in no net loss of habitat within the RSA as a result of the Project.

6.1 Conceptual Offset Opportunities

An opportunity that Denison has proactively identified is a combined linear feature mitigation and restoration option. Denison has implemented a practical and experimental pilot study to investigate the design, implementation, testing, and monitoring of several functional and structural habitat mitigation options. This opportunity involves two components: 1) applying treatments to address (i.e., reduce) lines-of-sight and discourage linear feature use by both caribou and their predators, and 2) restoration focused on re-establishing terrestrial lichen communities co-established with a biological soil crust (BSC) component.

Importantly, to complete this pilot program, Denison has partnered with the University of Saskatchewan and Northwest Communities Environmental Services (an Indigenous-owned environmental company) under the Developing Eco-Restoration Together (DERT) program. This unique project aims to co-create ecological restoration practices that centre Indigenous peoples, worldviews, and values while also braiding knowledge from the land, Indigenous knowledge, and western science. The project is supported by the three partners but is ultimately guided by the Indigenous Project Advisory Board, and the Community Liaison/Education Coordinator. Through restoration trials, community engagement, and various planting techniques, Denison, with their partners are seeking to return ecosystem functions in areas where they have been previously disturbed (e.g., exploration cutlines). Through collaboration with community members, University of Saskatchewan, industry partners, two graduate students, and local youth, this project is expected to ultimately inform the creation of a framework for effective restoration practices in northern Saskatchewan that centre on caribou and Indigenous communities.

6.1.1 Caribou Trail Study

Wildlife, particularly bears, wolves, and woodland caribou, are using anthropogenic linear features to move throughout their habitat with greater ease. This can result in increased chance encounters between predators and prey and could contribute to the reduction in woodland caribou populations (Omnia 2022). Denison is conducting research on the use of linear features predators and prey in the Athabasca Basin to collect relevant data to inform an effective plan designed to disrupt the current risk related to predator/prey movements/interactions.

Currently, ENV has no guidelines or protocols for assessing the status of disturbance features or for evaluating the need for linear feature mitigation. Denison proactively initiated research to collect field-based findings on the effectiveness of linear disruption features on predator/prey movements in the vicinity of the Project. This field program was designed and implemented to deploy and monitor the effectiveness of five linear feature treatments across nine locations. Treatment types include, seeding and/or planting of jack pine, spreading coarse woody debris, tree tipping, constructing biodegradable fencing, and earth/debris mounding. Methods vary by location but have a common goal: to discourage prolonged disturbance and encourage new growth in areas of disturbance (Omnia 2022). Each

treatment area is monitored by game cameras year-round to determine how wildlife interact with the created physical and visual barriers. All treatments are temporary and biodegradable with the purpose of reducing trail use in the near-term so that the forest can regenerate naturally.

Preliminary results are encouraging and indicate that bear use of treated lines was reduced by 43% compared to untreated lines, caribou use was reduced by 95%, and wolf and moose use was reduced by approximately 94%. Overall, use of treated lines by species of interest was reduced by approximately 83% when compared to baseline monitoring rates. These successful preliminary results will guide future work to define potential offset options associated with linear feature mitigation and restoration.

6.1.2 Biological Soil Crust Research

To support restoration planning, additional research will be designed to investigate BSCs and conducted by a soil science graduate student at the University of Saskatchewan. This research is expected to contribute to the goals of the Developing Eco-Restoration Together Project. BSCs are communities of lichen, bryophytes, cyanobacteria, and microorganisms found in the top layer of the soil (Heindel et al. 2019). These surface soil mats are rich in diversity, and play an important role in the broader ecosystem, especially in locations with extreme climate, little moisture, and nutrient-poor soil (Cowden et al., 2022). Research on BSCs has been focused on desert regions, and this research provides insight to BSC's role in boreal ecosystems, specifically in northern Saskatchewan. By gaining a better understanding of how to support BSC establishment and growth, it is expected that the findings can inform restoration activities that would ultimately benefit caribou.

Sampling of BSCs within the region will be based on a fire chronosequence. This is expected to provide a foundation to better understand the functions and species present in BSCs, and how they develop post-disturbance (Coxson and Marsh 2001). Understanding how these communities develop and interact is important, especially considering the gap in knowledge on soil microbial communities, non-vascular species, and their role in restoration techniques.

A critical element in supporting caribou populations is the consideration of caribou forage lichens. Due to the slow-growing nature of lichens, it can be difficult to include them in restoration activities (McMullin and Rapai 2020). Denison is planning to focus on caribou forage, primarily through transplanting and propagation of the appropriate lichen species. Natural regrowth of lichen communities after fires takes place in a complex setting, where BSCs and bryophyte communities stabilize soil surfaces, providing habitats where lichen propagules can establish and grow (Coxson and Marsh 2001). Denison hypothesizes that reestablishment of terrestrial lichen communities will have a better chance of success where these supporting BSC components can be co-established at the same time. The findings from the BSC research within post-fire environments is expected to support lichen communities, restoration activities for the DERT project, and ultimately caribou and caribou habitat within the Wheeler River Project area.

7 Monitoring and Adaptive Management Framework

An adaptive management framework will be developed to support the implementation of this Plan (Figure 7-1). In this context the adaptive management framework provides the means for the integration of Plan scope, management, and monitoring to systematically evaluate assumptions to adapt and learn. In practical terms the framework will consider the outcomes of actions taken/implemented, whether they have been successful and, if not, how can such actions be adapted to increase the likelihood of success. Outcomes of the Plan would be measured by establishing performance indicators as the way to define and measure progress toward achieving the objectives.

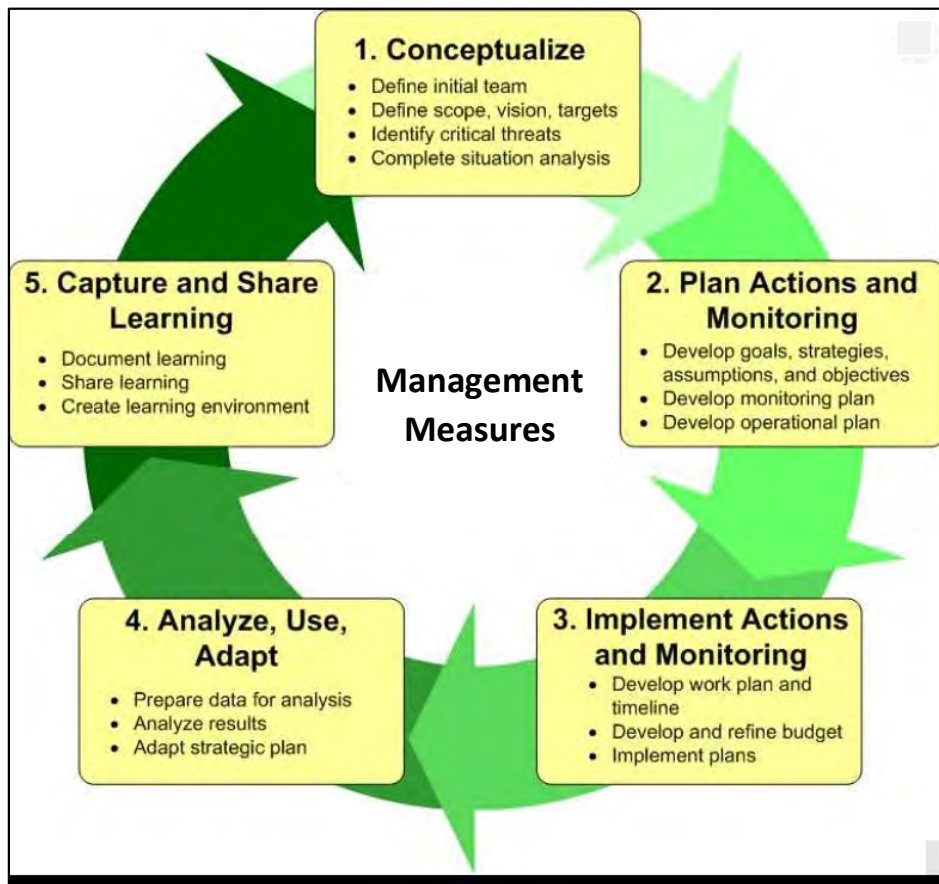


Figure 7-1: Adaptive Management Cycle

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From: [Carolanne Inglis-McQuay](#)
To: [REDACTED]
Cc: [Al Felix](#)
Subject: Denison's Response to Birch Narrows Comments on the draft Environmental Impact Statement for the Wheeler River Project
Date: Wednesday, November 29, 2023 2:03:00 PM
Attachments: [20231129-LTR-DEN_BNDN-DENResponseDEISComments_ALL.pdf](#)
Importance: High

Dear Chief Sylvestre:

On behalf of Janna Switzer, Denison's Director HSE Regulatory Compliance, please find attached correspondence related to Denison's response to Birch Narrows Dene Nation comments provided to the Canadian Nuclear Safety Commission on the draft Environmental Impact Statement for the Wheeler River Project.

Sincerely,
Carolanne Inglis-McQuay

Carolanne Inglis-McQuay

Director, Corporate Social Responsibility

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November 29, 2023

Chief Jonathon Sylvestre
Birch Narrows Dene Nation
Box 40
Turnor Lake, SK S0M 3E0

By email: [REDACTED]

Re: Denison response to Birch Narrows Dene Nation comments on the draft Environmental Impact Statement for the Wheeler River Project.

Dear Chief Sylvestre:

Denison thanks Birch Narrows Dene Nation ("BNDN") for their review and comments on the draft Denison Mines Wheeler River Project ("the Project") Environmental Impact Statement ("EIS").

As an attachment to this letter, you will find detailed answers prepared by Denison's full technical team to the 89 comments made on behalf of BNDN in respect of the Project on the draft EIS, which were shared with the Canadian Nuclear Safety Commission ("CNSC") on February 28, 2023. Please note, the format for our responses is set out in table form, following the manner in which the CNSC provided Denison with the complete suite of public comments made on the EIS.

Additionally, during our meeting on July 31, 2023 where we were pleased to meet with you to generally discuss Denison and the Wheeler River Project ("the Project"), Denison understood from you that it was important to more broadly understand the interactions between the Project and the aspects of the environment *generally* understood as being important to BNDN Members. We understood, as well, that the information shared with BNDN in this regard be presented in a manner that could be accessible and understood by BNDN Member, in addition to detailed technical comments.

With that in mind, we are pleased to summarize information for BNDN Members which is focused on the potential impacts of the Project to their people, water and land, and land and resource use. The themes of people, water and land, and land and resource use were also identified through the comments received from BNDN, in addition to detailed technical comments on other areas.

The following provides a summary of responses to the themes regarding the potential impacts to people, water and land, and land and resource use.

People: BNDN members identified a concern for and a need to understand the effects on population change, community well-being, and to the local economy.

Both the construction and operation camps will operate on a fly-in/out basis, limiting the opportunities for interactions between the workforce and Indigenous communities, as workers will be transported by air directly to the site. Other measures to protect community well-being of people employed on the site include health and wellness programming, life skills programming, employee and family assistance programming, implementing a no drug and alcohol policy on site, and offering culturally sensitive employment policies available to all employees, inclusive of any BNDN members.

Denison's Indigenous Peoples Policy sets out priority for Indigenous employment and procurement (among other items). With respect to employment, as noted in Section 13.3.2.1 of the EIS, Residents of Saskatchewan's North (i.e., those resident in the northern administrative district of Saskatchewan, inclusive of BNDN members) are prioritized for employment as an expected condition of the Surface Lease Agreement, similarly for goods and services to service the Project. With respect to procurement, Denison has established an internal procurement policy. The approach requires that Denison consider businesses within the local study area as first priority for procurement opportunities, and the Northern Administrative District as second priority, prior to looking elsewhere (southern Saskatchewan and/or outside of Saskatchewan) throughout all phases of the Project. BNDN businesses would fall in the category of northern Saskatchewan businesses, which would place them in line for second preference if Project needs cannot be met within the local study area. We can confirm that we have already been meeting with Birch Narrows Dene Nation Development Inc. over the past year to ensure we have a comprehensive understanding of the nature of the businesses that could support the Project in the future.

Water and land: BNDN members identified a concern for and a need to understand the Project impacts to the aquatic and terrestrial environment.

The potential effects of the Wheeler River Project on the aquatic and terrestrial environments have been comprehensively assessed in the EIS and related supporting documentation. The in-situ recovery ("ISR") mining uses a water-based solution, fortified with mining reagents, to dissolve naturally occurring uranium from within a host rock, while the host rock remains in place (in situ) below the surface. This mining method allows for the removal the uranium mineralization without physically removing the host rock for processing on surface. Accordingly, the Project involves no underground or open pit mine workings, no heavy equipment is needed to excavate rocks, and people do not work underground. Taken together, ISR mining is an environmentally sustainable way to mine uranium, as minimal surface disturbance occurs, minimal waste rock is generated, and no long-term storage of conventional tailings is required. The Project footprint is small as the ISR mining method requires only 169 hectares, or 1.6km². A conservative approach was taken in the assessment and the overall conclusion was made that there would be no significant adverse residual effects in consideration of proposed mitigations.

Potential effects from the Project on water quality were assessed in Section 8.2 of the EIS, including that the assessment directly evaluated discharge of effluent from the site using predictive modeling. Water treatment will occur; testing will occur prior to release; and no release will occur if water quality does not meet objectives. The predictive modeling showed that constituent concentrations including radionuclides would be below water quality objectives for the protection of aquatic life (i.e., no effects would be expected) at the outlet of Whitefish Lake well upstream of the outflow of the Iclander River to Russel Lake. Since no impact are expected to occur in these areas close to the Project, it can also be concluded that no effects would accrue in

areas further downstream in the watershed where contributing sub watersheds are many, many-times the size of the sub watersheds near the Project site. In addition, the Human Health Risk Assessment concluded that there would be no human health risks related to the Project for traditional food users in consideration of traditional food uses in relative close proximity to the Project site.

A standalone Accidents and Malfunctions (A&M) assessment was completed and is summarized in Section 14 of the EIS (full report is Appendix 14-A of the EIS). The A&M assessment considered almost 70 accident scenarios including many that would relate to the unplanned release of chemicals and radiation to the environment, including potential to effect country foods. Specific scenarios including the release of chemicals and radiation to the aquatic environment and to the terrestrial environment adjacent to the known Indigenous culture camps located along Hwy 914. The overall risks in consideration of likelihood and consequence were characterized as low. The assessment concluded that with planned engineering / environmental design features, mitigation measures, and emergency response, as well as implementing industry best practices, that the risks to the environment from accidents and malfunctions can be reduced to levels that are as low as reasonably practical.

Land and resource use: BNDN members identified a concern and a need to understand the impacts to the land and resources the community uses.

For safety reasons, controlled access to the Project footprint will be in place, meaning the 169-hectare footprint of the site will not be accessible for resource use purposes, including the requirement that Denison staff will not be allowed to hunt or fish. Limitation to Indigenous Land and Resource Use beyond the Project footprint and along Highway 914 are expected to result from Project related traffic. Denison is sensitive to areas of high value to English River First Nation (“ERFN”) and the Kineepik Métis Local along Highway 914, and is working with these communities to ensure that appropriate mitigations and restrictions are in place during periods of intensive use, such as community-hosted cultural camps. These, and any other mitigations would be applicable to all users of Highway 914, inclusive of BNDN. Although the known ERFN-trapper in the Project area is recently deceased, it is understood that similar uses are expected from future ERFN members. When the trapline is transferred, a trappers compensation agreement with inclusions for loss of commercial income and/or any in-kind support related to access and continued use will be contemplated with the future user (irrespective of their home community).

As outlined in Denison’s Indigenous Peoples Policy, Denison is committed to respecting Indigenous Knowledge and values regarding environmental stewardship and Indigenous peoples’ connection to the land, and to minimize potential effects, wherever possible. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.

We understand that the overall protection of the environment and respectful considerations of Indigenous communities is important to BNDN as we advance the Project, and have worked to summarize information relevant to these key areas above, and more specifically, in direct response to the 89 comments Denison received on the draft EIS.

We look forward to the opportunity to confirm that the above and attached information adequately responds to the areas important to BNDN in respect of the Project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Janna Switzer', with a stylized, flowing script.

Janna Switzer
Director, HSE Regulatory Compliance

Cc: AJ Felix

Attach: (1) Table: Denison Responses to BNDN draft EIS Comments
(2) IR-10, IR-67 & IR-131

Denison's Responses to Comments from BNDN on the Wheeler River Project draft EIS

Denison Response – November 29, 2023

Denison's Responses to Comment from Birch Narrows Dene Nation (February 28, 2023) for the Wheeler River Project Environmental Impact Statement

Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
2	Birch Narrows Dene Nation (BNDN) (February 28, 2023)	Section 5.7; 5.8.1	<p>Comment #1: The Project is located within the treaty and ancestral lands of BNDN and maintains both current and historical significance to the community. BNDN Indigenous Knowledge, Land Use and Occupancy are not currently considered within the EIS. Should the Project proceed without the consideration of BNDN's Knowledge, Land Use and Occupancy, it may cause irreparable loss of culturally significant sites and access to resources that the community depends upon. It may also contribute to a loss in cultural transmission.</p> <p>Request/recommendation:</p> <p>a) Denison should provide BNDN with funds to conduct a community-led Indigenous Knowledge, Land Use and Occupancy Study for consideration within the EIS process. At minimum, the Study should consider BNDN's Indigenous Ecological Knowledge, commercial and non-commercial harvesting practices, and cultural occupation of the region (including historical sites). The Study should also consider cultural transmission, information about the history of the area and BNDN community members' perspectives on the Project.</p> <p>b) The community-led Indigenous Knowledge, Land Use and Occupancy Study should be a component of a broader process agreement between BNDN and Denison that serves as a pathway for obtaining BNDN's consent for the Project.</p>	<p>Denison's engagement with BNDN is consistent with the identification of BNDN as an Indigenous Community who has expressed an interest in the Project. However, Denison acknowledges and understands this information from BNDN. As such, over the past year(s), Denison has met with BNDN and has respectfully requested further information from BNDN in respect to the land use activities occurring in and around the Project in order to more meaningfully understand the potential for adverse impacts to BNDN and therefore consider the potential for further studies and/or integration into the EIS of such information. Denison remains of the perspective that receipt of this information from BNDN is a necessary first step in this process, and has not received information in this regard to date.</p> <p>Project effects have been mitigated for the most intensive resource user(s), irrespective of affiliation.</p> <p>Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a community specific monitoring regime, suited to each of their interests and needs, in an agreed-upon fashion. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project. Therefore, Denison does not anticipate separate funding for BNDN at this time.</p> <p>Further, the assessment has been completed based on Valued Components (VCs), including the VC of Indigenous Land and Resource Use. Key indicators for Indigenous Land and Resource Use include:</p> <ul style="list-style-type: none"> • resource availability for harvesting subsistence resources (distribution and abundance of animals, plants, and wildlife for harvest and suitability of animals, plants, and wildlife for consumption); • land/water availability to practice traditional land use (TLU); and • perceived suitability of lands and resources therein. <p>Measurable parameters are identified for each of the key indicators, as presented in Table 11.1-1 of the EIS.</p>

Denison's Responses to Comments from BNDN on the Wheeler River Project draft EIS

Denison Response – November 29, 2023

Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
			<p>c) Denison should work with BNDN to consider the appropriate integration of the results into all aspects of the EIS and management/monitoring plans, as well as any additional appropriate mitigation and/or accommodation measures.</p> <p>See Section 4.1 for additional information on this topic.</p>	<p>The assessment does not take a distinctions based approach (i.e., the potential impact on each Indigenous community is not evaluated separately), but rather on the key indicators and associated measurable parameters.</p> <p>Mitigation to eliminate, reduce, or control potential adverse effects of the Project on Indigenous Land and Resource Use would apply to any BNDN uses proximal to the Project. Given proven mitigation is to be applied to traffic disturbances, noise, air quality, and increased competition for resources, the effects are expected to be minimal.</p> <p>As outlined in Denison's Indigenous Peoples Policy, Denison is committed to respecting Indigenous knowledge and values regarding environmental stewardship and Indigenous peoples' connection to the land, and to minimize potential effects, wherever possible.</p>
3	BNDN (February 28, 2023)	Heritage Baseline Study 2017 (Golder); Heritage Resource Impact Assessment 2020 (Golder); Heritage Resources Management Plan 2022 (Canada North)	<p>Comment #2: Archaeology as a profession has been dominated in North America by non-Indigenous researchers, despite most sites being Indigenous in origin. It is positive that Golder Associates made efforts to engage and involve Indigenous communities (by including an ERFN representative in fieldwork and by considering ERFN and Pinehouse Kineepik Metis land use maps) in their 2017 heritage baseline study and 2020 heritage resource impact assessment. Notwithstanding, the proposed Project area is within BNDN's treaty and ancestral lands and there may be heritage sites that the community is aware of. BNDN was not involved in either of these studies and BNDN may have Indigenous Knowledge of important heritage sites within the Study Area that should be considered.</p> <p>Request/recommendation:</p> <p>a) Denison should provide BNDN with funds to conduct a community-led Indigenous Knowledge, Land Use and Occupancy Study for consideration within the EIS process.</p> <p>b) The Heritage Resources Management Plan should be updated following the consideration of Indigenous Knowledge, Land Use and Occupancy</p>	<p>Denison's engagement with BNDN is consistent with the identification of BNDN as an Indigenous Community who has expressed an interest in the Project. However, Denison understands this information from BNDN. As such, over the past year(s), Denison has met with BNDN and has respectfully requested further information from BNDN in respect to the land use activities to occurring in and around the Project, in order to more meaningfully understand the potential for adverse impacts to BNDN and therefore consider the potential for further studies and / or integration into the EIS of such information. Denison remains of the perspective that receipt of this information from BNDN is a necessary first step in this process, and has not received information in this regard to date.</p> <p>Project effects have been mitigated for the most intensive resource user(s), irrespective of affiliation.</p> <p>Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a community specific monitoring regime, suited to each of their interests and needs, in an agreed-upon fashion. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project. Therefore, Denison does not anticipate separate funding for BNDN at this time.</p> <p>Following the implementation of the mitigation measures outlined in the Heritage Resource Management Plan (HRMP), the likelihood of residual effects is considered low and residual effects on Heritage Resources will occur infrequently and can be mitigated with the HRMP. Known archaeological resources identified in the Project Area were deemed to have low potential for archaeological interpretation and additional work or mitigation measures were</p>

Denison's Responses to Comments from BNDN on the Wheeler River Project draft EIS

Denison Response – November 29, 2023

Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
			<p>provided by BNDN. This may result in the requirement for further assessment and/or mitigation measures, which should be developed in consultation with BNDN.</p> <p>c) Denison should facilitate BNDN involvement in any additional archaeological fieldwork that takes place, including providing BNDN with capacity funding for members who participate. Terms to facilitate BNDN involvement in future archaeological work should be a component of a broader process agreement between BNDN and Denison.</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	<p>not required for the sites; the Heritage Conservation Branch had no further concerns with these sites and work could proceed as planned. Should unknown archaeological and cultural resources be identified during the Project, effects will be mitigated using the HRMP. While effects to archaeological resources are irreversible, they can be mitigated by following the HRMP, by either avoiding additional damage to the resource by creating a buffer zone around the site, or by assessing the resource according to The Heritage Property Act to enable the full interpretation of the site before continuing with work. Furthermore, based on the low occurrence of known Heritage Resources in the Project Area (two), and the location of the Heritage Resources (near waterbodies, along an existing trail and away from the main developments), there is a low potential for the identification or disturbance of previously unknown archaeological sites throughout the life of the Project. Therefore, any residual effects (i.e., destruction of Heritage Resources) is considered to be negligible. Further, HRMP includes feedback from Indigenous nations with demonstrated significant land use activities in and around the Project.</p> <p>As outlined in Denison's Indigenous Peoples Policy, Denison is committed to respecting Indigenous knowledge and values regarding environmental stewardship and Indigenous peoples' connection to the land, and to minimize potential effects, wherever possible.</p> <p>Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies, allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed.</p>
4	BNDN (February 28, 2023)	Heritage Baseline Study 2017 (Golder) – methods; Heritage Resource Impact Assessment 2020 (Golder) – methods	<p>Comment #3: The methodology within both the 2017 and 2020 heritage studies included 'judgmental' shovel probing and initial troweling through soil to identify cultural heritage material. While the discretion of a professional archaeologist needs to be taken into account, relying subjectively on which areas to shovel test and not employing a systematic approach is not reproducible and may result in sites being missed; this is of particular concern given that large sections of the areas retaining potential were not subject to shovel testing. Further, troweling through soil rather than subjecting all excavated soil to sifting through 6mm mesh</p>	<p>The 2017 and 2020 heritage studies were reviewed by the Heritage Conservation Branch. The HRIA was completed using standard pedestrian reconnaissance and visual inspection field techniques, complimented by the excavation of shovel probes and shovel tests and it was determined the site has limited interpretive potential. Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies, allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed. The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of the draft EIS provides the variety of ways in which Denison has</p>

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			<p>means that artifacts/ecofacts may easily be overlooked. Given that the north of Saskatchewan has not been thoroughly investigated archaeologically and given that 76 sites and nine find areas were recorded just 35 km south of the Project area as part of Dr. David Meyer's multi-year archaeological investigation, the results of these assessments do not seem rigorous.</p> <p>Request/recommendation:</p> <p>a) BNDN recommends that Denison undertake further archaeological investigations based on the results of the BNDN TKLU study prior to construction of the project.</p> <p>b) Future archaeological assessment programs should be designed collaboratively with BNDN and other Impacted Indigenous Nations.</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	<p>engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfill its key corporate principals for developing positive relationships (see draft EIS Section 4.2).</p> <p>Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a community specific monitoring regime, suited to each of their interests and needs, in an agreed-upon fashion. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project. Therefore, Denison does not anticipate separate funding for BNDN at this time.</p> <p>Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies, allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed.</p>
5	BNDN (February 28, 2023)	Heritage Baseline Study 2017 (Golder) – methods; Heritage Resource Impact Assessment 2020 (Golder) – methods	<p>Comment #4: The presence of strandlines are noted as being an indicator of archaeological potential; however, it is unclear within the reports whether any strandlines are present within the Study Area. Most of the investigations and shovel probes that took place were around existing waterbodies.</p> <p>Request/recommendation: Please indicate whether strandlines are present anywhere in the Study Area.</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	<p>Strandlines, like other linear landforms, do increase archaeological potential, however heritage resources are only directly effected by Project activities and there are no strandlines located in the Phoenix Site area (Government of Saskatchewan. N.d. 250K Surficial Geology Linear Landforms. Available at: https://geohub.saskatchewan.ca/datasets/saskatchewan::250k-surficial-geology-linear-landforms/explore?location=57.247957%2C-106.370278%2C6.33 [Accessed November 29, 2023]).</p>
6	BNDN (February 28, 2023)	Heritage Baseline Study 2017 (Golder) – methods; Heritage	<p>Comment #5: It is unclear whether the locations identified by other Indigenous communities in their Land Use maps were investigated archaeologically and subject where appropriate to shovel testing. Knowing this will give</p>	<p>Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies,</p>

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Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
		Resource Impact Assessment 2020 (Golder) – methods	<p>confidence to BNDN that areas they may identify as retaining potential may undergo further assessment if necessary.</p> <p>Request/recommendation: Please indicate whether the areas identified by other Indigenous communities in their Land Use maps were investigated archaeologically.</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed.
7	BNDN (February 28, 2023)	Heritage Resources Management Plan 2022 (Canada North) – 4.0	<p>Comment #6: The archaeological context provided is very Western/Scientific. Denison must also include historical/pre-historical accounts of Indigenous communities to provide an appropriate and comprehensive assessment of the archaeological context of the region.</p> <p>Request/recommendation: Denison must include a write-up of Indigenous historical and prehistorical accounts in consultation with relevant Indigenous communities. This write up must include historic context provided through oral history interviews as part of BNDN's community-led Indigenous Knowledge, Land Use and Occupancy Study for the Project.</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	<p>Denison's engagement with BNDN is consistent with the identification of BNDN as an Indigenous Community who has expressed an interest in the Project. However, Denison understands this information from BNDN. As such, over the past year(s), Denison has met with BNDN and has respectfully requested further information from BNDN in respect to the land use activities to occurring in and around the Project, in order to more meaningfully understand the potential for adverse impacts to BNDN and therefore consider the potential for further studies and / or integration into the EIS of such information. Denison remains of the perspective that receipt of this information from BNDN is a necessary first step in this process, and has not received information in this regard to date.</p> <p>Project effects have been mitigated for the most intensive resource user(s), irrespective of affiliation.</p> <p>Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a community specific monitoring regime, suited to each of their interests and needs, in an agreed-upon fashion. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project.</p> <p>Following the implementation of the mitigation measures outlined in the Heritage Resource Management Plan (HRMP), the likelihood of residual effects is considered low and residual effects on Heritage Resources will occur infrequently and can be mitigated with the HRMP. Known archaeological resources identified in the Project Area were deemed to have low potential for archaeological interpretation and additional work or mitigation measures were not required for the sites; the Heritage Conservation Branch had no further concerns with these sites and work could proceed as planned. Should unknown archaeological and cultural</p>

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				<p>resources be identified during the Project, effects will be mitigated using the HRMP. While effects to archaeological resources are irreversible, they can be mitigated by following the HRMP, by either avoiding additional damage to the resource by creating a buffer zone around the site, or by assessing the resource according to The Heritage Property Act to enable the full interpretation of the site before continuing with work. Furthermore, based on the low occurrence of known Heritage Resources in the Project Area (two), and the location of the Heritage Resources (near waterbodies, along an existing trail and away from the main developments), there is a low potential for the identification or disturbance of previously unknown archaeological sites throughout the life of the Project. Therefore, any residual effects (i.e., destruction of Heritage Resources) is considered to be negligible. Further, HRMP includes feedback from Indigenous nations with demonstrated significant land use activities in and around the Project.</p> <p>As outlined in Denison's Indigenous Peoples Policy, Denison is committed to respecting Indigenous knowledge and values regarding environmental stewardship and Indigenous peoples' connection to the land, and to minimize potential effects, wherever possible.</p> <p>Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies, allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed.</p>
8	BNDN (February 28, 2023)	Heritage Resources Management Plan 2022 (Canada North) – 5.1 1e & 1f	<p>Comment #7: BNDN notes that there has been limited engagement of our Nation as part of the archaeological baseline studies undertaken at the site. The Wheeler River Project is within our Treaty and Ancestral Lands where our members have deep ancestral ties and continue to exercise our rights to this day. As stewards of the land since time immemorial and holders of both Treaty and Aboriginal rights in the Project area, Denison must engage with us as partners on their activities on our lands. This includes their planning and decision-making related to archaeological materials to which our members have ancestral and spiritual ties.</p> <p>Request/recommendation:</p>	<p>Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies, allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed.</p> <p>Even the most thorough investigations may not identify all archaeological materials that may be present. Denison advises that if unanticipated archaeological materials or features are encountered as a result of construction or reclamation activities, all work in the immediate area should cease and the Heritage Conservation Branch and local authorities (if applicable) contacted.</p>

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Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
			<ul style="list-style-type: none"> Indigenous communities should be consulted and engaged in decision making rather than merely informed if the archaeological material is expected to be Indigenous in origin. <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	
9	BNDN (February 28, 2023)	Heritage Resources Management Plan 2022 (Canada North) – 5.1.7	<p>Comment #8: Given the Ancestral and Treaty ties our members have to the project area, our members have valuable knowledge and context to inform the Heritage Resource Impact Assessment (HRIA) for the Project that must be considered prior to being reviewed or approved by any regulatory body.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> The draft HRIA should be reviewed by BNDN and other impacted Indigenous Nations prior to being submitted for regulatory approval. <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	<p>Denison's engagement with BNDN is consistent with the identification of BNDN as an Indigenous Community who has expressed an interest in the Project. However, Denison understands this information from BNDN. As such, over the past year(s), Denison has met with BNDN and has respectfully requested further information from BNDN in respect to the land use activities to occurring in and around the Project, in order to more meaningfully understand the potential for adverse impacts to BNDN and therefore consider the potential for further studies and / or integration into the EIS of such information. Denison remains of the perspective that receipt of this information from BNDN is a necessary first step in this process, and has not received information in this regard to date.</p> <p>Project effects have been mitigated for the most intensive resource user(s), irrespective of affiliation.</p> <p>Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a community specific monitoring regime, suited to each of their interests and needs, in an agreed-upon fashion. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project.</p> <p>Following the implementation of the mitigation measures outlined in the Heritage Resource Management Plan (HRMP), the likelihood of residual effects is considered low and residual effects on Heritage Resources will occur infrequently and can be mitigated with the HRMP. Known archaeological resources identified in the Project Area were deemed to have low potential for archaeological interpretation and additional work or mitigation measures were not required for the sites; the Heritage Conservation Branch had no further concerns with these sites and work could proceed as planned. Should unknown archaeological and cultural resources be identified during the Project, effects will be mitigated using the HRMP. While effects to archaeological resources are irreversible, they can be mitigated by following the</p>

Denison's Responses to Comments from BNDN on the Wheeler River Project draft EIS

Denison Response – November 29, 2023

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				<p>HRMP, by either avoiding additional damage to the resource by creating a buffer zone around the site, or by assessing the resource according to The Heritage Property Act to enable the full interpretation of the site before continuing with work. Furthermore, based on the low occurrence of known Heritage Resources in the Project Area (two), and the location of the Heritage Resources (near waterbodies, along an existing trail and away from the main developments), there is a low potential for the identification or disturbance of previously unknown archaeological sites throughout the life of the Project. Therefore, any residual effects (i.e., destruction of Heritage Resources) is considered to be negligible. Further, HRMP includes feedback from Indigenous nations with demonstrated significant land use activities in and around the Project.</p> <p>As outlined in Denison's Indigenous Peoples Policy, Denison is committed to respecting Indigenous knowledge and values regarding environmental stewardship and Indigenous peoples' connection to the land, and to minimize potential effects, wherever possible.</p> <p>Please see Section 11.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment for Heritage Resources. The Section describes how field assistants from local Indigenous communities were involved with the HRIA baseline studies, allowing for in-field consultation during the assessment to make sure that areas deemed to have potential by the land users were surveyed.</p>
10	BNDN (February 28, 2023)	Heritage Resources Management Plan 2022 (Canada North) – 5.1.1	<p>Comment #9: Discerning archaeological artifacts/ecofacts is difficult at times even to the trained eye; consequently, it is important to undergo training to understand what you could be looking for.</p> <p>Request/recommendation:</p> <p>a) Staff should undergo training regarding the cultural material they may encounter while on site</p> <p>b) BNDN and other Indigenous communities should be invited to attend this training</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	<p>Section 5.1.1 describes how all staff working on the Project should be informed of the possibility that they could encounter archaeological resources during their work or leisure time, which will include the proper procedure to follow in the case of a chance find. This could be facilitated by a short archaeological education section in the employee orientation, outlining the types of sites and artifacts that could be encountered in the area, as well as what to do when a potential artifact or site is found. If the chance find is deemed to be an archaeological site, then an HRIA is required and a qualified archaeologist must complete the assessment.</p> <p>Section 11.3.5 Mitigation Measures describes the management of archaeological resources and includes the assessment of the discovery by a qualified archaeologist and mitigation measures including avoidance of the site, shovel testing, systematic and intensive shovel testing, excavation, and/or construction monitoring. The HRMP outlines mechanisms for Indigenous engagement including the communities and implementation of appropriate cultural protocols.</p>
11	BNDN (February 28, 2023)	Heritage Resources Management Plan 2022	Comment #10: In numerous instances the Heritage Resources Management Plan (HRMP), Denison has used noncommittal language to	The Heritage Resources Management Plan will be revisited for use of language 'should' to 'will' where appropriate.

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		(Canada North) – 5.3	<p>describe future Indigenous engagement related to heritage resources. BNDN notes that engagement of impacted Nations is essential for proper heritage resource management and as such the language in the HRMP should reflect the necessity of this engagement.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Throughout the HRMP, Denison must change the language of “should” to “will” where appropriate. For example: management options will be presented to the applicable Indigenous communities for feedback and will include consultation. <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	
12	BNDN (February 28, 2023)	Heritage Resources Management Plan 2022 (Canada North) – 5.3.1	<p>Comment #11: BNDN notes that Section 5.3.1 does not confirm that impacted Indigenous Nations will have the opportunity to participate in future archaeological fieldwork. While BNDN understands that many impacted Nations will have arrangements directly with Denison to facilitate member participation, this should additionally be made available to all impacted Indigenous Nations as part of best practices at the Project.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> In addition to any provisions developed in a Project Agreement between BNDN and Denison for the Wheeler River Project, Denison should include a clause that confirms that all impacted Indigenous communities will be invited to have monitors participate in any additional fieldwork and that Denison will provide 	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate separate funding for BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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			<p>capacity funding for Nations that wish to participate.</p> <p>See Section 4.1 for additional information on this topic (p. 12-14).</p>	
13	BNDN (February 28, 2023)	Section 13.0	<p>Comments #12, 14 and 15: BNDN is not included as a Local Study Area (LSA) Community despite being closer to the Project than other LSA Communities. The Project is situated on BNDN's ancestral lands. BNDN members currently and historically use the LSA for harvesting (commercial and personal) and ceremonial purposes.</p> <p>Without the LSA Community designation, BNDN members are less likely to be employed or trained through the Project. BNDN members are not entitled to priority training and employment provisions from Denison on the Project. Further, BNDN businesses and partnerships are not entitled to priority procurement provisions from Denison on the Project.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN must be identified as a LSA Community. BNDN members and businesses must be eligible for LSA priority status for employment, training, and contracting opportunities. The EIS should be revised accordingly. A formal agreement between BNDN and Denison is required to outline socioeconomic offsetting measures and benefits should the Project move forward. This must include ways for BNDN businesses and member owned businesses to participate in the Project. 	<p>Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable. These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI. Economic benefits surrounding Project employment (including income and training) are likely to be targeted toward the communities identified within the spatial boundaries. Economic impacts extending beyond the LSA are likely to be diffused and undetectable within the broader economy. The spatial boundaries were selected based on the consideration of communities where Project recruitment is likely to be prioritized, consideration of previous EAs conducted in the region, and consideration of information shared through key persons in the interview program. The LSA for the assessment of the economy includes the following communities: ERFN (including Indian Reserve Wapachewunak 192D and Indian Reserve La Plonge 192) and Patuanak, Northern Hamlet (Patuanak); Pinehouse Lake, Northern Village; and Beauval, Northern Village.</p> <p>Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as on-the-job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.</p>

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			<p>Denison references a Human Resource Development Plan (HRDP) as a mitigation measure to ensure local and regional community members are hired in priority. However, Denison does not provide sufficient details to allow Birch to assess the adequacy of the HRDP.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests the ability to review and comment on Denison's Human Resource Development Plan to provide input and recommendations to encourage community participation and employment in the Project. <p>See Section 4.2 for additional information on this topic (p. 19-23).</p>	
14	BNDN (February 28, 2023)	Section 12.0 and 13.0	<p>Comment #13: There is no BNDN specific Indigenous Knowledge or socioeconomic data presented in the EIS.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Denison must conduct Indigenous Knowledge and Community well-being Study (or similar) to gather BNDN specific information. These studies will allow for a more fulsome assessment of the Project on BNDN rights and interests. Additionally, BNDN specific data will enhance Denison's baseline data and help to inform mitigation and monitoring measures. <p>See Section 4.2 for additional information on this topic (p. 19-22).</p>	<p>Denison's engagement with BNDN is consistent with the identification of BNDN as an Indigenous Community who has expressed an interest in the Project. However, Denison understands this information from BNDN. As such, over the past year(s), Denison has met with BNDN and has respectfully requested further information from BNDN in respect to the land use activities to occurring in and around the Project, in order to more meaningfully understand the potential for adverse impacts to BNDN and therefore consider the potential for further studies and / or integration into the EIS of such information. Denison remains of the perspective that receipt of this information from BNDN is a necessary first step in this process, and has not received information in this regard to date.</p> <p>Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable. These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI. Economic benefits surrounding Project employment (including income and training) are likely to be targeted toward the communities identified within the spatial boundaries. Economic impacts extending beyond the LSA are likely to be diffused and undetectable within the broader economy. The spatial boundaries were selected based on the consideration of communities where Project recruitment is likely to be prioritized, consideration of previous EAs conducted in the region, and consideration of information shared through key persons in the interview program. The LSA for the assessment of the economy includes the following communities: ERFN (including Indian Reserve</p>

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				<p>Wapachewunak 192D and Indian Reserve La Plonge 192) and Patuanak, Northern Hamlet (Patuanak); Pinehouse Lake, Northern Village; and Beauval, Northern Village.</p> <p>The spatial boundaries selected for Community Well-being were chosen because they permit baseline characterization in sufficient detail to enable potential interactions between the Project and the well-being of the community. These boundaries were developed in consideration of where interactions are likely to occur. The spatial boundaries were derived based on the consideration of communities where Project recruitment is likely to be prioritized, consideration of previous EAs conducted in the region, and consideration of information shared through key persons in the interview program. The LSA for the Community Well-being VC includes ERFN (including Indian Reserves Wapachewunak 192D and La Plonge 192) and Patuanak, Northern Hamlet; Pinehouse Lake, Northern Village; and Beauval, Northern Village.</p>
15	BNDN (February 28, 2023)	Section 12.0	<p>Comment #16: While EIS does consider the effects of population changes related to the Project on social adaptability, demand for services and housing, it does not address the full range of potential impacts associated with a transient workforce. Significant research has been conducted to demonstrate the negative impacts of remote workers and work camps on Indigenous women and girls. This must be considered in the EIS.</p> <p>The EIS must include an assessment of all potential effects of a transient workforce and changes to population dynamics, including those disproportionately experienced by Indigenous women and girls, and other segments of the population. This must incorporate findings of research like the 2017 study completed by Lake Babine Nation and Nak'azdli Whut'en (Indigenous Communities and Industrial Camps), and/or related research in the context of the LSA.</p> <p>See Section 4.2 for additional information on this topic (p. 19-21).</p>	<p>Both the construction and operation camps will operate on a fly-in/out basis, meaning the opportunities for interactions between the workforce and Indigenous communities are limited as workers will be transported by air directly to the site. Section 12.2.4.2.1 provides the actions to minimize the extent the Project contributes to in- and out- migration in the LSA, including:</p> <ul style="list-style-type: none"> • Denison will initially prioritize the COI in terms of employment opportunities and will work with the leadership of these communities to assist in determining hiring practices during all phases of the Project. Priority for hiring will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA. • Employees will not be permitted to commute to the site by any means other than the fly-in/fly-out worker rotation systems (i.e., they cannot drive to the site). • Pick-up and drop-off points are being planned at two locally central points in communities within the LSA, at one additional site in Saskatchewan (i.e., Saskatoon), and potentially at other locations. • Housing for workers will be provided at the camps with free accommodations and meals. <p>Although difficult to predict, communities in the LSA are not expected to experience any substantial population growth or change in demographics as a result of the Project, particularly with mitigation measures identified. Although the potential exists for some individuals to return to the COI, it is anticipated that this would be difficult to discern from existing in-/out-migration rates. As population and demographics are not expected to experience any change as a result of the Project, this pathway will not be carried forward to the residual effects assessment.</p>

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16	BNDN (February 28, 2023)	Section 12.0 and 13.0	<p>Comment #17: BNDN notes that no specific management or monitoring plan has been included in the EIS documentation related to the verification of residual socio-economic impacts, both positive and negative, for the local economy.</p> <p>Request/recommendation:</p> <p>a) Denison must develop a Socio-Economic Monitoring Plan for the life of the Project to verify the effects assessment included in the EIS and to be included in the Project's approach to adaptive management. This Plan would include an approach, co- developed with Indigenous groups in the LSA (including BNDN), to monitoring the realization of the benefits and impacts of the Project (e.g., employment and procurement targets, training and capacity building, community investments, etc.) as mitigation and enhancement measures are implemented. Monitoring and subsequent regular evaluation would allow for the real-time adjustment of targets and/or an approach to adjusting enhancement measures or identifying offsetting benefits where targets are not met.</p> <p>See Section 4.2 for additional information on this topic (p. 19-21).</p> <p>[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate separate funding for BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
17	BNDN (February 28, 2023)	Section 12.0 and 13.0	<p>Comment #17: BNDN notes that no specific management or monitoring plan has been included in the EIS documentation related to the verification of residual socio-economic impacts, both positive and negative, for the local economy.</p> <p>Request/recommendation:</p>	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to</p>

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			<p>b) The Crown must include the development of a Socio-Economic Monitoring Plan as a condition of approval for the Project.</p> <p>See Section 4.2 for additional information on this topic (p. 19-21).</p> <p>[Additional questions on this topic directed to the proponent are included in the CNSC table]</p>	<p>other Indigenous nations who may have interest in the Project. Denison does not anticipate separate funding for BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
18	BNDN (February 28, 2023)	Appendix 9B Section 2.5.1 Appendix 8E Table 4	<p>Comment #18: In several instances in the draft EIS Denison has noted that Indigenous Nations are concerned with the possibility of mercury contamination from mining operations. BNDN shares these concerns with other Indigenous Nations. Due to the very low concentrations of mercury present in the Phoenix deposit, Denison has not meaningfully studied the potential impacts the Project may have on altering mercury biogeochemistry in the downstream environment.</p> <p>BNDN notes that background mercury concentrations can be elevated in many unexpected and remote locations due to atmospheric deposition (often due to coal plants) (Jackson, 1997). BNDN is very concerned that Denison has not analyzed for mercury as part of their baseline soil geochemistry assessments for the Project, especially in wetlands downstream of the Project. Mercury concentrations in wetland soils are sensitive to changes in water chemistry that can lead to increased mercury methylation. This is especially acute from increases in nutrients and sulphates which can active sulfate reducing microorganisms that methylate mercury (Liu, Li, & Cai, 2012). Table 4 of Appendix 8e shows that the effluent discharged to Whitefish Lake will have</p>	<p>Although baseline concentrations of total mercury in sediment were not collected during the baseline program, Denison will collect background information pertaining to sediment total and methyl mercury from LSA lakes and rivers prior to site development.</p> <p>As indicated in draft EIS Section 8.4.6.1, Residual Effects Characterization, mercury is not associated with the local geology and is not expected to be released in the effluent at measurable levels and was therefore not identified as a COPC. Denison notes that there is potential for increased methylmercury production in the receiving environment under a certain combination of factors to which the Project may contribute; however, prediction of methylmercury production is not practical. Denison commits to monitoring mercury and methylmercury in the aquatic environment over the life of the Project to determine the potential changes in mercury concentrations in fish tissue over time. As the Project advances and operational monitoring is underway, Denison will assess health risks from fish consumption by comparing fish tissue data collected during operation from the monitoring program against Health Canada's mercury guideline of 0.5 ug/g wet weight. This is a human health risk-based maximum permissible concentration. Mercury data presented throughout the draft EIS represents total mercury. Denison agrees to include methylmercury as part of the constituents monitored in fish throughout all project phases.</p> <p>Engagement on licensing requirements, such as the development of the environmental monitoring program and the associated monitoring regime will occur to support Project permitting and licensing efforts.</p>

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			<p>mercury concentrations almost 5,700 times background concentrations. This dramatic increase in sulfate loading to Whitefish Lake may not exceed water quality objectives unto itself but may be sufficient to meaningfully change mercury biogeochemistry in downstream wetlands.</p> <p>BNDN is very concerned with the complete lack of assessment and analysis of baseline mercury concentrations and the potential changes to mercury cycling that could be induced by the Project.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison undertake baseline studies of mercury concentrations in soils, with a focus on baseline concentrations of mercury in organic wetland soils downstream of the project. Note that mercury sampling should sample total mercury and methylmercury in all analyses, as well as porewater total mercury and methylmercury. The study design and implementation should be undertaken collaboratively with BNDN.</p> <p>b) BNDN recommends that the CNSC requires Denison to undertake a baseline assessment of mercury in soils (with a focus on wetlands) prior to construction of the Project. This may be established as a condition of approval for the Project.</p> <p>c) Depending on the findings of the baseline mercury in soils and wetlands studies, the CNSC should include a condition of approval on the Project that requires Denison to monitor mercury biogeochemistry in the receiving environment over the life of mine.</p>	

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			See Section 4.3 for additional information on this topic (p. 25-28). [Additional questions on this topic directed to regulators or government entities are included in the CNSC table]	
19	BNDN (February 28, 2023)	Appendix 7C Section 3.5.6.2.1 Figures 7.6-10 and 7.6-11	Comment #19: Figure 7.6-10 and 7.6-11 of the draft EIS show the results of Denison's modelling of uranium mobility and adsorption from the ore body following the decommissioning of the mine. The figures show that the model indicates that all dissolved uranium will be effectively removed from solution within a short distance of the orebody via adsorption to clays present in the bedrock. In Section 3.5.6.2.1 of Appendix 7c of the draft EIS Denison notes that there is very limited literature available on uranium fate and transport, especially in similar environments to the Wheeler River Project. Denison's uranium speciation model relies almost entirely on a single academic article studying the partitioning of uranium in the alteration halo surrounding the Cigar Lake uranium deposit. Of very important note is that this paper is focused on the pre-mining environment at Cigar Lake and does not examine how uranium partitioning may be dramatically altered by ISR mining. Health Canada published a document on uranium in drinking water in 2017 literature review of uranium mobility, complexation and chemistry in groundwater which documents the widely varying behaviour of uranium in groundwater depending on redox conditions, pH, pressure, and other ions available for complexation which may increase or decrease uranium mobility (Health Canada, 2017).	Denison's engagement with BNDN is consistent with the identification of BNDN as an Indigenous Community who has expressed an interest in the Project. As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation (ERFN) and Kineepik Métis Local (KML) on details and updates to the decommissioning plan which includes mining area remediation plans and associated post-decommissioning modelling of groundwater from the remediated mining area, suited to each of their interests and needs. As part of these updates, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that updates to the decommissioning plan and groundwater modelling would also be relevant to other Indigenous nations who may have an interest in the Project. As such, Denison will not be developing a process agreement with the BNDN to address concerns raised about pertaining to long-term groundwater quality for the Wheeler River Project. This comment is also applicable to other comments where the same request was made by the BNDN. The balance of this response pertains to groundwater quality and the numerical groundwater model presented in draft EIS will focus on the technical content of the concerns raised. Denison's groundwater SME and author of the modelling report (Appendix 7C) acknowledges that the modelling report did not include a lengthy discussion of uranium speciation and mobility. However, the reactive transport modelling done using the PHREEC geochemical code was carefully informed by relevant literature, and was certainly not restricted to consideration of one study (Cigar Lake). In Section 3.5.3 of Appendix 7C we reference important studies pertaining to uranium complexation in solution by carbonate species (Guillaumont et al. 2003; Gorman-Lewis et al., 2008; Grenthe et al., 2020) and ternary complexes of uranium with calcium and magnesium and carbonates in solution (Dong and Brooks, 2006). These complexation reactions were added into the Project-specific PHREEQC database developed as part of the work presented in Appendix 7C. The database was updated to include solution-phase complexes of uranium in Guillaumont, 2003, which is a comprehensive summary of known reaction constants for uranium with dissolved-phase ligands. Further, the consideration of sorption of uranium-carbonate complexes to quartz, geothite and illite is shown in Appendix E of Appendix 7C, and relies on information from multiple publications. The reactive transport modelling was done using piChem (FELOW +

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			<p>Uranium will be present in extremely high concentrations (100 mg/l) in the restoration solution. Many other anions and cations which uranium is known to form complexes with will also be present in the solution at very high concentrations. The limited literature upon which Denison has developed their models to predict uranium mobility post- decommissioning is insufficient to confidently assert that the very concentrated restoration solution will behave as predicted. Uranium is a common groundwater contaminant around the world and is known to be stable in dissolved forms in groundwater in many locations. Furthermore, some studies have indicated that the effectiveness of adsorption as a mechanism for attenuation of uranium in solution is significantly overstated, especially in environments where there is competition from other ions, as there will be in the restoration solution (Gandhi, Sampath, & Maliyekkal, 2022).</p> <p>BNDN is very concerned that Denison has portrayed their groundwater contamination model in Appendix 7c with an inappropriate level of confidence given the level of uncertainty reasonably inferred from the lack of foundational literature relevant to the circumstances at Wheeler River and the well- understood complexity of uranium fate and transport in groundwater.</p> <p>It is not impossible to imagine that surface water contamination could eventually occur, especially given the exceptionally high concentrations of uranium in the restoration solution. By consenting to the Wheeler River Project, BNDN is supporting a process that will be irreversible once it commences and may be very difficult to manage</p>	<p>PHREEQC) because of the ability of that approach to carefully consider speciation of uranium, and the potential interactions of uranium with other species in solution.</p> <p>The comment to which the BNDN refer in Section 3.5.6.2.1 of Appendix 7C is: "[t]o the best of our knowledge, there is very little information published about the solid-phase speciation of uranium and other constituents associated with ore bodies and the overlying and underlying rocks in the Athabasca basin". This is not speaking specifically to the speciation of uranium in the solid phase. Experimental work that provide information on solid-phase speciation include sequential extraction schemes and spectroscopic studies, such as recent work by Bayle et al., 2023 (https://pubmed.ncbi.nlm.nih.gov/37417589/). Research on the solid-phase speciation of uranium is not addressed in Health Canada (2017). As indicated, we were not able to find research pertaining to sequential extractions of spectroscopic studies of uranium in the solid phase for relevant materials/conditions. It is for this reason that we presented results of solid-phase uranium speciation in the available study by Percival 1989. It is acknowledged that this study was for Cigar Lake. The relevance of the work for the Wheeler River Project is high.</p>

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			<p>should the underlying modeling assumption prove to be inaccurate by a significant margin. As a Nation whose members put a very high emphasis on the protection of groundwater resources, BNDN requires substantially greater reassurance through dialogue with Denison and further studies to have confidence that the Project will not irreparably degrade the natural environment in our Ancestral Lands.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Denison must develop a process agreement with BNDN to work through our concerns related to long-term groundwater contamination from the Project. This process agreement would lay out the pathway to obtaining BNDN consent for the Project through providing our Nation with confidence that the groundwater and surface water near to the project will not be irreparably contaminated. The process agreement will include additional studies and consultation activities with BNDN that Denison must undertake. The satisfaction of all terms in the process agreement would be defined by the signing of a Project Agreement between Denison and BNDN. BNDN recommends that Denison commit to funding bench-scale studies to validate the outputs from their FEFLOW and PHREEQC modelling. The bench-scale studies should be undertaken by an independent academic. <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
20	BNDN (February 28, 2023)	Section 7.6.2.1 Appendix 7C Section 4.6	Comment #20: In Section 7.6.2.1 of the draft EIS, Denison mentions that they anticipate the outward migration of lixiviant as is observed at	Groundwater modelling and flow path analysis calibrated to field conditions have evaluated upward solution migration and demonstrated that the maximum height that injected fluids will migrate upwards from the ore zone during active mining is likely between 11 to 13 m

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			<p>other ISR operations globally and has incorporated their assumed concentrations of metals and the extent of area affected by flare from the ISR operations. Section 4.6 of Appendix 7c states that the flare zone is expected to extend 11 to 13 m but have modelled with a "conservative 50 m flare zone.</p> <p>It is not clear how Denison derived their assessment that the flare zone would extend 11 to 13 m and that a 50 m flare zone is considered conservative for the purposes of modelling. BNDN requires further information to have confidence that the design is as conservative as the Proponent has suggested.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison provide further information on how the size of the area above the deposit affected by flare was calculated and how they determined that 50% restoration solution was determined as the appropriate concentration to base water quality modelling. <p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>(Section 2 of the draft EIS). For conservatism, a 50-m vertical zone above the deposit was assumed to be potentially disturbed by mining activities. Denison specified 50m flare threshold based on their commitment to maintain inward hydraulic gradients, and or adding extraction wells as necessary to limit the migration of the flare.</p> <p>With the engineered controls described above, flare is not anticipated above 11-13 m. However, the decision was made to assume 50% of the restored solution uniformly between 15 and 50 m above the mineralized zone because there will be a natural gradient from 100% restored solution to 0% restored solution (i.e., baseline conditions) over this distance. The uncertainty associated with this decision was addressed in the uncertainty analysis presented in Section 4.7 of Appendix 7C, where 100% restored solution was assumed to be present over the entire 50 m height above the ore zone. The results of the model under both scenarios was consistent: no water quality effects above groundwater screening criteria, apart from those that reflect natural conditions, in Whitefish Lake.</p> <p>Over the life of the Project, groundwater quantity and quality monitoring activities will be completed to assess the performance of various components of the Project associated with engineering mining designs and performance and infrastructure designs to protect groundwater. A detailed Groundwater Monitoring Plan (GWMP) will be prepared to support licensing. The GWMP will include an Excursion Contingency Plan, and measures for adaptive management. The GWMP will be informed by the understanding of existing groundwater conditions at the Project Area (Appendix 7-A), the reactive transport modelling of groundwater COPCs associated with the restored mining area (Appendix 7-C), and the commitments made within the Geology and Groundwater section of the EIS.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>
21	BNDN (February 28, 2023)	Appendix 7C Section 3.2.2.1	<p>Comment #21: Section 3.2.2.1 of Appendix 7C of the draft EIS describes the natural redox conditions in the ore zone as naturally reducing. The operation of the wellfield will result in the groundwater in the ore zone becoming oxidizing. Post decommissioning, the groundwater in the</p>	<p>Solution-phase concentrations of metals and uranium are what influence the desorption of these elements from clays over time; but the BNDN is correct that there may be hysteresis, or a kinetic component to desorption to equilibrium conditions. Re-establishment of reducing redox conditions - primarily through scavenging of residual oxidant with pyrite - with progressive movement of natural groundwater through the mining area in the Decommissioning period is anticipated to result in concentrations of metals and uranium at baseline conditions because the same mineral phases as are present now are expected to</p>

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			<p>ore zone can be reasonably anticipated to return to baseline (reducing) redox conditions.</p> <p>BNDN notes that as redox conditions becoming increasingly reducing post closure, adsorption kinetics of contaminants adsorbed to clays could shift so that contaminants desorb from clays and are remobilized into solution. It is not clear to BNDN that the evolution of redox geochemistry and its implication on adsorption kinetics has been adequately considered by Denison.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests further information on how increasingly reducing groundwater conditions post decommissioning may impact adsorption kinetics of contaminants expected to adsorb to clays. <p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>control the solubility of those elements. Secondary minerals may influence concentrations for a small number of constituents. In all cases, concentrations of these elements will not exceed those assumed in the model.</p> <p>In the model as presented, desorption from clays was taken into account for protons that had sorbed to chlorite in the mining area as a sensitivity analysis. The desorption of protons did not have an adverse effect on the water quality in Whitefish Lake. See draft EIS Appendix 7-C Sections 3.5.6.4 and 4.7.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>
22	BNDN (February 28, 2023)	Appendix 7C Section 3.4	<p>Comment #22: In Section 3.4 of Appendix 7C Denison reports that they have excluded colloids from their post- decommissioning geochemical modelling. Denison has also noted that colloids would serve to enhance mobility of contaminants and they could precipitate out of solution.</p> <p>BNDN is concerned that by excluding the precipitation of colloids with adsorbed contaminants as a pathway for contaminant transport, Denison has significantly underestimated the mobility of contaminants and the consequent risks to the receiving environment.</p>	<p>The authors acknowledged in Appendix 7C the potential for transport of COPCs in association with colloids was possible, and used previous research in a highly relevant system (Cigar Lake) to make the professional judgement that this process would not significantly alter the results of the numerical model. Colloid transport is not included routinely in reactive transport modelling because of the difficulty in a) accurately measuring the colloidal fraction in groundwater under existing conditions as the basis for the numerous assumptions that would need to be made to include them in numerical modelling and b) the challenges with applying modelling approaches that have been developed at the scale of regional models (e.g., Molnar et al., https://www.pure.ed.ac.uk/ws/portalfiles/portal/109261315/109261203._Molnar._PFV.pdf). Refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which</p>

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			<p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison prepare an additional geochemical model that considers the roles that colloids could potentially contribute to contaminant transport. The findings of this additional model (along with the other models) should be reviewed with BNDN. <p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>as shown are protective of aquatic biota in Whitefish Lake. The final acceptable mining area decommissioning objectives will be developed prior to initiation of groundwater remediation, as part of the Detailed Decommissioning Plan (DDP). Prior to executing decommissioning activities, Denison shall prepare and submit the DDP to regulators for acceptance. In this case the DDP would reflect input that will be solicited from Indigenous Nations and communities and others prior to its submission and would also be informed by conditions on the ground at the site at that time, operational experience that has been gained and the regulatory landscape at that time. As is highlighted above, the decommissioning plan will evolve over time and the plan will become more refined as the Project advances.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>
23	BNDN (February 28, 2023)	Appendix 7C Section 4.0	<p>Comment #23: In Section 4.0 of Appendix 7c of the draft EIS, Denison reports that the composition of restoration solution 1 and restoration solution 2 were derived from metallurgical testing.</p> <p>While this is likely the best, BNDN notes that the initial solution used in the geochemical modelling is enormously consequential in the accuracy of the modelling and require further confirmation and confidence that the restoration solutions are accurate to within a reasonable margin of error for the geochemical modelling.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison provide further information on how the chemistry in restoration solution 1 and restoration solution 2 were derived and any evidence they can provide that gives them confidence that these solutions are an accurate reflection of what will be observed in the wellfield. 	<p>Further information on how the chemistry in restoration solutions #1 and #2 were derived and evidence providing confidence that the reflect conditions that are expected in the mining area with remediation of the mining area is provided in the Denison Feasibility Report (2023) and a summary is attached here as part of Denison's response to Federal Indigenous Review Team (FIRT) information requirement #67.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>

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			<p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
24	BNDN (February 28, 2023)	Appendix 7C	<p>Comment #24: BNDN notes that Denison has not provided any discussion on the extent to which the lixiviant and the solution used to flush the wellfield at the end of operations will interact with the underlying paleo weathered bedrock. BNDN notes that it is possible that there are mineral phases within the paleo weathered bedrock that are also readily soluble when exposed to the lixiviant. While BNDN recognizes that the paleo weathered bedrock has a low permeability, it is unclear to BNDN as to whether the lixiviant will contribute to mobilization of contaminants from the paleo weathered bedrock that requires consideration in the post-decommissioning groundwater model.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison provide any available information on how the bedrock may be altered (through dissolution of soluble mineral phases) by the lixiviant and the flushing of the wellfield during decommissioning, and whether this has been factored into their post-decommissioning groundwater model. <p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p>	<p>In the modelling presented in Appendix 7-C, the mining area is assumed to span the entirety of the depth of the paleoweathered zone within the area of the freeze wall, as described in Section 4.6. Thus, in the Decommissioning period, the water quality in that entire portion of the paleoweathered zone was assumed to be equivalent to that of the "restored solution". This reflects, as the BNDN notes, the dissolution of soluble minerals associated with the paleoweathered zone due to interaction with the mining solutions. This assumption is conservative because the whole of the paleoweathered zone does not have the uranium mineralization of the ore zone, nor the concentrations of other COPC-containing mineral phases.</p> <p>Some alteration of the clays is expected, as is some bleaching (loss of iron-rich minerals); however, there is uncertainty with respect to the specific changes in the nature of the paleoweathered zone that have continued to be explored by Denison through experimental/metallurgical work. The decision was made in the numeric modelling to treat the portion of the paleoweathered zone within the freeze as geochemically unreactive - meaning that no sorption to clays or desorption from clays (with the exception of chlorite in the "pH tail" scenario (Section 3.5.6.4) was assumed for this zone. Thus, sorption of COPCs to clays in the paleoweathered zone within the numeric model occurred only outside of the freeze wall footprint, where the minerals will not have been exposed to mining solutions and will not have been altered.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>

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			See Section 4.3 for additional information on this topic (p. 25-28).	
25	BNDN (February 28, 2023)	Appendix 7C Section 5.2.2	<p>Comment #25: In section 5.2.2 of Appendix 7c of the draft EIS Denison reports the assumptions built into their post- decommissioning groundwater modelling. BNDN notes that Denison has assumed that adsorption reaction sites are assumed to be available uniformly throughout the subsurface parameter zones. The presence of sufficient adsorption sites is a primary variable which determines the outcomes of the groundwater modelling, as adsorption of ions out of solution is the primary means by which contaminant transport is attenuated in Denison's modelling. BNDN is concerned that the presence of a variable that is so consequential to the findings of the model is based primarily on assumptions with limited information to base the assumptions upon.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison provide justification for the assumption that adsorption sites will be uniformly available throughout the sub-surface parameter zones. BNDN requests that Denison provide information on how they estimated the extent to which adsorption sites are already saturated prior to mining. <p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>We note the uncertainty assessment in the draft EIS tests conditions where less sorption sites are available (1/10th of the characterized amount). Further, refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which as shown are protective of aquatic biota in Whitefish Lake. The final acceptable mining area decommissioning objectives will be developed prior to initiation of groundwater remediation, as part of the Detailed Decommissioning Plan (DDP). Prior to executing decommissioning activities, Denison shall prepare and submit the DDP to regulators for acceptance. In this case the DDP would reflect input that will be solicited from Indigenous Nations and communities and others prior to its submission and would also be informed by conditions on the ground at the site at that time, operational experience that has been gained and the regulatory landscape at that time. As is highlighted above, the decommissioning plan will evolve over time and the plan will become more refined as the Project advances. Denison is committed to continue to engage with Indigenous Nations and communities to solicit input.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>

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26	BNDN (February 28, 2023)	Appendix 7C Table 3-10	<p>Comment #26: Table 3-10 of Appendix 7c of the draft EIS shows the expected adsorbing mineral properties of the mineral phases to which contaminants are expected to adsorb out of solution. BNDN notes that the lixiviant and restoration solution could affect the ability of adsorption. In particular, the clays immediately surrounding the orebody are within the freeze wall and will be directly exposed to the lixiviant during operations, which may impact the clay's ability to adsorb contaminants out of solution.</p> <p>BNDN notes that the clays immediately surrounding the orebody may be soluble in the presence of the lixiviant or may be altered to have a lower capacity to adsorb metals. BNDN requires further information from Denison to have confidence that the clay phases which play a crucial role in contaminant attenuation will not have their adsorptive capacity impacted by the operation of the wellfield.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison provide available information on whether clay mineral phases are anticipated to dissolve through the ISR mining process, and whether the restoration solution will impact the ability of clays to effectively adsorb contaminants. <p>This item would be best addressed and resolved with BNDN through the process agreement to address BNDN's concerns related to long term groundwater contamination from the Project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>Please see Denison's response above to BNDN Comment #24. Sorbing phases including clays were excluded from the mining area in the numeric model. Sorption occurs only to materials outside of the mining area that are not exposed to, and thus not altered by interaction with the mining solutions.</p> <p>Please refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.</p>

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27	BNDN (February 28, 2023)	Section 1.1.1	<p>Comment #26: In Section 1.1.1 of the Draft EIS, Denison notes that “the Gryphon deposit is not amenable to ISR mining and, accordingly, is not included in the EIS”. Denison has previously reported that the Gryphon deposit has nearly as much uranium as the Phoenix deposit. While the Gryphon deposit is not amenable to ISR, it is potentially still an economic resource which Denison may wish to mine.</p> <p>While the Gryphon deposit is not in scope for this environmental assessment, BNDN expects to be kept informed of future potential mining activities on the Wheeler River Project which Denison may be considering, including additional exploration on the Property, as future activities on the Property will also have impacts on our Treaty and aboriginal rights and interests.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Given the potential longer term mining activities at the Wheeler River project beyond the Phoenix deposit, BNDN requests that any project agreement between BNDN and Denison include terms for ongoing dialogue related to future exploration and project development activities at the Wheeler River Project and at all Denison Projects on BNDN Ancestral Lands. <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	Denison acknowledges that, if development of the Gryphon deposit as an underground mine is proposed in the future, this would require additional regulatory review and approval as well as engagement with Indigenous Communities of Interest. Please also refer to the first part of Denison's response to BNDN comment #19 in regard to BNDN's suggestion of a process agreement.
28	BNDN (February 28, 2023)	Section 2.3.3.1.3	<p>Comment #28: In Section 2.3.3.1.3 of the draft EIS Denison describes the proposed decontamination, demolition and disposal activities at the Project. BNDN notes that Denison has described a detailed process for decommissioning the injection and recovery wells</p>	The freeze holes will be decommissioned in the same manner as the ISR wellfield injection and recovery wells. All wells once decommissioned will undergo a mechanical integrity and leak off test prior to being grouted and sealed internally preventing interaction of surface water from the underlying aquifer at the mineralized depth. The freeze pipes, which will be located inside the freeze holes, will simply be unthreaded and removed from site after the freeze wall is no longer required.

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			<p>but has not described how the freeze wells will be decommissioned. BNDN notes that the freeze well holes may serve as preferential pathways for contaminated groundwater movement. Given the proximity of freeze wells to the orebody and the number of freeze wells proposed to be drilled, proper closure of freeze wells is also important for protection water quality long term.</p> <p>Request/recommendation:</p> <p>a) BNDN request that Denison clarify the process by which they will decommission the freeze wells.</p> <p>b) BNDN requests that Denison decommission the freeze wells using the same process as is proposed for the decommissioning of the injection and recovery wells.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
29	BNDN (February 28, 2023)	Section 2.3.3.1.3	<p>Comment #29: Denison describes the thawing of the freeze wall as part of the decommissioning of the mine. BNDN notes that water expands when frozen and could potentially be capable of expanding pre-existing joints and fractures within the host rock. BNDN is concerned that the thawing of the freeze wall could lead to expanded joints and fractures which would allow for far more rapid contaminant transport away from the ore body and restoration solution than is modelled in the post-decommissioning groundwater model.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN request that Denison provide evidence from academic literature or other mine sites employing freeze wall technology to determine the extent the freeze wall 	Please refer to Attachment IR-10 for information on the freeze wall integrity and basis for the design, which relies on site field data and lived experience from several existing Saskatchewan mining operations.

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			<p>could expands joints and fractures within the rock once thawed, including at unconformities or other pre-existing structural weaknesses within the host rock.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
30	BNDN (February 28, 2023)	Figure 2.2-15 Section 2.2.3	<p>Comment #30: Denison notes that they have made the conservative assumption that no water would be recycled as mining solution as part of their water balance calculations. BNDN agrees that this conservative assumption is appropriate for assessment of potential impacts of the Project. While this assumption is appropriate for the environmental assessment, BNDN wishes to understand the proportion of industrial wastewater that may be recycled on site and any commitments Denison is willing to make regarding continual refinement of the water treatment process to increase the proportion of water that is recycled.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison commit to continual refinement of the Industrial Wastewater Treatment Plant (IWWTP) treatment process to maximize the amount of water that is recycled to the deposit.</p> <p>b) BNDN recommends that the Crown include a condition of approval for the project regarding continual improvement of water treatment to maximize recycling.</p> <p>c) BNDN requests that Denison share available information on the proportion of water that they currently anticipate being able to recycle.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>The EIS carried forward two options for the source of freshwater: 1) surface water and 2) groundwater. This freshwater will meet all Project needs for potable water, drilling, and process water and allow Denison to obtain the water from groundwater wells or from the surface water (Whitefish lake). The effluent quality and volume predictions in the EIS provide a bounding scenario of the basis of the assessment of Project effects. Denison is undertaking a sequential EA and licensing process under the Nuclear Safety and Control Act. For context, the EA process for a Project under CEAA 2012 and the Saskatchewan Environmental Assessment Act is long and complex. As such, the inputs and outputs (including IWWTP water recycle volumes and effluent quality) developed for the IWWTP were necessary and determined by Denison's Project engineers early in the EA process to allow for the EIS biophysical and human assessments to advance. Detailed design information on the IWWTP, including recycle volumes, were not available, which is standard for engineering and EA sequencing for major projects. Denison intends to continue to refine effluent quality and volume predictions as part of the BATEA assessment and licensing phase of the Project. The predictions provided in the EIS will continue to bound the assessment and provide a conservative representation of risk to human health and the environment. Further, more detailed information regarding the design and operation of the IWWTP and water management infrastructure (including discharge rates, recycle rates among many other things), as informed in part by the BATEA assessment, will be included with Denison's application for the license to operate which will provide opportunity for review and comment by Interested Parties. For reference, the IWWTP would be commissioned prior to the Operation phase as no discharge of treated effluent would occur until that time.</p>

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			[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]	
31	BNDN (February 28, 2023)	Figure 2.2-15 Section 2.2.3.2	<p>Comment #31: In Section 2.2.3.2 and Figure 2.2-15 of the draft EIS, Denison describes their water balance for the project and anticipated water needs to operate the ISR wellfield.</p> <p>BNDN notes that the EIS does not describe how Denison derived their estimate for the quantity of water required to operate the ISR wellfield. BNDN is concerned that the volume of water required to operate the wellfield may be substantially greater than is estimated in the draft EIS. Utilizing greater volumes of water in the wellfield would have cascading effects throughout the water balance, including greater demand on the IWWTP, greater storage volumes required in the process water storage pond, greater UBS holding pond capacity and greater volumes of effluent discharge to Whitefish Lake. BNDN is concerned with the potential cascading risks associated with an inaccurate assessment of the volume of water required to operate the ISR wellfield.</p> <p>BNDN also wishes to understand whether it is possible that Denison will be required to operate the wellfields at a higher pressure, even if only temporarily. BNDN notes that operating wells at higher pressure come with additional workplace and environmental hazards, especially when dealing with a strongly acidic lixiviant.</p> <p>Request/recommendation:</p> <p>a) To demonstrate that Denison has not significantly underestimated the volume of water required to operate the wellfield, BNDN requests that Denison provide evidence that the volume of</p>	<p>a) Based on Denison's site-specific drilling, development, and pumping requirements over several years of exploration activities, the wellfield drilling water estimates presented in the EIS water balances are achievable. Denison's recently released feasibility study reaffirms the EIS assumptions related to water use and water recycle abilities.</p> <p>b) A key aspect of Denison's management system will be ongoing evaluation of the Project's performance compared to EIS predictions as well as continual improvement and adaptive management, as required. Should water consumption needs fall below those outlined in the EIS, Denison will follow all required permitting, licensing, and engagement with Indigenous nations and communities to describe and assess what those contingency measures would be.</p> <p>c) The near-field analysis (Section 8.2.4.2.3) identified that under all flow regime scenarios (i.e., 7Q10, monthly low, and monthly average), constituents are expected to be well mixed within Whitefish Lake (LA-5) and below the most restrictive criteria for the protection of aquatic life (Table 8.2-10; Appendix 8-C and Appendix 8-D). Additionally, the extent of the mixing zone in Whitefish Lake is estimated to be less than 5 m under all flow scenarios assessed (Table 8.2-11). Denison will comply with the Water Security Agency's Guidelines for Effluent Mixing Zones and Denison would update modeling if the base assumptions associated with the discharge of treated effluent to Whitefish Lake were changed, as needed.</p> <p>d) Wellfield pressures were described in the draft EIS, Sections 2.2.1.4.2 and 2.2.1.4.3. In terms of pressures, ISR mining is planned at nominal pressures of 100 psi and intermittent pressures of up to 250 psi.</p>

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			<p>water required to operate the wellfield is accurate. This should include an assessment of their level of confidence they have in their estimated water consumption.</p> <p>b) BNDN requests that Denison provide BNDN with information on potential contingency measures (such as constructing additional process water pond capacity) should their estimated water consumption be underestimated</p> <p>c) Denison must commit to updating their mixing zone assessment should they find it necessary to discharge greater quantities of effluent to Whitefish Lake than is estimated in the draft EIS.</p> <p>d) Denison must document the implications of operating the wellfield at a substantially higher pressure than currently expected.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
32	BNDN (February 28, 2023)	Table 2.3-3	<p>Comment #32: Table 2.3-3 of the draft EIS shows Denison's proposed mining area decommissioning objectives, which are the groundwater quality objectives for the residual water in the ore zone following the flushing of the system during mine decommissioning. BNDN is surprised to see that relatively high concentrations of metals are expected to remain in the restoration solution as a final objective, such as 100 mg/l uranium and 2 mg/l cobalt, amongst many other metals.</p> <p>BNDN notes that potential risks to groundwater and surface water could be dramatically reduced through more stringent mining area decommissioning objectives. It is also feasible that processing efficiencies and high uranium prices may allow for substantially lower</p>	<p>Groundwater remediation targets provided in the draft EIS were from derived from metallurgical test results completed from 2017 to 2021 with over 125 kg of material recovered from Phoenix deposit that underwent leaching and neutralization test work (see response to IR-67). In 2022 and 2023, metallurgical test work continued to further optimize remediation and strategies and confirm test work results presented in the draft EIS. It is expected that metallurgical test work will continue in the future to further optimize remediation targets, and this will be advanced through updates to the Decommissioning Plan. The Feasibility Field Test (FFT) provided additional confirmation that pH target and remediation targets could be met. Data gathered during the neutralization phase of the FFT provide confidence that groundwater targets proposed in the draft EIS can be met technically and economically. Based on laboratory testing and the results of the 2022 field testing, subsurface remediation is planned to consist of rinsing the ore zone with 35 pore volumes of fresh water, slowly raising the pH and then pumping about 75 pore volumes of basic solution through the same portion of the ore zone. This basic solution will in effect further raise the pH to a level that impedes further leaching of the deposit and reduces</p>

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			<p>concentrations of uranium to be mined economically. The long-term contamination of groundwater from the high concentration of metals in the restoration solution is one of BNDN's primary concerns with the Wheeler River Project, and BNDN would strongly prefer that Denison strive to minimize the residual contamination remaining in groundwater following decommissioning to the greatest extent possible.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison provide documentation that estimates the time, efforts and costs associated with reducing concentrations of metals in the restoration solution by 1 order of magnitude and 2 orders of magnitude. Note that these calculations should include costs that could be recovered by processing subeconomic UBS.</p> <p>b) BNDN requests that Denison work with BNDN through terms defined in a BNDN project agreement to establish achievable decommissioning objectives that would be satisfactory to BNDN.</p> <p>c) BNDN requests that the Crown place a condition of approval upon the Wheeler River Project that Denison is required to work with BNDN to establish mutually agreeable mining area decommissioning objectives.</p> <p>d) BNDN requests that Denison undertake a study of ISR operations elsewhere in the world to determine the lowest concentrations of UBS that could be processed economically utilizing industry best practices and commit to exceeding global standards.</p>	<p>aqueous concentrations of contaminants of concern to below their environmental target levels.</p> <p>Refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which as shown are protective of aquatic biota in Whitefish Lake. The final mining area decommissioning objectives will be developed prior to initiation of groundwater remediation as part of the Detailed Decommissioning Plan (DDP). Prior to executing decommissioning activities, Denison shall prepare and submit the DDP to regulators for approval. The DDP would reflect input that will be solicited from Indigenous Nations and communities and others prior to its submission and would also be informed by conditions on the ground at the site at that time, operational experience that has been gained and the regulatory landscape at that time. As is highlighted above, the decommissioning plan will evolve over time and the plan will become more refined as the Project advances.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate separate funding for BNDN at this time.</p>

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			See Section 4.3 for additional information on this topic (p. 25-28). [Additional questions on this topic directed to regulators or government entities are included in the CNSC table]	
33	BNDN (February 28, 2023)	Section 2.2.2.2.2 Figure 2.2-18	<p>Comment #33: In Figure 2.2-18 of the draft EIS, Denison shows the proposed design of the double composite liner system for the ponds on site and the uranium bearing solution (UBS) holding area. BNDN notes that the risks associated with temporary storage of UBS is much greater than other contact water on site which is proposed to be stored in a similar means. As such, BNDN is concerned that the proposed UBS holding area does not have adequate leak detection given the additional risk associated with the UBS relative to contact water on site. BNDN also notes that open air storage of UBS presents the risk of incidental interactions with wildlife near to the project (such as birds), which would potentially be acutely toxic.</p> <p>BNDN is also concerned that there is no leak detection system below the secondary HDPE geomembrane and geosynthetic clay liner. Should the secondary containment layers also become compromised, Denison does not have a system planned to detect this.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison commit to storing UBS in appropriate tanks as opposed to open air storage.</p> <p>b) BNDN requests that Denison include a leak detection pipe in the prepared subgrade below the secondary containment as well as between the primary and secondary containment layers.</p>	As outlined in draft EIS Section 2.2.2.2.2, Denison will evaluate options to use tanks instead of holding area as engineering advances. It is also important to note that Denison is completing a sequential EA and licensing process for the Project (see draft EIS Section 1). Denison considers the EA to be a planning and decision-making tool that assesses the potential effects of the Project in a careful and precautionary manner and integrates results of engagement with Indigenous nations and communities. The details requested by BNDN will be developed to support licensing and will be included in Management System programs / plans including for example the Groundwater Monitoring Plan and the Emergency Response and Preparedness Plan.

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			BNDN also requests that the prepared subgrade be engineered to facilitate maximum utility of the leak detection below the secondary containment. See Section 4.3 for additional information on this topic (p. 25-28).	
34	BNDN (February 28, 2023)	Figure 2.3-1	<p>Comment #34: Denison shows an additional ore body to the Southwest of Phase 5. Denison has not included this additional ore body in the mine plan in the draft EIS and has not discussed whether they have intentions to mine this ore body or undertaking a project change at a later date to include this additional ore body.</p> <p>It is unclear whether this additional ore body has any implications for the long-term groundwater quality modelling either through the additional orebody altering anticipated groundwater chemistry, or the restoration solution dissolving metals in the additional orebody increasing overall metal loading. Given the probable difference in groundwater and mineral geochemistry in the additional orebody relative to the overlying sandstone and underlying basement rock, there is likely to be interaction between the restored solution and the additional orebody post-closure.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison clarify whether they are considering adding the additional orebody to the southwest of Phase 5 into the mine plan, including clarifying whether the additional ore body is amenable to ISR mining.</p> <p>b) BNDN requests that Denison clarify what the anticipated permitting associated with the additional ore body would be.</p>	<p>a) and b) The small deposit to the SW of Phase 5 is amenable to ISR but is of lower grade than the areas targeted in mining phases 1 through 5 and mining of that low grade areas is not being considered at this time. It is noted that The Project mining and milling capacity will be bound by the assumptions in the EIS, which includes a production rate higher than the current reserves. The Project would be reviewed to determine what if any changes to the design basis would be anticipated and then what permitting would be required, should additional mining beyond what is contemplate by the EA be considered in the future.</p> <p>c) The additional modelling recommended by the review comment is unnecessary at this time. The low grade area is not considered in the mine plan at this time. Should that change, as noted above, the Project would be reviewed to determine what if any changes to the design basis would be anticipated and then what permitting would be required. Such modeling as envisioned by the review comment would be done that time as may be required. Hydrogeological investigations have been ongoing in the field and in laboratories since 2014. Packer, open hole, and cross hole tests have been completed in conjunction with exploration drilling programs. As well, permeability tests have been completed on sections of available competent core within the Phoenix deposit. Open hole water level surveys have been completed across the site in 2015, 2017, 2021 and 2022. Data gathered during the field tests have been utilized for both the EA groundwater model as well as the mining model. The primary direction of groundwater flow at depth is to the north east, which means restored solutions will move away from the small deposit to the SW. Additionally, as noted in the response to BNDN Comment #32, the restored solution will be basic and will further raise the pH to a level that impedes further leaching of the deposit and reduces aqueous concentrations of contaminants of concern to below their environmental target levels.</p>

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			<p>c) BNDN requests that the post-decommissioning groundwater modelling for the Project include interactions between the additional ore body and the restoration solution to understand if the ore body poses a risk of additional metal loading to groundwater.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
35	BNDN (February 28, 2023)	Section 2.2.1.3 Section 7.6.2.1	<p>Comment #35: Denison intends to use a freeze wall as tertiary containment for the operation of the wellfield during operations. In general, BNDN is supportive of this containment measure but requires further information to have confidence that the freeze walls will operate as designed. In particular, BNDN notes that while the freeze wall will be continuous from the ground surface all the way into the basement rocks underlying the orebody, the freeze wall is by far the most consequential immediately around the ore body itself. The orebody is approximately 400 m below the ground surface (where the earth would be significantly warmer) and the lixiviant is expected to be at least 10 degrees warmer than the surrounding groundwater would be. Considering that the cold brine will need to be injected nearly half a kilometer into the earth where warm lixiviant will be injected into the wellfield, BNDN is concerned that the freeze wall may be ineffective in and around the ore body where it is required. Furthermore, BNDN is concerned that the monitoring system for assessing the stability of the freeze wall may not adequately detect the continuity of the freeze wall at depth. As such, BNDN is concerned that the freeze wall may be ineffective and in fact obscure our ability to recognize contamination of the surrounding</p>	<p>a) Please refer to Attachment IR-10 for information on the freeze wall integrity and basis for the design, which relies on site field data and lived experience from several existing Saskatchewan mining operations.</p> <p>b) The following explains how the continuous freeze wall will be monitored. The alignment of the freeze wall is located 25 m offset from the lateral extent of the recoverable ore and the freeze wall will grow in thickness both towards the ore and away from the ore. The freeze wall will solidify all liquid porewater and develop into a contiguous impermeable barrier many metres thick. Ground temperature monitoring will be installed through a series of continuous fiberoptic temperature and pressure wells from surface to the depth of impermeable basement rock below the unconformity. Such monitoring wells/systems will be installed on both the ore (inside) and non-ore (outside) sides of the freeze wall to confirm the thickness of frozen ground. There will be sufficient operational controls in place to verify that the freeze plant is operating, to measure the temperature in the ore zone, and to measure the temperature on opposite sides (inside and outside) of the freeze wall so that early detection of any upset conditions can be identified and addressed. Options for addressing issues include: lowering the temperature of the freeze system to draw more heat out; increasing the freeze coolant flow rates in freeze wells nearer to active ISR cells; and/or to adaptively manage the lixiviant injection and recovery rates in cells located nearest to the freeze wall.</p> <p>c) Regarding the monitoring program: A framework for the groundwater monitoring plan was provided in Section 7.8.2 of the draft EIS and is commensurate with the level of development of the Project. Further details regarding the Environmental Management Program and its associated plans (of which the groundwater monitoring plan is one) will be developed later in 2023 and 2024 as part of the licensing process. Engagement on licensing requirements, including on program and plan documentation will occur at that time.</p>

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			<p>groundwater from the freeze wall operating ineffectively.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison provide information to demonstrate that the freeze wall will in fact be frozen in and around the ore body. If there is any doubt that the freeze wall will indeed be frozen around the ore body, Denison should describe further measures they can undertake to ensure that the freeze wall is frozen as intended around the ore body.</p> <p>b) Denison must provide BNDN with further information on how they will monitor the performance and continuity of the freeze wall.</p> <p>c) BNDN requests further information on the proposed groundwater monitoring program around the wellfield.</p> <p>d) BNDN requests the opportunity to review the groundwater monitoring plan and to review groundwater monitoring data as part of a BNDN-Denison environmental committee developed through a BNDN-Denison project agreement.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>d) As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on monitoring regimes, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project, such as BNDN. Denison does not anticipate separate funding for BNDN at this time.</p>
36	BNDN (February 28, 2023)	Section 2.9.1.3.1	<p>Comment #36: Denison documents their conceptual level environmental protection program, including several proposed management and monitoring plans which they will develop to manage operations on site.</p> <p>The environmental protection measures which Denison undertakes at the Project site are highly consequential to BNDN, and BNDN requires the opportunity to provide our knowledge and input into environmental protection measures</p>	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate separate funding for BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures</p>

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			<p>developed for activities within our Ancestral Lands.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison commit to involving BNDN in the development, review and approval of all environmental monitoring plans developed for the Project. Details of BNDN involvement in the development of environmental monitoring plans should be undertaken within an Environmental Committee, with specific terms defined within a BNDN-Denison Project Agreement for the Wheeler River Project</p> <p>b) BNDN requests that the CNSC impose a condition of approval on the project which states the requirement for Denison to consult with BNDN on all environmental management and monitoring plans for the project.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p> <p>[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	<p>and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p> <p>The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of the draft EIS provides the variety of ways in which Denison has engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfil its key corporate principals for developing positive relationships (see draft EIS Section 4.2).</p>
37	BNDN (February 28, 2023)	Section 7.6.2.3	<p>Comment #37: In Section 7.6.2.3 of the draft EIS and the geology and groundwater summary table in Appendix 16A, Denison states that they expect no residual effects to groundwater quality during the operations, decommissioning or future centuries period of the Project. Denison has also not placed a significance determination on the impacts to groundwater quality based on the findings of the draft EIS due to groundwater being considered an intermediate VC.</p> <p>BNDN disagrees with both the residual effects assessment and the fact that groundwater quality</p>	<p>The Groundwater Quality VC was carried through the EIS as an intermediate VC. The shallow and deeper groundwaters are not considered to be a potable water source currently nor in the future within the LSA (defined in Section 7.1.3.1), as detailed in Section 7.1.1.1. Within the LSA, the Groundwater VC was considered an intermediate VC as it is a pathway to the aquatic environment and considered in the future centuries period in Section 8. It is also important to note that the mining area is 400 m below surface and the existing/baseline groundwater quality in the ore zone area is poor (e.g., high in iron and uranium compared to shallower groundwater; Figure 7.3-11). Section 7.6 describes the residual effects evaluation for geology and groundwater, including for the life of mine (0 to 38 years) and the future centuries period. It is Denison's opinion that the approach associated with evaluating Project effects to groundwater quality is appropriate and reasonable for the reasons presented in the draft EIS.</p>

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			<p>has been assessed solely as an intermediate VC. The protection of groundwater resources is highly important to BNDN. Our members place immense value on clean spring water and the protection of groundwater more generally. The advancement of the Wheeler River Project will permanently impair groundwater resources in and around the Wheeler River Project. The contamination of groundwater at the Project will have a significant impact on our members' connection to the land and ability to exercise our Treaty and Aboriginal rights. BNDN see the limited interpretation of residual effects and the lack of inclusion of groundwater quality as a receptor VC as a significant oversight in the assessment of impacts of the Project on the environment and BNDN Treaty and Aboriginal rights. This must be corrected to properly assess the Project and thus ensure that project impacts are appropriately mitigated and accommodated.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> a) Denison must apply a significant determination to groundwater quality and quantity for all projects phases, including the future centuries period. The significance determination must be developed following consultation and engagement with BNDN. b) Denison must re-evaluate the residual effects of the project on groundwater quality including the future centuries period. This re-evaluation must be following consultation and engagement with BNDN. c) BNDN requests that the CNSC work with our Nation to understand the significant impacts that the permanent contamination of groundwater 	<p>Denison continues to work with its Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a community specific monitoring regime, suited to each of their interests and needs, in an agreed-upon fashion. One of the key goals of such collaboration with each Indigenous nation will be to provide the information necessary to the communities such that it provides confidence to community members regarding the impacts from the Project to the aspects of the environment which matter the most to them. Denison is committed to continual improvement in relation to such collaborative monitoring programs, in order to adapt to areas of interest which can change over time. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous First Nations who may have interest in the Project.</p> <p>The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of the draft EIS provides the variety of ways in which Denison has engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfil its key corporate principals for developing positive relationships (see draft EIS Section 4.2).</p>

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			<p>caused by the project will have on our Treaty and Aboriginal rights.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p> <p>[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	
38	BNDN (February 28, 2023)	Section 7.8.2	<p>Comment #38: Section 7.8.2 of the draft EIS documents the groundwater monitoring proposed for the surface facilities and the ISR recovery area. It also describes a conceptual excursion contingency plan wherein Denison has proposed their plans to manage situations where groundwater contamination occurs beyond what is predicted in the EIS. BNDN notes that Section 7.8.2 lacks information on the involvement of Indigenous Nations related to groundwater monitoring.</p> <p>As stated previously, BNDN is highly concerned with the level of impact the Project will have on groundwater resources. As such BNDN requires Denison to communicate excursions of groundwater and the consequent management of excursions to our Nation.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison revise Section 7.8.2 to include Indigenous engagement and input for groundwater monitoring results and the management of observed groundwater excursions. The manner in which Denison engages BNDN on groundwater monitoring and management will likely occur through an Environmental Committee, which should be defined in a BNDN-Denison Project Agreement.</p>	<p>Denison agrees with BNDN's comment that groundwater monitoring will be an important component of the Project as it advances.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p> <p>The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of the draft EIS provides the variety of ways in which Denison has engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfil its key corporate principals for developing positive relationships (see draft EIS Section 4.2).</p>

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			<p>b) BNDN requests that the CNSC impose a condition of approval on the Project that clarifies that Denison is required to engage with impacted Indigenous Nations such as BNDN on groundwater monitoring and management.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p> <p>[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	
39	BNDN (February 28, 2023)	Appendix 8D	<p>Comment #39: In Appendix 8d, Denison documents their baseline aquatic studies undertaken for the Wheeler River EIS. Denison has included some lakes and rivers upstream of the Project as background sites for understanding project impacts to the aquatic environment. BNDN notes that there are many additional sites throughout our Ancestral Lands which would benefit from ongoing aquatic monitoring and would be potentially suitable for the Project as background sampling sites.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison work with our Nation to identify potential additional background sampling sites within our Ancestral Lands for aquatic monitoring for the life of Project. The details of such should be defined in the BNDN-Denison project agreement. <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	Denison appreciates and acknowledges the recommendation. At this time Denison believes suitable candidate reference areas are available upstream of the Project site in areas located in the same drainage system / watershed. While proximity to the Project is only one of many considerations for suitable reference area selection in this case the ability to be able to compare relevant measurement endpoints between "reference" vs "potentially influence" sampling locations where the primary difference between locations is the point source discharge is compelling rationale. Additionally, data that have been collected from upstream areas as part of baseline programs provides the opportunity to implement aquatic monitoring according to a BACI design which is a powerful means by which to assess and isolate potential mine related effects from natural environmental change. Given the above, Denison does not see that there is rationale for investigating lakes over a regional extent to establish reference areas for aquatic monitoring as is suggested.
40	BNDN (February 28, 2023)	Section 2.2.1.4.2	<p>Comment #40: In Section 2.2.1.4.2 of the Draft EIS Denison discusses the operation of the wellfield during the operations phase of the mine. BNDN notes that many of the details in this</p>	a) It is important to note that Denison is completing a sequential EA and licensing process for the Project (see draft EIS Section 1). Detailed ISR mining-related information needed to support licensing and permitting has not been included in the EIS; it will be provided to regulators as part of permitting and licensing. For the EIS, an initial understanding of the

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			<p>section are conceptual in nature and thus could require significant refinements in design to achieve the desired recovery consistently throughout the life of mine.</p> <p>Amongst other concerns related to operations of the ISR wellfield, BNDN is concerned that Denison may alter the chemical composition of the lixiviant used in the ISR wellfield which could cause inadequately understood changes in potential effects of the Project to the environment. These effects could include significant changes to the final restorative solution at the end of mine life or significant changes in the treatment requirements for the IWWTP that impact the ability of Denison to achieve effluent quality criteria for significant periods of time.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison provide information on:</p> <ul style="list-style-type: none"> The likelihood of the chemical composition of the lixiviant changing throughout the life of project Potential changes to the lixiviant composition The implications for long term groundwater quality and effluent treatment from changes in lixiviant chemistry <p>b) BNDN requests that Denison commit to ongoing communications and engagement with BNDN regarding changes to the wellfield operation throughout the life of mine. The terms of engagement should be defined in a BNDN-Denison project Agreement.</p>	<p>mine plan and mining area remediation was needed to initiate the assessment of migration of constituents of potential concern in groundwater out of this area in the post-decommissioning period. The findings and conclusions of the EIS were also used, in turn, to inform and bound the engineering and feasibility work. As part of the metallurgical test program, over 125kg of core from the Phoenix deposit has been leached in a variety of settings, including bottle rolls, column tests, and intact core tests. This has helped to predict concentrations of both the lixiviant as well as the production solutions. The lixiviant (mining solution) concentrations will vary depending on each individual well production profile. To ensure reagent consumption is effective and efficient it will be varied during the life of each well dependent on its characteristics. The initial acidification of the well requires a lower acid content to ensure the formation does not plug due to precipitation, whereas during periods of high production the well can accept a higher acid concentration. Towards the end of the recovery curve, the uranium is more difficult to access and therefore the strength of the acid or the flow rate to the well need to be optimized to ensure efficient use of reagents. It is expected that the lixiviant concentrations will vary between 0-60 g/L H₂SO₄, and 0-20g/L H₂O₂ and will be situationally dependent. There is also the capability to add Fe₂(SO₄)₃, however it is not expected that this will be required in significant concentration due to the natural abundance of iron in the deposit.</p> <p>b) Please see response to Comment #19 for Denison's response on a Project agreement.</p>

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			See Section 4.3 for additional information on this topic (p. 25-28).	
41	BNDN (February 28, 2023)	Appendix 8E Table 4	<p>Comment #41: Table 4 of Appendix 8e of the draft EIS shows the predicted site discharge concentrations of the contaminants of potential concern (COPCs). BNDN notes that the concentrations of a number of COPCs do not achieve water quality objectives that is the best available technology economically achievable (BATEA). Example COPCs include copper, molybdenum, selenium, uranium, vanadium, zinc and ammonia.</p> <p>BNDN requires proponents operating on our Ancestral Lands to, at a minimum, achieve BATEA standards for effluent treatment and discharge. This takes reasonable and appropriate precaution without imposing unreasonable costs on the operation.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Denison commit to achieving BATEA criteria for all COPCs in their effluent.</p> <p>b) Denison must work with BNDN to identify mutually agreeable and appropriate effluent discharge criteria for their effluent. BNDN expects that identifying suitable effluent discharge criteria will be undertaken through an Environmental Committee with a terms of reference defined in a BNDN-Denison project agreement.</p> <p>c) BNDN requests that the CNSC impose a condition of approval on the Project that BNDN is engaged.</p> <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>a) Denison is undertaking a sequential EA and licensing process under the NSCA. For context, the EA process for a Project under CEAA 2012 and the Saskatchewan Environmental Assessment Act is long and complex. As such, the inputs and outputs (e.g., effluent quality) needed for the EIS were developed by Denison's Project engineers early in the EA process to allow for the biophysical and human assessments to advance. An example of one of these outputs is the IWWTP effluent quality. The effluent quality predictions in the EIS provide a bounding scenario of the basis of the assessment of Project effects. As stated in the Draft REGDOC 2.9.2 Denison understands that a BATEA assessment be conducted to determine the predicted design release characteristics as part of the licence application for a new facility or activity. Outside of the EIS process, the Project detailed engineering is progressing, including the design of the IWWTP and associated refinement of effluent quality predictions. Denison is following Draft REGDOC 2.9.2 to arrive at a treatment option that remains within the bounds of the EA, which ultimately predicts no significant impacts to the receiving environment. The maximum design release characteristics for the IWWTP will be provided as part of Denison's licence application to the CNSC.</p> <p>b) As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to engagement with English River First Nation and Kineepik Métis Local as it relates to effluent discharge criteria, suited to each of their interests and needs. Denison does not anticipate working closely with BNDN on this topic.</p>

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			[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]	
42	BNDN (February 28, 2023)	Appendix 8E Table 7	<p>Comment #42: Table 7 of draft EIS Appendix 8e shows the anticipated size of the mixing zone under 3 different flow conditions, including the calculated 7Q10 flow. While BNDN understands that Denison expects to discharge relatively small volumes of effluent to Whitefish Lake compared to a conventional open pit or underground mining operation, BNDN is concerned that the mixing zone assessment underestimates the magnitude of impact that the project will have on Whitefish Lake.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison undertake a plume delineation study and provide BNDN the opportunity to review the findings of the study through the BNDN-Denison Environmental Committee for the Wheeler River Project. <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	<p>The prediction uncertainty analysis (i.e., "sensitivity analysis") presented in Appendix 7-C included an evaluation of the change in the model prediction (i.e., plume migration) with respect to changes in the conductivity of materials along the flow path to the receptor, Whitefish Lake (i.e., Scenarios 4, 5, and 6) as well as regarding the hydraulic conductivity of the mined-out ore zone. As such we feel that the work requested by the reviewer has already been completed and reported upon within the draft EIS. In addition, the uncertainty of the Intermediate Sandstone Aquifer was evaluated (see IR55), where higher hydraulic conductivity within the Intermediate Sandstone Aquifer were found to reduce the proportion of water from the ore zone reaching Whitefish Lake, which would have the effect of further reducing (i.e., diluting) concentrations simulated and presented in the EIS documentation. As such, the conditions documented in the draft EIS are already conservative with respect to the uncertainty in these parameters. The near-field analysis (Section 8.2.4.2.3) identified that under all flow regime scenarios (i.e., 7Q10, monthly low, and monthly average), constituents are expected to be well mixed within Whitefish Lake (LA-5) and below the most restrictive criteria for the protection of aquatic life (Table 8.2-10; Appendix 8-C and Appendix 8-D). Additionally, the extent of the mixing zone in Whitefish Lake is estimated to be less than 5 m under all flow scenarios assessed (Table 8.2-11). Denison will comply with the Water Security Agency's Guidelines for Effluent Mixing Zones. The above notwithstanding in-field confirmation of the extent of the effluent mixing zone is anticipated following commissioning of the IWWTP and effluent discharge system during the Operation phase of the Project.</p>
43	BNDN (February 28, 2023)	Appendix 10A	<p>Comment #43: BNDN notes that the environmental risk assessment (draft EIS Appendix 10a) makes no mention of potential impacts the project may have on mercury biogeochemical cycling and the consequent risks to the environment and human health. This is unsurprising given the lack of baseline sampling of mercury in sediments and soils, especially wetland soils.</p> <p>The lack of baseline mercury sampling is a significant oversight given the significant impact that mining operations can have on mercury</p>	<p>Although baseline concentrations of total mercury in sediment have not been collected during baseline sampling to date, Denison will collect background information pertaining to sediment total and methyl mercury from LSA lakes and rivers prior to site development.</p> <p>As indicated in EIS Section 8.4.6.1, Residual Effects Characterization, mercury is not associated with the local geology and is not expected to be released in the effluent at measurable levels and was therefore not identified as a COPC. Denison notes that there is potential for increased methylmercury production in the receiving environment under a certain combination of factors to which the Project may contribute; however, prediction of methylmercury production is not practical. Denison commits to monitoring mercury and methylmercury in the aquatic environment over the life of the Project to determine the potential changes in mercury concentrations in fish tissue over time.</p>

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			<p>biogeochemistry, including mercury methylation, and mobility of mercury species within the environment.</p> <p>BNDN is very concerned with the complete lack of assessment of this important consideration for the project and the consequent inability for our members to adequately understand the potential risks to our Treaty and Aboriginal rights from these risks. Note that the absence of baseline information gathered can be reasonably considered an impact on our Treaty and Aboriginal rights as our members will avoid exercising our rights if BNDN lack the information to have confidence that it is safe to do so.</p>	<p>As the Project advances and operational monitoring is underway, Denison will assess health risks from fish consumption by comparing fish tissue data collected during operation from the monitoring program against Health Canada's mercury guideline of 0.5 ug/g wet weight. This is a human health risk-based maximum permissible concentration. Mercury data presented throughout the draft EIS represents total mercury. Denison agrees to included methylmercury as part of the constituents monitored in fish throughout all project phases.</p>
44	BNDN (February 28, 2023)	Table 2.2-4	<p>Comment #44: In Table 2.2-4 of the Draft EIS, Denison documents their planned chemical used for the project. BNDN notes that Denison intends to use zero-valent iron (ZVI) in the IWWTP, but not as part of the remediation solution for the mine. BNDN notes that ZVI is used to treat contaminants in groundwater around the world. Denison has not discussed whether they have investigated the possibility of utilizing ZVI to remediate the wellfield during decommissioning.</p> <p>Protection of groundwater is of exceptional importance to BNDN. BNDN is concerned that Denison has not made a complete or comprehensive effort to understand how to minimize negative impacts to groundwater from the project using proven technologies that may be suitable for remediating the restoration solution in the wellfield during the decommissioning phase of the mine.</p> <p>Request/recommendation:</p>	<p>Refinement of the mining area decommissioning objectives and associated modelling will be done through updates to the Decommissioning Plan, and will be bounded by the objectives evaluated in the EIS. The use of zero-valent iron will be evaluated, as applicable.</p>

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			<ul style="list-style-type: none"> BNDN requests that Denison investigate the suitability of using zero-valent iron to remediate the groundwater within the wellfield as part of the decommissioning process. <p>See Section 4.3 for additional information on this topic (p. 25-28).</p>	
45	BNDN (February 28, 2023)	8.2.4.1.1 Site Water Management	<p>Comment #45: BNDN is concerned that the small volume of Effluent Monitoring and Release Ponds may create a lack of operational flexibility. For example, in the EIS, it is stated that:</p> <p>"Treated water from the IWWTP will be pumped to the three Effluent Monitoring and Release Ponds (each 3,300 m3). These ponds will be designed to hold effluent for 72 hours for testing before discharge to the environment." – EIS, pp 723</p> <p>If water quality in these ponds exceeds discharge criteria, then there may be a need to store water so that additional treatment and monitoring can occur prior to discharge. However, only having capacity for three days of storage means it is unlikely the Proponent would be able to adequately treat water prior to reaching storage capacity, resulting in a need for emergency release of poor- quality water.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that additional storage capacity be included as part of the design for water management system. This must include adequate storage capacity to ensure Denison has the ability to retain water for sufficient time to allow treatment, in the event that exceedances of water quality discharge criteria occur.</p> <p>Alternatively, Denison can commit to halting discharge (and operations if required) should water quality exceed discharge criteria. Discharge into Whitefish Lake would resume once water quality in the Effluent Monitoring and Release</p>	<p>a) During Construction, no effluent is expected to be released to the aquatic environment. Contact water stored in the Clean Waste Rock Pond during Construction will be held onsite until the Industrial Wastewater Treatment Plant (IWWTP) is commissioned. At that time the water from the pond would be conveyed to the IWWTP, treated, and released to Whitefish Lake per permit / license requirements. The sequence for Construction activities will occur in a logical manner based on Project execution plans. For example, construction of the wellfield runoff pond will be prioritized during the early part of Construction and it will be able to hold 38,200 m3 of water. This will provide contingency and additional water storage capacity if contact water produced exceeds estimates or the volume available in the Clean Waste Rock Pond. Other secondary contingency measures are also available should the volume of water requiring management exceed site infrastructure storage volume. This could include use a hydrovac for offsite disposal.</p> <p>Section 2 Project Description, Section 2.2.3.9 Treated Effluent Monitoring and Release Ponds of the draft EIS outlines Denison's commitment to test effluent prior to discharge to Whitefish Lake, to ensure it meets federal and provincial discharge limits. Any pond not meeting the criteria will be recycled back to the Industrial Wastewater Treatment Plant via the process water pond.</p> <p>b) Denison expects the Provincial Approval to Operate a Pollutant Control Facility will contain specific effluent quality limits and monitoring to confirm effluent quality meets the approved limits. Denison will also be required to meet conditions in CNSC licensing documentation, as well as MDMER effluent discharge criteria.</p>

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			<p>Ponds has been returned to below discharge criteria.</p> <p>b) BNDN requests that the CNSC impose a condition of approval for the Project that requires Denison to must meet effluent discharge criteria prior to discharge and must halt operations if treated effluent in the monitoring and release ponds does not meet effluent discharge criteria. See Section 4.4 for additional information on this topic (p. 48-51). [Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	
46	BNDN (February 28, 2023)	Appendix 8D Aquatic Environment Baseline Study	<p>Comment #46: Fish community sampling is an important component of baseline studies for many reasons, including identifying species present (including any species at risk) and evaluating relative abundance (e.g., CPUE). A robust program should include multi- season and multi-year approach. This allows improved characterization of seasonal habitat use and accounts for natural variability.</p> <p>In the baseline aquatic assessments, the Proponent has focused fish community sampling in fall 2016, with some limited additional sampling of in spring 2017. This low level of effort will make it difficult to draw meaningful comparisons with monitoring work that will occur during the life of mine.</p> <p>Furthermore, CPUE has only been reported for electrofishing effort. As a result, there is very limited information available for relative abundance of fish in important waterbodies, including Whitefish Lake, McGowan Lake, and Russell Lake.</p>	<p>It is Denison's and their aquatic SME's opinion that the baseline fish community sampling efforts, including information provide from Indigenous and local resource users, provide a sufficient basis for conducting an effects assessment (draft EIS Section 8.3 Fish and Fish Habitat). Based on the information collected there is a good understanding of fish species presence / absence, relative abundance, fish habitat characteristics including areas that contribute to important life history stages (e.g., spawning areas) and fish habitat use. Denison does not believe further extensive baseline collection are needed to support the environmental assessment process but will implement targeted aquatic surveys prior to site development (see below).</p> <p>With respect to inclusion of the additional information requested the following is noted. Both detailed and summary data are presented in the Baseline Aquatic Environment Report that was provided as an appendix to the draft EIS. Effort and catch by sampling gear type by sampling location are shown for example in Table A-13 of the Baseline Aquatic Environment Report and metrics such as CPUE and total catches can be derived from these data if desired. Denison does not see the need to derive these metrics for presentation in the final version of the EIS (and supporting documents). This is in part related to the fact that the aquatic effects assessment did use abundance / relative abundance metrics such as CPUE as measurable parameters (MPs; a parameter or metric associated with a key indicator that can be used to detect and measure Project-related changes) to represent the fish and fish habitat VC, nor would it have been practical to use them for this purpose. There would be no practical or reliable way to derive such a prediction of change relative to Project-aquatic habitat interactions.</p>

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			<p>**BNDN notes that a raw representation of total effort is provided in table A-13 of Appendix 8D but requests that an assessment of total effort, total catch, and CPUE be presented in the EIS for each capture method/location**</p> <p>Request/recommendation:</p> <p>a) BNDN requests that the Proponent build on the existing data for fish community sampling by collecting an additional round of spring and fall sampling.</p> <p>b) BNDN requests that an assessment of total effort, total catch, and CPUE be provided for each capture method/location where fish sampling has occurred.</p> <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	<p>While abundance / relative abundance metrics may be reported during future monitoring they would not likely be seen as a key measurable parameters for fish monitoring. More subtle measures of fish health would be used for this purpose - it is reasonable to assume that fish health measures will be more sensitive to change than abundance measures and provide an earlier indication of potential Project-related effects. This is what is envisioned and required by the MDMER EEM program, whereby measures of fish health (e.g., growth, reproduction, condition) are used to assess potential effects. As noted above, Denison will implement targeted aquatic surveys prior to site development. At this time it is envisioned that a pre-development EEM program survey following guidance provided in the Metal Mining Technical Guidance Document will be implemented at the site, with sampling at future effluent exposed and reference areas. Best practice is to undertake an analysis of candidate reference areas using the existing baseline information and investigate their utility as controls prior to project development. Execution of the pre-development EEM represents a Before-After-Control-Impact (BACI) design for aquatic monitoring, that will provide the ability to monitor change temporally (among sampling periods) and spatially (among sampling areas), thereby providing a more robust means by which to assess potential mine related effects.</p>
47	BNDN (February 28, 2023)	8.2.5 Mitigation Measures	<p>Comment #47: The Proponent has identified one mitigation measure that includes sharing of monitoring results to assess performance of water management system (EIS, pp 8-90, 8.2.5 Mitigation Measures). BNDN is supportive of this type of information sharing and believes that it can be an important component of transparency and trust- building between the Proponent and other parties. However, it is important that information sharing be done in a way that is accessible to community members.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests involvement in discussions with Denison about sharing of information related to water quality monitoring (and environmental monitoring more broadly). Some methods of communication that may support accessibility of data include: 	<p>Denison agrees with BNDN that water quality monitoring will be interest to Indigenous nations and communities. As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project. BNDN will be informed throughout the monitoring program design and implementation process. Further details on the Public Information Program and Public Disclosure will form part of the documentation submitted in support of the CNSC licensing for the Project. It is also noted for further reference that there are existing, non-Denison monitoring programs such as the CNSC's Independent Environmental Monitoring Program (https://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index.cfm), and the Eastern Athabasca Regional Monitoring Program (www.earmp.ca/). Results from these programs provide relevant information and can complement Denison's Project-specific monitoring program. One forum for discussion of monitoring results is the Northern Saskatchewan Environmental Quality Committee(https://www.saskatchewan.ca/residents/first-nations-citizens/saskatchewan-</p>

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			<ul style="list-style-type: none"> Public-facing summary reports on a regular schedule (e.g., quarterly or annually) Real-time access to environmental monitoring data through online database portals. Semi-regular community meetings hosted in Turnor Lake (e.g., every 12-18 months, as decided in conjunction with BNDN leadership within a Project Agreement with BNDN). Presentations to BNDN staff, leadership, and/or community members by BNDN Environmental Monitors. The specific methods used for information sharing and appropriate levels of support from Denison can be determined through consultation with BNDN. <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	<p>first-nationsmetis-and-northern-initiatives/northern-saskatchewan-environmental-quality-committee).</p> <p>Please see response to Comment #19 for Denison's response on a Project agreement.</p>
48	BNDN (February 28, 2023)	8.5 Fish Health	<p>Comment #48: The Proponent has completed predictive modelling for concentrations of contaminants in fish tissue. For example, results of modeling for selenium indicate that concentrations will fluctuate throughout operations but remain below the recommended criterion of 2.83 mg/kg wet weight (from the US EPA). Should the Project proceed, information on contaminants in fish tissues will be highly relevant for BNDN and land users who eat fish from the area.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that results of fish tissue monitoring (e.g., EEM studies) be shared in a 	<p>Denison agrees with BNDN that results of fish tissue monitoring will be interest to Indigenous nations and communities. As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes would also be relevant to other Indigenous nations who may have interest in the Project. BNDN will be informed throughout the monitoring program design and implementation process. Further details on the Public Information Program and Public</p> <p>Disclosure will form part of the documentation submitted in support of the CNSC licensing for the Project. It is also noted for further reference that there are existing, non-Denison monitoring programs such as the CNSC's Independent Environmental Monitoring Program (https://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index.cfm), and</p>

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			publicly available and accessible way. This must include comparisons with guidelines and information on other contaminants of importance (e.g., mercury). Discussions regarding how this information can be shared with BNDN should occur alongside the discussions related to water quality monitoring results (see comment above). See Section 4.4 for additional information on this topic (p. 48-51).	the Eastern Athabasca Regional Monitoring Program (www.earmp.ca/). Results from these programs provide relevant information and can complement Denison's Project-specific monitoring program. One forum for discussion of monitoring results is the Northern Saskatchewan Environmental Quality Committee(https://www.saskatchewan.ca/residents/first-nations-citizens/saskatchewan-first-nationsmetis-and-northern-initiatives/northern-saskatchewan-environmental-quality-committee). Please see response to Comment #19 for Denison's response on a Project agreement.
49	BNDN (February 28, 2023)	8.3 Fish and Fish Habitat	Comment #49: Increased fishing pressure in Whitefish Lake from employees working at the Project site and increased ability for visitors due to improved access could negatively impact fish populations. Preferred species, large-bodied fish, and older individuals are most likely to be targeted. This may have negative consequences on the population structure of fish in the lake as well as the ability of BNDN members to exercise fishing rights. Request/recommendation: <ul style="list-style-type: none"> BNDN recommends that the policies Denison sets related to staff and contractors fishing while on site are determined collaboratively with BNDN through the Environmental Committee defined in a BNDN-Denison project agreement. See Section 4.4 for additional information on this topic (p. 48-51).	Please note that the Project will not change public access to the area. The existing gate on Highway 914 near Cameco's Key Lake Operation will remain in place and no changes to the gate and the process for controlling access to Highway 914 north of the Key Lake Operation are proposed as part of the Wheeler River Project. As described in the draft EIS, 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. To prevent entry of land users from entering the Project Area, Denison will control access to the property with both a north and south security gate. Overall, given a lack of resources to access fishing locations and store fish harvests, workforce fishing is expected to cause minimal disturbances to local users. Section 11 of the draft EIS provides the assessment of potential Project effects on Indigenous Land and Resource Use (Section 11.1) and Other Land and Resource Use (Section 11.2). The mitigation measures proposed in the aquatic and terrestrial assessments translated into undetectable changes in resource availability to existing and future users and rightsholders. The assessment does not take a distinctions-based approach (i.e., the potential impact on each Indigenous community is not evaluated separately), but rather on the key indicators and associated measurable parameters. Mitigation to eliminate, reduce, or control potential adverse effects of the Project on Indigenous Land and Resource Use would apply to any uses proximal to the Project. Given proven mitigation is to be applied to traffic disturbances, noise, air quality, and increased competition for resources, the effects are expected to be minimal. As outlined in Denison's Indigenous Peoples Policy, Denison is committed to respecting Indigenous knowledge and

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				<p>values regarding environmental stewardship and Indigenous peoples' connection to the land, and to minimize potential effects, wherever possible.</p> <p>Detailed Project plans and programs related to staff and contractor fishing will be developed to support Project permitting and licensing efforts.</p>
50	BNDN (February 28, 2023)	8.3.4 Assessment of Project- related Effects	<p>Comment #50: The EIS provides very few details regarding how spills, leaks, and other accidents and malfunctions will be managed to mitigate the impacts on fish and fish habitat. Over the life of the mine there will inevitably be accidents and malfunctions. One of the most common environmental issues that will be encountered is leaks and spills. These can typically be managed through good monitoring and preparedness, though if they occur near water, the ability to clean them quickly is difficult and can result in harm to aquatic communities.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN request additional information regarding the development of spill prevention programs, emergency management procedures, and monitoring and remediation programs for accidents and malfunctions. Representatives from BNDN need to be included in the planning and execution of monitoring and remediation activities to provide community perspectives in Project activities. One method through which BNDN can be involved in these discussions is through the development of an Environmental Committee (see comment #51 also). <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	<p>A standalone Accidents and Malfunctions (A&M) assessment was completed and is summarized in Section 14 of the EIS (full report is Appendix 14-A of the EIS). The A&M assessment considered almost 70 accident scenarios including many that would relate to the unplanned release of chemicals and radiation to the environment with potential to effect country foods. Specific scenarios including the release of chemicals and radiation to the aquatic environment and to the terrestrial environment adjacent to the ERFN and KML culture camps located along Hwy 914. The overall risks in consideration of likelihood and consequence were characterized as low. The assessment concluded that with planned engineering / environmental design features, mitigation measures, and emergency response, as well as implementing industry best practices that the risks to the environment from accidents and malfunctions can be reduced to levels that are as low as reasonably practical.</p> <p>Section 2.9.1.3 of the draft EIS provides Denison's commitment to develop an Environmental Management System, which includes an Emergency Preparedness and Response Program (EPRP) and an Environmental Protection Program (EPP; including an Environmental Monitoring Plan). The EPRP would be established to identify how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property. The EPRP would be developed in a manner that aligns with guidance provided by CNSC in REGDOC-2.10.1. The EPP would be established to provide an overarching framework for key environmental monitoring and management plans and to ensure a means to demonstrate compliance with applicable environmental regulatory requirements and other performance targets that Denison may set. As noted on the draft EIS, Denison has opted to execute the overall Project approvals process - that is, the environmental assessment and licensing / permitting processes - in series and not simultaneously. As such, the details of these programs and plans will be developed during the licensing / permitting phase and will be available for review at that time rather than as part of the final EIS. The level of information provided in the draft EIS is appropriate for the current stage of the Project approvals process.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data</p>

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				collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time. BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and program spatial boundaries will be sufficiently extensive to measure EIS predictions.
51	BNDN (February 28, 2023)	8.3.8 Monitoring and Follow-up	<p>Comment #51: There is no discussion on how Indigenous communities, such as BNDN, will be included in environmental management, emergency management, monitoring, and remediation. This includes issues related to ongoing permitting or specific remediation such as in the case of an accident or malfunction.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> To support BNDN's ongoing participation in monitoring and oversight of the Project, BNDN request the establishment of an Environmental Committee or similar oversight mechanism. The purpose of the committee will be to review monitoring data and monitoring reports produced during the life-of-mine to ensure that the environmental protection is sufficient for all VCs. The committee can also participate in permitting throughout the life-of-mine for all relevant applications (e.g., Fisheries Act Authorizations, water permits, Closure Plan updates etc.) and provide input to management plans (e.g., EPPs, Surface Water Management Plan, Environmental Monitoring Plans, etc.). The specific details of such a committee can be developed 	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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			<p>through consultation with BNDN and must be formalized through a BNDN-Denison project agreement.</p> <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	
52	BNDN (February 28, 2023)	8.3.5 Mitigation Measures	<p>Comment #52: Mitigation measures are an important component of Project management which are critical for environmental protection. Upon review of the suggested mitigation measures, BNDN has identified some opportunities for additional mitigation.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN request that the following standard mitigation measures be included as part of the list described in Section 8.3.5: <ul style="list-style-type: none"> Maintain vegetated buffers of at least 100m with all waterbodies wherever practical; All equipment must be inspected prior to use on-site to ensure that they are clean and free of soil or other contaminants; Maintain spill kits on all vehicles used on-site; All machinery will be kept in good working order and inspected regularly for drips, leaks, and spills; In the event of a spill, Denison will take all necessary actions, where it is safe to do so, to immediately stop the spill, contain contaminants, clean up and dispose of contaminated materials; 	<p>Denison acknowledges the input and will consider the suggestions as the project moves forward. The draft EIS contains a number of mitigations referenced in different biophysical and human environment assessments; these mitigations together form Denison's fulsome commitment list of Project mitigation measures moving forward. Many of the proposed additional mitigation measures are already included in the draft EIS. A few examples are provided here:</p> <ul style="list-style-type: none"> Section 2.2.7.6: No fuels, oils, or other hazardous substances will be stored within 100 m of any water body. No equipment maintenance or re-fuelling will be conducted within 100 m of a water body. Section 2.8: Fuel storage and distribution infrastructure will be constructed in accordance with applicable legislation requirements; Fuels will be stored in approved, above-ground, double-walled storage tank(s) equipped with secondary containment in accordance with provincial regulations and standards; Stationary and mobile equipment will be fueled with a fuel-dispensing truck. Section 9.2.5.2.7: Standard operating procedures will be employed, and regular inspections of equipment and machinery will be completed to verify they are in good working order; Vehicles and equipment will be maintained in good working condition (e.g., no leaks) and furnished with industry-standard spill response kits. <p>Denison also notes that Section 2.9.1.3 of the draft EIS provides Denison's commitment to develop an Environmental Management System, which includes an Emergency Preparedness and Response Program (EPRP) and an Environmental Protection Program (EPP; including an Environmental Monitoring Plan). The EPRP would be established to identify how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property. The EPRP would be developed in a manner that aligns with guidance provided by CNSC in REGDOC-2.10.1. The EPP would be established to provide an overarching framework for key environmental monitoring and management plans and to ensure a means to demonstrate compliance with applicable environmental regulatory requirements and other performance targets that Denison may set. As noted on the draft EIS, Denison has opted to execute the overall Project approvals process - that is, the environmental assessment and licensing / permitting processes - in series and not simultaneously. As such, the details of these programs and plans will be</p>

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			<ul style="list-style-type: none"> Denison will maintain a record of all spills and report upon each spill within 48 hours, including information on spill response, cleanup, and remediation; Vehicle refueling will occur at a distance of at least 100m; Fuel tanks will be located in areas that are lined and contained; Fuel tanks will be located at least 500m from known waterbodies. <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	<p>developed during the licensing / permitting phase and will be available for review at that time rather than as part of the final EIS. The level of information provided in the draft EIS is appropriate for the current stage of the Project approvals process.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time. BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
53	BNDN (February 28, 2023)	8.3 Fish and Fish Habitat	<p>Comment #53: Unfortunately, due to the nature of planning and licensing for complex projects such as the Wheeler River mine, there are many documents, plans, licenses and approvals which may not be available for review during the environmental assessment process, or which will take place subsequent to completion of the assessment. For example, Denison will be preparing important documentation governing environmental management of the Project following the Environmental Assessment. While these are not currently available, there is a need to engage with BNDN to obtain input on these documents as planning progresses.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that Denison consult with our staff members and advisors on important environmental documentation/plans/licenses that are not available as part of the EA process. This list includes, but is not limited to: 	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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			<ul style="list-style-type: none"> ○ Surface Water Management Program ○ Erosion and Sediment Control Plan ○ Fish Salvage Plan ○ Spill Response Plan ○ MDMER approvals and EEM plans ○ Saskatchewan Water Security Agency permits for ○ Aquatic habitat protection ○ Operating a waterworks ○ Operating a sewage works ○ Effluent Monitoring Plan ○ Environmental Monitoring Plan(s) ○ Decommissioning and Reclamation Plan <p>Engagement with BNDN on these plans should occur through an Environmental Committee or similar oversight mechanism (see above). The specific details of such a committee can be developed through consultation with BNDN and must be formalized through a BNDN- Denison project agreement for the Wheeler River Project. See Section 4.4 for additional information on this topic (p. 48-51).</p>	
54	BNDN (February 28, 2023)	8.4.3.1 Methodology and Metrics	<p>Comment #54: The collection of sediment samples was completed using cores and grab petit Ponar in three upstream reference locations (LA-7A, LA-8, and LA-9), Whitefish Lake (LA-5 and LA-6), McGowan Lake (LA-1), and Russell Lake (LAB-1 and LAB-2). Sediment quality testing was conducted to characterize COPC including nutrients, metals, and radionuclides.</p> <p>Only the top 2 cm of cores of grab samples were analyzed in the lab. It is not clear in the methodology why laboratory analysis was limited to the top 2 cm.</p>	<p>Baseline sediment chemistry was conducted on the 0-2cm horizon as this is the area in contact with surface water and the zone inhabited by benthic invertebrates. It is also the sediment layer in which changes in sediment chemistry would be expected to change in response to Project-related inputs and thus provides the most appropriate data for comparison to follow-up monitoring.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time.</p>

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			<p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests additional information on the rationale for only analyzing COPC within the top 2 cm of sediment samples. This should include information on whether this limited data will negatively affect the ability to evaluate potential impacts of groundwater contamination entering Whitefish Lake from below during operations, decommissioning, and future centuries. <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	<p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p> <p>The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of the draft EIS provides the variety of ways in which Denison has engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfil its key corporate principals for developing positive relationships (see draft EIS Section 4.2).</p>
55	BNDN (February 28, 2023)	8.4.3.2.3 Metals	<p>Comment #55: Despite significant concerns regarding the presence of mercury in water and sediment, the Proponent has elected not to test sediments for it. BNDN acknowledges that the mining process does not use mercury and it is present in low levels in the background environment. However, for the purposes of good stewardship, communications, and trust, having an assessment of the background levels of mercury is important to BNDN.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that the proponent sample sediments for mercury to establish background levels. This is information that is culturally important given the potential harm and the psychological toll of mercury in aquatic ecosystems. Background levels can then be compared with ongoing monitoring throughout the life of mine. 	Denison will collect background information pertaining to sediment total and methyl mercury from LSA lakes and rivers prior to site development.

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			See Section 4.4 for additional information on this topic (p. 48-51).	
56	BNDN (February 28, 2023)	Table 8.5-2: Baseline Fish Tissue Chemistry Summary	<p>Comment #56: In Section 8.5 Fish Health, the Proponent has included a summary table with information on contaminants in fish tissue and bone tissue. The information provided does not include total number of samples.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests table 8.5-2 be updated with information on total number of fish (n) samples for each location. <p>See Section 4.4 for additional information on this topic (p. 48-51).</p>	The requested information is presented in Appendix 8-D in the draft EIS.
57	BNDN (February 28, 2023)	9.2.5.2 Additional Vegetation-specific Mitigation Measures	<p>Comment #57: The Proponent has committed to using seed that is certified weed-free, with a valid "Certificate of Seed Analysis" for the revegetation process.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN recommends that, in addition to using weed-free certified seeds, consultation occur with Indigenous communities, including BNDN, to select an appropriate seed mix that closely mimics the pre-construction plant community and includes plants of medicinal and traditional importance. This could be done by either sourcing seed mix from a local seed distributor, or using wild seed propagated from plants collected from the Project Area. In addition, the seed mix should contain native plant species only. <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	<p>Specific details of the seed mixture and overall reclamation plan will be developed through updates to the Decommissioning Plan, on which Interested Parties will be provided opportunity for review and input. The decommission plan in the EIS is a conceptual plan. A preliminary decommissioning plan will be included with licence application and reviewed and updated during operations. Prior to executing Decommissioning activities, Denison shall prepare and submit a detailed decommissioning plan to regulators for acceptance, which builds on the preliminary decommissioning plan.</p> <p>Additionally, Denison has partnered with the University of Saskatchewan and Northwest Communities Environmental Services (an Indigenous-owned environmental company) under the Developing Eco-Restoration Together (DERT) program. This unique project aims to co-create ecological restoration practices that centre Indigenous peoples, worldviews, and values while also braiding knowledge from the land, Indigenous knowledge, and western science. The project is supported by the three partners but is ultimately guided by the Indigenous Project Advisory Board, and the Community Liaison/Education Coordinator. Through restoration trials, community engagement, and various planting techniques, Denison, with their partners are seeking to return ecosystem functions in areas where they have been previously disturbed (e.g., exploration cutlines). Through collaboration with community members, University of Saskatchewan, industry partners, two graduate students, and local youth, this project is expected to ultimately inform the creation of a framework for effective restoration practices in northern Saskatchewan that centre on caribou and Indigenous communities.</p>

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58	BNDN (February 28, 2023)	9.3.4.2.1 Alteration and/or Loss of Habitat Figure 9.3-9 Available Habitat for Moose	<p>Comment #58: The EIS uses a 500 m buffer around the Project Area to define indirect habitat alteration for moose (Figure 9.3-9). This includes habitat alteration from sensory disturbance such as anthropogenic noises, vehicle traffic, aircraft traffic, and increased predator access. However, the EIS references scientific research that states that roads and vehicle traffic can affect moose habitat selection, resulting in habitat avoidance up to 1 km from roads (Shanley and Pyare 2011).</p> <p>Furthermore, the EIS acknowledges uncertainty concerning the available background and baseline information used to identify available moose habitat in this assessment.</p> <p>Without considering a larger avoidance buffer (as demonstrated in various research) around proposed anthropogenic disturbances, BNDN believe that the EIS underestimates the potential extent of moose habitat alteration. To be more conservative, a 1000 m buffer should be used surrounding the Project area.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN recommends using a 1000 m buffer surrounding the Project Area to measure the extent of moose habitat alteration. BNDN believe this analysis will provide a more accurate and conservative outcome with respect to potential project impacts to moose. <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	It is Denison's and their terrestrial SME's opinion that the approach used to characterize moose habitat alteration provided a sufficient basis for conducting the ungulate (VC) moose (KI) effects assessment (draft EIS Section 9.3). The Project Area had a 500 m buffer applied to account for indirect effects/habitat alteration; this area is within the wildlife LSA. Availability of habitat is not a key limiting factor for moose populations.
59	BNDN (February 28, 2023)	9.3.5.2.7 Mitigation Measures	Comment #59: One of the mitigation measures implemented to protect ungulates, furbearers, and Woodland Caribou includes de-icing the	Denison has committed to using alternative measures on Project roads for de-icing and winter traction (e.g., sand, gravel) or dust suppression (e.g., water) whenever practicable.

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			<p>Project roads for winter traction, which will result in fewer wildlife collisions.</p> <p>Salt used for de-icing is likely to attract ungulates, including moose, to roadways to satisfy their mineral requirements (Rea et al 2021).</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that the Proponent revise this mitigation measure to explicitly state that salt will not be used for de-icing Project roads to avoid attracting ungulates to the Project Area. This mitigation measure can be found in section 9.3.5.2.7 Road and Traffic Management. <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	
60	BNDN (February 28, 2023)	9.3.6.4.1 Alteration and/or Loss of Habitat Figure 9.3-14	<p>Comment #60: The EIS uses a 500 m buffer around the Project Area to define Woodland Caribou habitat alteration from sensory disturbance. However, scientific research expects up to 5 km (or greater) of Caribou avoidance around mining Projects, and that related semi-permeable barriers, such as roads, likely exacerbate this effective habitat loss [(Smith et al. 2000; Dyer et al. 2001; Courtois et al. 2008; Vistnes and Nellemann 2008; Nagy 2011; Polfus et al. 2011; Leblond et al. 2011, 2013; CPAWS Wildlands League 2013; Johnson et al. 2015)].</p> <p>Without considering a larger avoidance buffer (as demonstrated in various research) around proposed anthropogenic disturbances, we believe that the EIS underestimates the potential extent of Caribou habitat alteration.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests that the Proponent present the extent of caribou habitat alteration/loss 	<p>It is Denison's and their terrestrial SME's opinion that the approach used to characterize caribou habitat alteration provided a sufficient basis for conducting the caribou effects assessment (draft EIS Section 9.3). The Project Area had a 500 m buffer applied to account for indirect effects/habitat alteration; this area is within the wildlife LSA (refer to Figure 9.3-9 for a map showing the spatial areas). The 500 m buffer for habitat alteration was selected in accordance with ECC's (2020) assessment of disturbed areas, which buffered (500 m) anthropogenic disturbances to evaluate the habitat. The alteration of available 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 the habitat and make it functionally unavailable for use.</p> <p>Following submission of the draft EIS in October 2022, Denison has met with Saskatchewan Ministry of Environment (SK ENV) staff to develop a framework for future woodland caribou offset. This information has been presented to the provincial and federal review teams as part of the response to federal information requirements in August 2023 as the Conceptual Caribou Mitigation Plan. The Conceptual Caribou Mitigation Plan (the Plan), developed proactively by Denison, has a different objective than the draft EIS. The Plan builds on the assessment of potential Project effects and commitments to consider additional mitigation (offset) to account for non-significant residual effects highlighted in the draft EIS. The Plan is expected to be advanced with ongoing consultation with the SK ENV, as SK ENV finalize the caribou range plan for SK1. The EIS is a conservative planning tool, whereas the Plan is a</p>

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			<p>from the proposed Project within a range of uncertainty informed by scientific research.</p> <p>Specifically, the percent alteration of habitats must be presented using a 500 m (low end) up to a 5,000 m (high end) buffer. BNDN believe this analysis will provide a more accurate range of outcomes with respect to potential project impacts to caribou.</p> <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	<p>practical, living document designed to define management works associated with caribou. The Plan is not a requirement for EA determination per se, but is provided as a guidance document to help Denison proactively describe and inform the development and implementation of appropriate mitigation measures related to caribou and their habitat. The Plan is an evergreen document. It will be consistent with the management goals of SK ENV for the SK-1 caribou conservation unit (once available) and will be developed/refined in consultation with local communities including English River First Nation and Kineepik Métis Local in Pinehouse and SK ENV. Denison is continuing to work with SK ENV to estimate habitat offset scenarios based on the current Project design which will be refined as the Project advances. A boreal caribou habitat offset calculator is under development by SK ENV and Denison is collaborating with SK ENV to define key scenario attributes.</p> <p>References:</p> <p>Environment and Climate Change Canada (ECCC). 2020. Amended Recovery Strategy for the Woodland Caribou (<i>Rangifer tarandus caribou</i>), Boreal Population, in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. xiii + 143pp.</p>
61	BNDN (February 28, 2023)	9.4.3.3 Bird Species at Risk Appendix 9-B	<p>Comment #61: Incidental observations of Barn Swallow (<i>Hirundo rustica</i>) occurred during baseline studies (Appendix 9- B). This bird SAR was not included as a Key Indicator for this Valued Component. Instead, the EIS represents the Barn Swallow using two other SAR birds including the Olive-sided Flycatcher (<i>Contopus cooperi</i>), and Common Nighthawk (<i>Chordeiles minor</i>). This does not make ecological sense because Barn Swallows use distinct habitat and exhibit distinct breeding behaviour from these other SAR. Therefore, the barn swallow should be its own key indicator because it will have unique levels of habitat alteration/loss and levels of mortality than the other species.</p> <p>In addition, Barn Swallows have a higher likelihood of being impacted by project activities than the other representative SAR, because they nest directly on artificial structures. The EIS states that species that nest on buildings are more susceptible to entrapment in Project components.</p>	<p>The process and rationale for selection of VCs and establishment of KIs and associated MPs is described in Section 5.3 in Section 5. Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs were selected based on their likelihood of interaction with the Project, as well as their contributing roles to biodiversity and ecosystem function. The methodology for the habitat-based assessment appropriately evaluated potential adverse effects on avian species using the accepted VC and KI approach for focus of the assessment. As described in the EIS, the Common Nighthawk (similar to the Barn Swallow) is an aerial insectivore that uses a variety of habitats, including anthropogenically disturbed and cleared areas (Section 9.4.3.3.1). As such, effects on these anthropogenically disturbed areas were appropriately assessed in the habitat-based EA methodology. Since Barn Swallows nest almost exclusively on human-made structures, specific Barn Swallow exclusion methods will be added as mitigation measures to the EIS (Section 9.4.5). If Barn Swallow nests should be encountered, any subsequent activities would be conducted in accordance with the 2022 Migratory Birds Regulations. The habitat-based approach for the assessment supports the use of surrogates that are known to utilize the same habitat types. Habitat loss and alteration were assessed for the Key Indicator species included in this Valued Component. A conservative approach of identifying available habitat for these species was chosen to include habitat for those species not directly assessed (i.e., Barn Swallow through Common Nighthawk habitat).</p> <p>Subsequent to filing the draft EIS, Denison has developed a new Species at Risk appendix to Section 9 which will be included in the final EIS and has been included in the response to YNLR (a new SAR appendix (new Appendix 9-D) will be added to Section 9 of the final EIS. It</p>

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			<p>This species is listed as Threatened on SARA Schedule 1. In Canada, the Migratory Birds Convention Act, 1994 protects Barn Swallow, its nests, and eggs.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> a) BNDN requests that the Barn Swallow is included as its own key indicator for the VC Bird SAR within the EIS. b) Additional surveys should be conducted to confirm the presence of any Barn Swallow nests on all buildings in the Project Area prior to commencement of construction. c) If Barn Swallow nests are located, contact the SK MOE for regulatory advice on the appropriate actions given the specific situation. d) The Proponent should monitor all barn swallow nests found within the Project Area to confirm their continued usage throughout the lifecycle of the mine. If avoidance of nests is observed near Project activities, the Proponent should adopt an adaptive management approach and provide additional nesting sites elsewhere. Specifically, the Proponent could consider installing nesting structures in suitable areas to provide alternative nesting options for Barn Swallows. e) Staff should be trained to identify and report barn swallows and their nests. f) Future monitoring programs during the life of the project must include the barn swallow. <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	<p>has been included here as Attachment IR-131. This new EIS appendix lists all SAR species potentially occurring in the Project study areas, with links to applicable and appropriate mitigation measures described in the draft EIS. The new appendix also includes a summary of the life history requirements, the expected Project effects, proposed mitigation measures, and anticipated residual effects on barn swallow.</p>

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62	BNDN (February 28, 2023)	9.4.3.3 Bird Species at Risk Appendix 9-B	<p>Comment #62: Incidental observations of Horned Grebe (<i>Podiceps auratus</i>) occurred during baseline studies (Appendix 9- B). This species is listed as Special Concern on SARA Schedule 1.</p> <p>1. The Horned Grebe was not included as a Key Indicator for this Valued Component. Instead, the EIS represents this species with two other bird SAR, Yellow Rail (<i>Coturnicops noveboracensis</i>), and Rusty Blackbird (<i>Euphagus carolinus</i>). The Horned Grebe uses distinct habitat from these other species. Therefore, the Horned Grebe should be its own key indicator because it will have different levels of habitat alteration/loss and levels of mortality.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that the Horned Grebe is included as its own Key Indicator for the VC Bird SAR within the EIS.</p> <p>b) b. Future monitoring programs during the life of the Project must include the Horned Grebe. See Section 4.5 for additional information on this topic (p. 59-60).</p>	<p>The process and rationale for selection of VCs and establishment of KIs and associated MPs is described in Section 5.3 in Section 5. Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs were selected based on their likelihood of interaction with the Project, as well as their contributing roles to biodiversity and ecosystem function. While Horned Grebe was not included as a avian SAR in the draft EIS, the EIS identified Yellow Rail and Rusty Blackbird as a surrogate species. To focus the effects assessment on key species, it was decided to use the provincially listed Yellow Rail (and Rusty Blackbird) as surrogates for Horned Grebe. Horned Grebe use similar wetland habitat types for nesting, foraging and protective cover as Yellow Rail. The habitat-based approach for the assessment supports the use of surrogates that are known to utilize the same habitat types. Habitat loss and alteration were assessed for the Key Indicator species included in this Valued Component. A conservative approach of identifying available habitat for these species was chosen to include habitat for those species not directly assessed (i.e., Horned Grebe through Yellow Rail and Rusty Blackbird habitat). As such, potential effects on these habitat types were assessed appropriately in the draft EIS.</p> <p>Subsequent to filing the draft EIS, Denison has developed a new Species at Risk appendix to Section 9 which will be included in the final EIS and has been included in the response to YNLR (a new SAR appendix (new Appendix 9-D) will be added to Section 9 of the final EIS. It has been included here as Attachment IR-131. This new EIS appendix lists all SAR species potentially occurring in the Project study areas, with links to applicable and appropriate mitigation measures described in the draft EIS. The new appendix also includes a summary of the life history requirements, the expected Project effects, proposed mitigation measures, and anticipated residual effects on Horned Grebe.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project.</p>
63	BNDN (February 28, 2023)	9.4.3.3 Bird Species at Risk	<p>Comment #63: The Bank Swallow (<i>Riparia riparia</i>), a bird SAR may be present within the terrestrial RSA. This species was not included in the EIS as a key indicator for bird SAR. This species is listed as Threatened on SARA Schedule 1.</p>	<p>The process and rationale for selection of VCs and establishment of KIs and associated MPs is described in Section 5.3 in Section 5. Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs were selected based on their likelihood of interaction with the Project, as well as their contributing roles to biodiversity and ecosystem function. Subsequent to filing the draft EIS, Denison has developed a new Species at Risk appendix to Section 9 which will be included in the final EIS and has been included in the response to YNLR (a new SAR appendix (new Appendix 9-D) will be added to Section 9 of the final EIS. It has been included here as</p>

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			<p>The breeding range of the Bank Swallow (<i>Riparia riparia</i>) overlaps with the terrestrial RSA. Bank swallows breed in varying natural and artificial habitat with sand-silt substrates including vertical banks, riverbanks, bluffs, stockpiles, aggregate pits, and roadcuts (COSEWIC 2013). Suitable habitat may be present because soil surface textures across the RSA are predominantly sand textured (sand, loam sand/sandy loam and silty sand). The creation of soil stockpiles during construction may create suitable breeding habitat for this species.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> a) BNDN requests a justification for excluding the Bank Swallow from the EIS. b) If a valid justification does not exist, BNDN requests this species be added as a Key Indicator for bird SAR unless it can be proven not present in the RSA. c) All soil stockpiles should be monitored for Bank Swallow nesting activity before the stockpiles are disturbed when needed for site reclamation. d) If Bank Swallow nests are located, contact the SK MOE for regulatory advice on the appropriate actions given the specific situation. <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	Attachment IR-131. This new EIS appendix lists all SAR species potentially occurring in the Project study areas, with links to applicable and appropriate mitigation measures described in the draft EIS. The new appendix also includes a summary of the life history requirements, the expected Project effects, proposed mitigation measures, and anticipated residual effects on bank swallow.
64	BNDN (February 28, 2023)	9.4.3.3.2 Information from Indigenous Knowledge, Local Knowledge,	Comment #64: The EIS states that knowledge providers reported that multiple Whooping Cranes (<i>Grus americana</i>) have been observed along the Wheeler River, Moore River, and along the Cree River (outside of the terrestrial RSA) (19-LK-ERFNTrip- 134.169) (19-LK- ERFNTrip- 134.170). Whooping Cranes are listed as	The process and rationale for selection of VCs and establishment of KIs and associated MPs is described in Section 5.3 in Section 5. Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs were selected based on their likelihood of interaction with the Project, as well as their contributing roles to biodiversity and ecosystem function. The local trapper's observation of Whooping Crane was outside of the avian RSA. The rationale for the selection of the SAR Key Indicators was provided in draft EIS Section 9.4.1. For these reasons, Whooping Crane was not included as a SAR Key Indicator in the draft EIS. For further

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		and Engagement	<p>Endangered on SARA Schedule 1. The EIS does not include this species as a key indicator for SAR birds, nor does it include an explanation why this species was omitted despite being reported by a knowledge provider from English River First Nation.</p> <p>Request/recommendation:</p> <p>a) BNDN requests an explanation for excluding this species despite being reported by a Trapper from English River First Nation. If a valid justification does not exist, the species Whooping Crane (<i>Grus americana</i>), should be included as a key indicator for SAR birds.</p> <p>b) Future monitoring programs during the life of the Project must include surveys for the Whooping Crane.</p> <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	<p>reference as noted above subsequent to filing the draft EIS, Denison has developed a new Species at Risk appendix to Section 9 which will be included in the final EIS and has been included in the response to YNLR (a new SAR appendix (new Appendix 9-D) will be added to Section 9 of the final EIS. It has been included here as Attachment IR-131. This new EIS appendix lists all SAR species potentially occurring in the Project study areas, with links to applicable and appropriate mitigation measures described in the draft EIS. The new appendix also includes a summary of the life history requirements, the expected Project effects, proposed mitigation measures, and anticipated residual effects on bank swallow.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project.</p>
65	BNDN (February 28, 2023)	9.4.3.3.3 Baseline Studies	<p>Comment #65: Short-eared Owls (<i>Asio flammeus</i>) were not observed during the baseline surveys (Appendix 9-B). This is likely because targeted surveys for this species were not conducted. The detection probability of Short-eared Owls is very low at sunrise when the breeding songbird point count surveys were conducted. Short-eared Owls are most detectable from one hour before sunset to half an hour after sunset.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that short-eared Owls continue to be assumed present within suitable habitat, unless proven otherwise by a qualified biologist using the Short-Eared Owl Survey Protocol (Saskatchewan Ministry of Environment 2015).</p>	<p>The process and rationale for selection of VCs and establishment of KIs and associated MPs is described in Section 5.3 in Section 5. Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs were selected based on their likelihood of interaction with the Project, as well as their contributing roles to biodiversity and ecosystem function. Short-eared Owl were included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). In the EIS, Short-eared Owl were assumed to be present and breeding in the Project study areas. As described in the EIS, pre-construction surveys will be conducted prior to the commencement of any vegetation clearing or soil disturbance. Avian species will also be routinely monitored throughout the life of the Project. Results from the surveys and monitoring activities are expected to inform the adaptive management process to update Project design and identify the need for additional mitigation measures, if required.</p>

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			<p>b) Future monitoring programs should utilize the protocol developed by the Saskatchewan Ministry of Environment to better (2015) understand whether this species is present.</p> <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	
66	BNDN (February 28, 2023)	9.4.3.3.3 Baseline Studies	<p>Comment #66: Yellow Rail (<i>Coturnicops noveboracensis</i>) were not observed during the baseline surveys (Appendix 9-B). This is likely because targeted surveys for this species were not conducted. The Yellow Rail is nocturnal; therefore, survey effort must take place between 23:00-3:00. Therefore, this species would not have been observed when the breeding songbird point count surveys were conducted.</p> <p>Request/recommendation:</p> <p>a) BNDN requests that Yellow Rail should continue to be assumed present within suitable habitat, unless proven otherwise by a qualified biologist using the Yellow Rail Survey Protocol (Saskatchewan Ministry of Environment 2014).</p> <p>b) Future monitoring programs should utilize the protocol developed by the Saskatchewan Ministry of Environment (2014) to better understand whether this species is present.</p> <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	<p>The process and rationale for selection of VCs and establishment of KIs and associated MPs is described in Section 5.3 in Section 5. Raptors, Migratory Breeding Birds, and Bird Species at Risk VCs were selected based on their likelihood of interaction with the Project, as well as their contributing roles to biodiversity and ecosystem function. Yellow Rail were included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). In the EIS, Yellow Rail were assumed to be present and breeding in the Project study areas. As described in the EIS, pre-construction surveys will be conducted prior to the commencement of any vegetation clearing or soil disturbance. Avian species will also be routinely monitored throughout the life of the Project. Results from the surveys and monitoring activities are expected to inform the adaptive management process to update Project design and identify the need for additional mitigation measures, if required.</p>
67	BNDN (February 28, 2023)	Appendix 9-B	<p>Comment #67: Two bat species, Little Brown Bat (<i>Myotis lucifugus</i>) and Northern Myotis (<i>Myotis septentrionalis</i>) were detected during passive acoustic surveys in 2019 (Appendix 9- b). These species are listed as Endangered by COSEWIC and SARA schedule. Despite being present, bats were completely excluded from the EIS. Areas that will be cleared for mine development and operations</p>	<p>Subsequent to filing the draft EIS, Denison has developed a new Species at Risk appendix to Section 9 which will be included in the final EIS and has been included in the response to YNLR (a new SAR appendix (new Appendix 9-D) will be added to Section 9 of the final EIS. It has been included here as Attachment IR-131. This new EIS appendix lists all SAR species potentially occurring in the Project study areas, with links to applicable and appropriate mitigation measures described in the draft EIS. The new appendix also includes a summary of the life history requirements, the expected Project effects, proposed mitigation measures, and anticipated residual effects on bats.</p>

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			<p>could contain maternity roost trees. Based on Appendix 9-b, this habitat was not adequately evaluated through field surveys.</p> <p>Request/recommendation:</p> <p>a) BNDN requests justification for excluding bat species from the EIS despite two Endangered species confirmed present.</p> <p>b) BNDN also request the Proponent put protocols in place to identify and assess bat maternity roost trees prior to clearing and employ mitigation measures such as retaining maternity roost trees, modifying the timing of clearing, and offsetting for the destruction of habitat for endangered species.</p> <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	
68	BNDN (February 28, 2023)	9 Terrestrial Ecology 9.1.8 Monitoring and Follow-up 9.2.8 Monitoring and Follow-up 9.3.8 Monitoring and Follow-up 9.4.8 Monitoring and Follow-up	<p>Comment #68: Denison's proposed terrestrial ecology mitigations described are generalized and conceptual in the EIS. With the level of detail provided in the EIS, it is not possible for BNDN to comment on the adequacy or effectiveness of the proposed mitigation measures or whether proposed mitigations will meaningfully diminish Project impacts on BNDN rights and interests.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN holds invaluable indigenous knowledge related to terrestrial ecology topics including traditional and medicinal plants, ungulates, furbearers, game birds etc. within the RSA. BNDN must be meaningfully involved in the development and implementation of the various management and monitoring plans mentioned throughout Chapter 9 of the EIS to ensure that proposed impacts are 	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p> <p>The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of</p>

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			<p>sufficiently reduced. These plans include but are not limited to the wildlife monitoring plan, avian monitoring, and Woodland Caribou Management Plan. The role that BNDN will have in developing management and monitoring plans should be defined within a project agreement between BNDN and Denison.</p> <p>See Section 4.5 for additional information on this topic (p. 59-60).</p>	the draft EIS provides the variety of ways in which Denison has engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfil its key corporate principals for developing positive relationships (see draft EIS Section 4.2).
69	BNDN (February 28, 2023)	Section 6.0	<p>Comment #69: Denison's air dispersion model does not include any receptor locations related to BNDN traditional land and resources use (TLRU) and Indigenous Knowledge (IK) sites. BNDN members use the lands and waters in the Project area for TLRU and ceremonial purposes.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN TLRU and IK sites should be considered in Denison's air quality assessment. The geographic locations for TLRU and IK should be inputted into the air dispersion model as special receptors. This will provide site specific data for BNDN land users who use the LSA so they can effectively assess the Project's impact on land use and rights. <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	Scoping of the air quality assessment followed a conservative approach and described where modelled concentrations returned to background levels. The air quality assessment included human receptors in the Project Area and Local Study Area (refer to draft EIS, Figure 6.1-3). These receptor locations are consistent with what was presented in the ERA (Section 10.1 and Appendix 10-A). See response to BNDN comment #1 for further details.
70	BNDN (February 28, 2023)	Section 6.0	<p>Comment #70: Denison states in the EIS "the Cameco McArthur River Operation and Key Lake sites are currently in Care and Maintenance mode; therefore, there is currently no truck traffic between the sites on Highway 914. When these sites are to become operational again, there is potential for a cumulative effect at sensitive</p>	Please refer to Section 6.1.3.2 and 6.1.7. The regional SK MOE data presented in Table 6.1-12 were conservatively used to represent background concentrations of TSP, PM10, PM2.5, CO, SO2, and NO2 for the Wheeler River Project air quality assessment. While traffic associated with Cameco Operations was not modelled, conservative regional background concentrations from the Saskatchewan Air Quality Modelling Guideline (SK MOE 2012a) and the La Loche monitoring station were used for particulate matter, NO2, SO2, and CO (see Section 6.1.3.2.5 and Appendix 6-A). The La Loche monitoring station is located near

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			<p>locations near the highway." On November 28th, 2022, operations resumed at Cameco's McArthur River Uranium Mine and Key Lake Mill.</p> <p>Denison did not model Cameco related air emissions in their air dispersion model. The EIS model does not account for any of Cameco's air emissions from the mill, mine, and associated truck traffic between sites. Without this data included in the model, the EIS does not adequately account for the cumulative effects of Cameco's McArthur River Mine and Key Lake Mill on the atmospheric environment.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Denison must redo air dispersion modeling to account for the Cameco McArthur River Uranium Mine and Key Lake Mill which have resumed operations since the EIS was released. Without this data included in the model the EIS does not accurately capture baseline conditions or cumulative effects on the atmospheric environment. <p>Fugitive dust and uranium emissions (and potentially other contaminants) have increased potential for exceedances with the resumption of Cameco's operations, as exceedances are already predicted with the Wheeler River Project alone.</p> <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>anthropogenic sources, while the Project is in a remote area removed from anthropogenic sources. Accordingly, emissions to air from traffic associated with Cameco's operations are captured by the regional background concentrations used in the air dispersion model and are considered in the assessment of Project-related effects discussed in Section 6.1.4. Model predictions of COPC concentrations and depositions were added to background levels and compared to the available standards summarized in Table 6.1-5 at receptors located outside the property boundary.</p> <p>To confirm the residual effects of the Project on Air Quality and demonstrate compliance with provincial ambient air quality standards, an adaptive air quality management program will be implemented. The air quality management program will contain various plans which will be finalized during permitting and licensing. The plans within the air quality management program will incorporate monitoring requirements directed by provincial and federal regulators and by Indigenous groups and other Interested Parties as requested.</p>
71	BNDN (February 28, 2023)	Section 6.0	<p>Comment #71: The Project is predicted to produce exceedances for TSP of 313% over the regulatory limit. 24-hour TSP concentrations exceed the criterion 28% of the time during Construction, 21% of the time during Operations. These exceedance conditions do not include TSP emissions from Cameco's McArthur River Mine</p>	<p>a) A change in a measurable parameter is not a significant effect, per the EA methodology outlined in Section 5. This threshold approach is both transparent and reasonable with the context of the assessment, though it is acknowledged that some level of change in the VC (or more precisely its measurable parameter) is deemed acceptable on condition that the change is not of a magnitude from which negative effects could accrue. Denison directs BNDN to Table 6.1-19 to 6.1-21 for the complete residual effect characterization for TSP exceedances. This includes a consideration of the residual effect related to TSP in the full</p>

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			<p>and Key Lake Mill which have now resumed operations. There is also the potential for wildfire smoke to further exacerbate dust emissions.</p> <p>TSP exceedances represent a potential health risk for land users and workers near the Project site. Especially for at-risk groups such as elders, youth, and people with existing respiratory conditions.</p> <p>Request/recommendation:</p> <p>a) Denison must employ additional mitigation measures to reduce TSP emissions on site including enhanced dust suppression efforts.</p> <p>b) Denison must remodel TSP to include emissions from Cameco's McArthur River Mine and Key Lake Mill.</p> <p>c) Please provide information on how TSP will be monitored during the Project and how Denison will know when exceedance conditions are occurring.</p> <p>d) Please provide information on how adaptive management will be used when a TSP exceedance is discovered. Including discussion on how the Project will be managed during poor air quality events caused by wildfire smoke.</p> <p>e) Please provide information on how exceedances conditions near the Project site will be communicated to the public.</p> <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>context of direction, magnitude, geographic extent, duration, frequency, reversibility, context, and likelihood. In Section 10.1 of the draft EIS, the SMEs concluded that while there were predicted exceedances of air quality criteria for particulate matter, they were not identified for further assessment in the HHRA—these COPCs are unlikely to be associated with a human health or environmental risk, and any exposures to people at elevated concentrations would be infrequent, short-term, and highly localized.</p> <p>b) Please refer to Section 6.1.3.2. The regional SK MOE data presented in Table 6.1-12 were conservatively used to represent background concentrations of TSP, PM10, PM2.5, CO, SO2, and NO2 for the Wheeler River Project air quality assessment. While traffic associated with Cameco Operations was not modelled, conservative regional background concentrations from the Saskatchewan Air Quality Modelling Guideline (SK MOE 2012a) and the La Loche monitoring station were used for particulate matter, NO2, SO2, and CO (see Section 6.1.3.2.5 and Appendix 6-A). The La Loche monitoring station is located near anthropogenic sources, while the Project is in a remote area removed from anthropogenic sources. Accordingly, emissions to air from traffic associated with Cameco's operations are captured by the regional background concentrations used in the air dispersion model and are considered in the assessment of Project-related effects discussed in Section 6.1.4. Model predictions of COPC concentrations and depositions were added to background levels and compared to the available standards summarized in Table 6.1-5 at receptors located outside the property boundary.</p> <p>c) and d) To confirm the residual effects of the Project on Air Quality and demonstrate compliance with provincial ambient air quality standards, an adaptive air quality management program will be implemented. The air quality management program will contain various plans which will be finalized during permitting and licensing. The plans within the air quality management program will incorporate monitoring requirements directed by provincial and federal regulators and by Indigenous groups and other Interested Parties as requested. In terms of worker health and safety while forest fire smoke is present, Denison will consider this through the Occupational Health and Safety Program. Information on how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property related to forest fires will be included in the Emergency Preparedness and Response Program.</p> <p>e) As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data</p>

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				collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time. BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.
72	BNDN (February 28, 2023)	Section 6.0	<p>Comment #72: The Project is predicted to produce exceedances for PM10 of 232% over the regulatory limit. 24- hour PM10 concentrations exceed the criterion 17% of the time during Construction, 12% of the time during Operations. These exceedance conditions do not include PM10 emissions from Cameco's McArthur River Mine and Key Lake Mill which have now resumed operations. There is also the potential for wildfire smoke to further exacerbate dust emissions.</p> <p>PM10 exceedances represent a potential health risk for land users and workers near the Project site. Especially for at-risk groups such as elders, youth, and people with existing respiratory conditions.</p> <p>Request/recommendation:</p> <p>a) Denison must employ additional mitigation measures to reduce PM10 emissions on site including enhanced dust suppression efforts.</p> <p>b) Denison must remodel PM10 to include emissions from Cameco's McArthur River Mine and Key Lake Mill.</p> <p>c) Please provide information on how PM10 will be monitored during the Project and how Denison will know when exceedance conditions are occurring.</p>	<p>a) A change in a measurable parameter is not a significant effect, per the EA methodology outlined in Section 5. This threshold approach is both transparent and reasonable with the context of the assessment, though it is acknowledged that some level of change in the VC (or more precisely its measurable parameter) is deemed acceptable on condition that the change is not of a magnitude from which negative effects could accrue. Denison directs BNDN to Table 6.1-22 and 6.1-23 for the complete residual effect characterization for PM10 exceedances. This includes a consideration of the residual effect related to PM10 in the full context of direction, magnitude, geographic extent, duration, frequency, reversibility, context, and likelihood. In Section 10.1 of the draft EIS, the SMEs concluded that while there were predicted exceedances of air quality criteria for particulate matter, they were not identified for further assessment in the HHRA—these COPCs are unlikely to be associated with a human health or environmental risk, and any exposures to people at elevated concentrations would be infrequent, short-term, and highly localized.</p> <p>b) Please refer to Section 6.1.3.2. The regional SK MOE data presented in Table 6.1-12 were conservatively used to represent background concentrations of TSP, PM10, PM2.5, CO, SO2, and NO2 for the Wheeler River Project air quality assessment. While traffic associated with Cameco Operations was not modelled, conservative regional background concentrations from the Saskatchewan Air Quality Modelling Guideline (SK MOE 2012a) and the La Loche monitoring station were used for particulate matter, NO2, SO2, and CO (see Section 6.1.3.2.5 and Appendix 6-A). The La Loche monitoring station is located near anthropogenic sources, while the Project is in a remote area removed from anthropogenic sources. Accordingly, emissions to air from traffic associated with Cameco's operations are captured by the regional background concentrations used in the air dispersion model and are considered in the assessment of Project-related effects discussed in Section 6.1.4. Model predictions of COPC concentrations and depositions were added to background levels and compared to the available standards summarized in Table 6.1-5 at receptors located outside the property boundary.</p>

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			<p>d) Please provide information on how adaptive management will be used when a PM10 exceedance is discovered. Including discussion on how the Project will be managed during poor air quality events caused by wildfire smoke.</p> <p>e) Please provide information on how exceedances conditions near the Project site will be communicated to the public.</p> <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>c) and d) To confirm the residual effects of the Project on Air Quality and demonstrate compliance with provincial ambient air quality standards, an adaptive air quality management program will be implemented. The air quality management program will contain various plans which will be finalized during permitting and licensing. The plans within the air quality management program will incorporate monitoring requirements directed by provincial and federal regulators and by Indigenous groups and other Interested Parties as requested. In terms of worker health and safety while forest fire smoke is present, Denison will consider this through the Occupational Health and Safety Program. Information on how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property related to forest fires will be included in the Emergency Preparedness and Response Program.</p> <p>e) As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time. BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
73	BNDN (February 28, 2023)	Section 6.0	<p>Comment #73: The Project is predicted to produce exceedances for uranium of 148% over of the regulatory limit.</p> <p>These exceedance conditions do not include uranium emissions from Cameco's McArthur River Mine and Key Lake Mill which have now resumed operations.</p> <p>Uranium exceedances represent a potential health risk for land users and workers near the Project site. Additionally, uranium deposition in</p>	<p>a) A change in a measurable parameter is not a significant effect, per the EA methodology outlined in Section 5. This threshold approach is both transparent and reasonable with the context of the assessment, though it is acknowledged that some level of change in the VC (or more precisely its measurable parameter) is deemed acceptable on condition that the change is not of a magnitude from which negative effects could accrue. Denison directs BNDN to Table 6.1-27: Air Quality – Summary of the Characteristics Ratings for Residual Effect 9 (Operation, 24-hour Uranium Exceedances) for the complete residual effect characterization. This includes a consideration of the residual effect (24-hour U exceedance during operation) in the full context of direction, magnitude, geographic extent, duration, frequency, reversibility, context, and likelihood. Further, in Section 10.1 of the draft EIS, all relevant radionuclides were assessed in the HHRA in terms of their contribution to the total</p>

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			<p>the aquatic and terrestrial environment can cause effect pathways to humans through the food chain through the consumption of edible/medicinal plants, berries, fish, and wildlife.</p> <p>Request/recommendation:</p> <p>a) Denison must employ additional mitigation measures to reduce uranium emissions on site including enhanced scrubber systems and containment measures.</p> <p>b) Denison must remodel uranium to include emissions from Cameco's McArthur River Mine and Key Lake Mill.</p> <p>c) Please provide information on how uranium emissions will be monitored during the Project and how Denison will know when exceedance conditions are occurring.</p> <p>d) Please provide information on how adaptive management will be used when a uranium exceedance is discovered.</p> <p>e) Please provide information on how exceedance conditions near the Project site will be communicated to the public.</p> <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>radiological dose to human and ecological receptors and COPCs identified for air were radionuclides (U-238, U-234 and radon); refer to Table 10.1-7 for a summary of human health exposure pathways. The HHRA estimated dose and risk during all Project phases to the following receptors: camp worker, seasonal resident, recreational fisher/hunter, fisher/trapper. The incremental radiation dose to all human receptors during all Project phases is predicted to be below the regulatory public dose limit of 1 mSv/yr and the dose constraint of 0.3 mSv/yr during all Project phases. Overall, since the radiation dose estimates would be below the public dose limit, no discernable health effects are anticipated due to exposure of these receptors to radioactive releases from the Project.</p> <p>b) Please refer to Section 6.1.3.2. The Key Lake data from camp high volume air samplers from 2009 to 2018 (Table 6.1-13) were selected to represent background concentrations of uranium, arsenic, and nickel for the Wheeler River Project air quality assessment. Model predictions of COPC concentrations and depositions were added to background levels and compared to ambient air quality standards and criteria.</p> <p>c) and d) To confirm the residual effects of the Project on Air Quality and demonstrate compliance with provincial ambient air quality standards, an adaptive air quality management program will be implemented. The air quality management program will contain various plans which will be finalized during permitting and licensing. The plans within the air quality management program will incorporate monitoring requirements directed by provincial and federal regulators and by Indigenous groups and other Interested Parties as requested.</p> <p>e) As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time. BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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74	BNDN (February 28, 2023)	Section 6.0	<p>Comment #74: The Saskatchewan MOE Air Quality Modelling Guidelines specifies that the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) should be used for assessments in Saskatchewan. Denison opted to use the CLAMET/CALPUFF dispersion model for the EIS.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Please provide additional rationale for the selection of the CALPUFF model over the provincially recommended AERMOD. <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>As described in Section B.1 of Appendix 6-A, staff at the Saskatchewan Ministry of Environment (Air Quality Branch) were consulted on the selection of CALPUFF and development of the CALMET meteorological data set, beginning in 2019. The CALMET consultation included an initial discussion about the general approach, and once the CALMET runs were completed, two technical memos were produced and reviewed by Ministry staff including: 1) a memo completed in March 2020 summarizing the general CALMET approach and results (e.g., wind roses, temperature data, precipitation data); and 2) a follow-up memo completed in May 2021, which answered specific questions posed by Ministry staff. Ministry staff also completed a review and provided feedback on the CALPUFF model setup in August 2021. The specific rationale for the use of CALPUFF in lieu of AEROMOD as documented in the March 2020 memo was as follows: the domain size needed to generate inputs for the human health and ecological risk assessment (HHERA) is estimated to be 60 km by 60 km. The Saskatchewan Air Modelling Guide recommends CALPUFF for long-range transport (i.e., > 50 km); CALPUFF includes wet and dry removal processes and chemical transformation algorithms that are needed to generate inputs for the HHERA and the terrestrial and aquatic assessments; and the approach is consistent with other uranium mines in the area.</p>
75	BNDN (February 28, 2023)	Appendix 6-C Climate Baseline and Greenhouse Gas Emissions Report	<p>Comment #75: Carbon dioxide emissions related to air travel for Project personnel were not included in the GHG emissions calculations. Project related emissions from air travel would be significant source due to the remote nature of the site. The GHG emission estimate included in EIS Appendix 6-C does not provide a fulsome representation of Project related GHG emissions.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Denison must include emissions from air travel for project personnel in the GHG emissions calculations. This will provide a more accurate representation of project-related GHG emissions. <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>Assessment of upstream or Scope 3 GHGs under Environment and Climate Change Canada's Strategic Assessment of Climate Change guide are only required for projects that are likely to exceed the upstream threshold of 500 kt of CO₂e per year. The upstream GHG emissions for the Project are expected to be well below this threshold (draft EIS Section 2.5) and in the range of 25 to 31 kt of CO₂e.</p>
76	BNDN (February 28, 2023)	Section 6.0	<p>Comment #76: Denison acknowledges the Project's contribution to climate change through</p>	<p>Denison anticipates being subject to ECCC's reporting requirements for emitters over 10,000 tonnes CO₂e and the information is collected under section 26 of the Canadian</p>

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			<p>GHG emissions but does not outline a plan to offset GHG emissions. Other mines in Canada, including the Canadian Malartic Mine in Quebec have GHG offset plans in which carbon emissions are tracked and offsetting activities are developed in collaboration with local First Nations (Canadian Malartic, 2014).</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Denison must develop a GHG/Carbon offsetting plan to mitigate potential impacts of the Project to climate change. Denison could work with BNDN and other local First Nations on initiatives that help to offset the Project's GHG emissions (e.g., tree planting, wetland restoration, carbon offsets). This would demonstrate a commitment to corporate social responsibility, climate stewardship and reconciliation on Denison's behalf. <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>Environmental Protection Act. In order to meet these reporting requirement, Denison will be tracking Scope 1 and 2 GHG emissions. Options to offset the Project's GHG emissions will be considered as the Project advances. In draft EIS Section 2.5 Greenhouse Gas Emissions Denison has committed to looking for opportunities to optimize energy management and improve the energy intensity of the Project where practical.</p>
77	BNDN (February 28, 2023)	Section 6.0	<p>Comment #77: The Project is reliant on burning diesel for construction, supplementary power generation, mine processing activities, and mine equipment. The GHG intensive nature of the Project's construction and operation phases are a concern for BNDN and not consistent with federal or provincial directives to reduce GHGs. Cleaner technology and fuel sources are available to reduce the Project's GHG emissions. For a project based around supplying fuel for the energy transition, a more progressive approach that utilizes Best Available Technology is required in order to reduce GHG emissions.</p> <p>Request/recommendation:</p>	<p>Thank you for the comment. The EIS is a planning tool and the details of Project design including use of fuels will be evaluated by Denison as the Project advances. However, we note that in Section 2.5 Greenhouse Gas Emissions of the draft EIS that Denison will look for opportunities to optimize energy management and improve the energy intensity of the Project where practical.</p> <p>In terms of EIS scoping for the basis of effects assessments, Denison took a conservative approach to estimating combustion products use by assuming back-up diesel generators were running continually (worst-case scenario). This is expected to bound actual Project fuel use.</p>

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			<ul style="list-style-type: none"> Where feasible Denison must implement the use of low carbon technology and fuels in the final Project design to reduce GHG emissions. Specifically, Denison should redesign the Project to: <ul style="list-style-type: none"> Replace all diesel electricity generation with LNG/CNG generators (and add in renewables where feasible) for construction phase. Replace all diesel powered mine equipment and vehicles with electric or LNG/CNG models. Use renewable energy sources for electricity generation (e.g., wind, solar) as early in the project lifecycle as possible. <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	
78	BNDN (February 28, 2023)	Section 6.0	<p>Comment #78: Denison does not specify how it will monitor air contaminant concentrations during all phases of the Project. Continuous on-site ambient air monitoring for all COPCs (including particulates, metals, and radon) is the only way to truly assess the Project's impact on air quality and compliance with government standards.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> Denison must conduct continuous on-site monitoring for all contaminants of concern (including particulates, metals, and radon) in order to assure regulatory compliance and verify the accuracy of air dispersion models and EIS predictions. 	To confirm the residual effects of the Project on Air Quality and demonstrate compliance with provincial ambient air quality standards, an adaptive air quality management program will be implemented. The air quality management program will contain various plans which will be finalized during permitting and licensing. The plans within the air quality management program will incorporate monitoring requirements directed by provincial and federal regulators and by Indigenous groups and other Interested Parties as requested.

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			See Section 4.6 for additional information on this topic (p. 67-71).	
79	BNDN (February 28, 2023)	Section 6.0	<p>Comment #79: Denison does not specify how BNDN will be involved in air quality monitoring during construction, operations and decommissioning phases of the Project.</p> <p>Request/recommendation:</p> <p>a) BNDN requests the implementation of robust and long-term environmental monitoring to verify protection of the environment, including community-led monitoring during Construction and Operations of the Project.</p> <p>b) Denison must develop specific roles and responsibilities to BNDN members in relation to air quality monitoring and site wide environmental monitoring. This should include, at a minimum, one environmental monitor position for BNDN. This would provide increased transparency and confidence to Denison's environmental management practices and performance.</p> <p>See Section 4.6 for additional information on this topic (p. 67-71).</p>	<p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison and the Indigenous community of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described above would also be relevant to other Indigenous nations who may have interest in the Project. Denison does not anticipate any funding to BNDN at this time.</p> <p>BNDN will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.</p> <p>The details of monitoring and follow-up plans are being developed to support the separate process of Project licensing and permitting. The specific means by which provincial and federal authorities, and Indigenous Nations and communities will be engaged in developing the follow-up and monitoring program, including the information-sharing program, are currently under consideration with the Denison project team. It is noted that Section 4.2.1 of the draft EIS provides the variety of ways in which Denison has engaged with Interested Parties to date and it is assumed it would continue to use these means and others that may be identified to fulfil its key corporate principals for developing positive relationships (see draft EIS Section 4.2).</p>
80	BNDN (February 28, 2023)	Section 2.2.2.2.2 Uranium Bearing Solution Holding Area	<p>Comment #80: The Proponent states that the UBS holding area will have leak detection (Figure 2.2-18). The system is shown as a pipe running under the pond.</p> <p>Request/recommendation:</p> <p>a) BNDN requests more details on the leak detection system used for all ponds shown in Figure 2.2-18.</p>	<p>It is important to note that Denison is completing a sequential EA and licensing process for the Project (see draft EIS Section 1). Denison considers the EA to be a planning and decision-making tool that assesses the potential effects of the Project in a careful and precautionary manner and integrates results of engagement with Indigenous nations and communities. The details requested by BNDN will be developed to support licensing and will be included in Management System programs / plans including for example the Groundwater Monitoring Plan and the Emergency Response and Preparedness Plan.</p>

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			<p>b) BNDN requests that Denison respond to all the following questions in writing:</p> <ul style="list-style-type: none"> Is the pipe connected to an automated sensing system? If not, how frequently is the system monitored? What chemical or physical indicator(s) are used to detect a leak? What are the detection limits/thresholds for each indicator? What is the precision of each indicator? Who is notified, and how quickly would a response be mobilized? <p>See Section 4.7 for additional information on this topic (p. 77).</p>	
81	BNDN (February 28, 2023)	Section 2.2.2.2.2 Uranium Bearing Solution Holding Area Section 2.2.4.5 Process Precipitate Pond	<p>Comment #81: The Proponent states that the UBS holding area will have leak detection (Figure 2.2-18). The system is shown as a pipe running under the pond.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests to know what specific containment/restoration methods will be used in the event that a leak is detected, and how quickly they would be implemented. This applies to both the UBS holding area and process precipitate pond. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	It is important to note that Denison is completing a sequential EA and licensing process for the Project (see draft EIS Section 1). Denison considers the EA to be a planning and decision-making tool that assesses the potential effects of the Project in a careful and precautionary manner and integrates results of engagement with Indigenous nations and communities. The details requested by BNDN will be developed to support licensing and will be included in the Project's future Management System documents including for example the Groundwater Monitoring Plan and the Emergency Response and Preparedness Plan.
82	BNDN (February 28, 2023)	Section 2.2.2.2.2 Uranium Bearing Solution Holding Area	<p>Comment #82: The Proponent states that the UBS holding area will be designed as a pond contained by a double composite liner system (Figure 2.2-18), and that options to use tanks instead of holding area will be evaluated as engineering advances. Request/recommendation:</p>	Please see Denison's response to BNDN comment #33.

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			<ul style="list-style-type: none"> BNDN requests that Denison undertake a risk assessment for the design of the UBS holding area. BNDN recommends the safer, less environmentally risky option be selected and that BNDN can review and provide input into the decision that Denison makes. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	
83	BNDN (February 28, 2023)	Section 2.2.1.4.5	<p>Comment #83: The Proponent states that the wellfield pipelines will be designed to have secondary containment or catchment and have leak detection systems in place at key locations. BNDN requests more details on the leak detection system used for wellfield lines. Specifically, BNDN requests that Denison respond to the following questions:</p> <ul style="list-style-type: none"> Is an automated sensing system used? Will automated controls shut off pressure in the event of a significant leak? If no automation is used, how frequently is the system monitored? What chemical or physical indicator(s) are used to detect a leak? What are the detection limits/thresholds for each indicator? What is the precision of each indicator? Who is notified, and how quickly would a response be mobilized? <p>See Section 4.7 for additional information on this topic (p. 77).</p>	<p>Wellfield piping system will transport the mining solution to and from the processing plant. The flow rates and pressures of the individual well lines will be monitored in the pumphouses. This data will be transmitted to the processing plant for remote monitoring through a master control system. Through the master control system, operators will be capable of controlling pumphouse production lines remotely.</p> <p>The specific details requested by BNDN in this comment are not available at this time and will be developed as part of detailed design to support Project licensing and permitting. Denison considers the EA to be a planning and decision-making tool that assesses the potential effects of the Project in a careful and precautionary manner and integrates results of engagement with Indigenous nations and communities. Denison views the EIS as an important planning tool that will be used to support future activities and represents one stage in the rigorous overall approvals process for a uranium mining facility in Canada. Denison completed feasibility designs for the Project in 2023. The engineering design of the wellfield pipelines including control measures to monitor and respond to leaks will be included in the detailed design information provided to the CNSC during Project licensing.</p>
84	BNDN (February 28, 2023)	Section 2.2.1.4.5 Primary Containment of Mining	<p>Comment #84: The Proponent states that the well designs and operational monitoring of the wellfield will mitigate accidental release of mining</p>	<p>The well designs and operational monitoring of the wellfield will mitigate accidental release of mining solution or UBS in the sandstone above the mining area. Each well will have double containment: mining solution will travel inside an inner casing with the outer casing acting as secondary containment for the mining fluids. Wells will be continually monitored for operational parameters such as injection pressures, injection flow rates, and recovery</p>

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		Solution – Wells	<p>solution or UBS in the sandstone above the mining area.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests to know how Denison will monitor the integrity of wells once in production. Will tests be conducted at regular intervals? <p>See Section 4.7 for additional information on this topic (p. 77).</p>	<p>flow rates. This data will be transmitted to the processing plant for remote monitoring through a master control system. Through the master control system, operators will be capable of controlling pumphouse production lines remotely. Wellfield monitoring will facilitate detection of any issues with the injection and recovery wells.</p> <p>A network of monitoring wells installed within the freeze wall area will be equipped with pressure instrumentation for the determination of the vertical strain/stresses placed on the formation to do mining zone space creation. This monitoring network is designed to detect if these strains may be approaching their acceptable levels prior to failure. The injection and recovery wells will also be equipped with devices for pressure and temperature that can detect a breach in the well casing if one were to occur. As a preventative measure, annual mechanical integrity testing is conducted on the wells to ensure their containment and compliance.</p> <p>Active monitoring will allow for operational shutdown if a scenario is approaching a failure mode.</p>
85	BNDN (February 28, 2023)	Section 2.2.1.4.5 Fuel Storage and Dispensing Facility	<p>Comment #85: The Proponent states that fuels will be stored in approved, above-ground, 25,000 L double-walled storage tank(s) equipped with secondary containment in accordance with provincial regulations and standards.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests to confirm when the permanent fuel storage facility will be constructed. If temporary fuel storage for construction is required, indicate how much, how it will be stored and dispensed, and show on a sketch where it will be located. Construction fuel requirements for site development may be significant. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	<p>Details on when Denison will construct the permanent fuel storage facility or precisely where temporary fuel storage tanks will be located are not available at this phase of the Project and these details are not required to support EIS review. However, at the EIS stage it is important to note that Denison is committed to construction and operating all fuel storage and distribution infrastructure in accordance with applicable legislative requirements. Fuels will be stored in approved, above-ground, double-walled storage tank(s) equipped with secondary containment in accordance with provincial regulations and standards. In Saskatchewan, the permitting process for hazardous substances including above ground storage tanks for diesel, propane, gas, and jet fuel are governed by The Hazardous Substances and Waste Dangerous Goods Regulations; Environmental Code Chapter E-10.2 Reg 3 (HSWDG). Denison will need to apply for an Approval to Construct, Install, Alter and Expand a Storage Facility and Store Hazardous Substances and/or Waste Dangerous Goods and secure an approval from the Ministry of Environment pursuant to The Environmental Management and Protection Act, 2010, and The Hazardous Substances and Waste Dangerous Goods Regulations. Denison will have to adhere to the Terms and Conditions of the approval, complete regular inspections of the facilities, and maintain an Emergency Response Contingency Plan. The Ministry of Environment staff also conduct regular inspections to ensure the conditions of the approval are being followed.</p>
86	BNDN (February 28, 2023)	Section 2.2.4.5 Process Precipitate Pond	<p>Comment #86: The Proponent states that process precipitates may be stored in totes inside the process precipitate pond.</p>	<p>The precipitate pond is proposed as a lined area with berms (as shown in Section 2, Figure 2.2-18) and may be more clearly described as being a lined pad. As such, process precipitates can be placed into totes, which can be placed on the lined area ('pond') for containment during storage. Details on the plans for precipitate management, placement</p>

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			<p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests details on the procedures for placement and handling of precipitate totes within the pond. Care should be taken to ensure that equipment and totes do not compromise the pond lining. Totes should be sealed and transport of totes from the plant to the pond should be carefully planned to minimize the risk of a spill, and in the event of a spill ensure that runoff is captured on the site. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	<p>and handling will be developed to support Project licensing and permitting. Denison agrees the integrity of the liner and totes are important considerations which will be factors in the plans. We also refer BNDN to the following draft EIS sections and comments responses:</p> <ul style="list-style-type: none"> Waste Management: Waste management is described in Section 2.2.4 of the draft EIS and includes discussion of all waste types that will be generated by Project-related activities. The following is noted in Section 2.2.4 for reference, "Conventional waste, radiologically contaminated waste, and hazardous waste will be managed at the Project. Denison is committed to conducting stringent waste characterization throughout the life of the Project. This includes physical, radiological, and chemical characterization to maintain accurate waste inventories and determine how wastes will be dispositioned through either re-use, recycling, temporary storage, or permanent disposal (on or off site). This includes clearance of material that meets unconditional release requirements and can be safely removed from site. A waste management program will be developed for the Project to support licensing and permitting. The waste management program and associated plans developed to support licensing will be based on the 4 R's: Reduce, Reuse, Recycle, and Recover, and will detail how each type of waste generated on site will be managed. Resources used to develop the waste management program will include, but are not limited to, the CNSC's REGDOC-2.11 series, related Canadian Standards Association (CSA) standards, and the Hazardous Substances and Waste Dangerous Goods Regulations (Government of Saskatchewan 2000)." Water Management: Water management is described in Section 2.2.3 of the draft EIS and includes Denison's commitment to capturing any contact water. Clean, non-contact runoff will be diverted around Project components where possible. Contact water, including, for example, runoff from the wellfield and around the processing plant, will be collected in various ponds and eventually routed through the IWWTP for treatment prior to release to Whitefish Lake. Refer to Figure 2.2-17 for runoff collection assumptions. Emergency Preparedness and Response Program: Please also see Denison's response to BNDN comments 87 and 88 below for information on the Emergency Preparedness and Response Program.
87	BNDN (February 28, 2023)	Section 2.8 Project Design Features	Comments #87 and 88: Denison states that they will maintain an up-to-date record of the various hazardous substances on site and will maintain Safety Data Sheets and appropriate procedures	The details requested related to the Emergency Preparedness and Response Program are being developed to support licensing efforts. The EIS is a planning tool to provide an assessment of the potential Project effects on the human and biophysical environment; at the EIS stage a detailed Management System is not required.

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			<p>for spill management, handling, and clean up in an accessible location.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests a description of the safety and spill response training programs that employees will undergo. What is the duration of each training program and how often will retraining be conducted? BNDN requests to know what resources will be kept on site for management and clean-up of spills, for example spill kits, absorbents, neutralization agents, vacuum trucks, PPE, hand tools, etc. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	<p>A brief description of the Emergency Preparedness and Response Plan is provided in the draft EIS, Section 2.9.1.3.5: and included below for reference. Please also refer to draft EIS, Section 14 Accidents and Malfunctions for an assessment of the potential accidents and malfunctions that could occur in association with the Project and a description of the potential effects on human health or the biophysical environment, considering environmental design features and mitigation measures that would be implemented to reduce such effects.</p> <p>2.9.1.3.5 Emergency Preparedness and Response Program</p> <p>The Emergency Preparedness and Response Program would identify how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property. The objectives of the program would include the following:</p> <ul style="list-style-type: none"> identification of accidents and emergencies and the actions and responsibilities in the event of an emergency; Project requirements for emergency response equipment and personnel; internal incident command structure to effectively manage complex, lengthy, and large-scale emergencies; required communications with external emergency services, statutory bodies, and public, Indigenous groups, and regulatory agencies; development of appropriate emergency procedures; and assurance of availability of vital information during an emergency. <p>Emergency Preparedness and Response Program would be developed consistent with guidance provided by CNSC in REGDOC-2.10.1, Nuclear Emergency Preparedness and Response.</p>
88	BNDN (February 28, 2023)	Section 2.2.2.2.4 Yellowcake drying and packaging	<p>Comment #89: The Proponent describes various measures used to mitigate yellowcake dust emissions: the yellowcake drying and packaging area will be outfitted with hygiene systems to capture dust generated during the material handling of the yellowcake product and sent to either the dryer or calciner venturi scrubbers. All equipment located after the dewatering of the yellowcake will be selected to provide minimal dust generation and outfitted with dust collection</p>	<p>Should dust collection systems in the yellowcake drying and packaging area fail and generate a hazard for the workers, the plant will be shut down until repairs are completed. A redundant hygiene system is not economical to implement. Hygiene scrubbers are typically very reliable and can be repaired in short time frames.</p>

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			<p>systems where required. The ventilation system in this area of the processing plant will also be adequately designed to provide safety of workers and control fugitive dust emissions.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN recommends redundant hygiene systems be installed (n+1 units) to ensure continuity of air filtration in the event of equipment failure. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	
89	BNDN (February 28, 2023)	Draft EIS 9.3.5.1 Project Design Measures	<p>Comment #90: The Proponent states that all contaminated areas will be fenced to avoid contact with workers and wildlife. Fences will be monitored and maintained.</p> <p>Request/recommendation:</p> <ul style="list-style-type: none"> BNDN requests to know the size and type of fence considered for each project area. Confirm if the wellfields will be fenced. Show all fences on a site layout drawing like Figure 2.2-1. <p>See Section 4.7 for additional information on this topic (p. 77).</p>	<p>Access to the property will be controlled by both a north and south security gate. In the draft EIS, Denison has committed to fencing the domestic landfill (Section 2.2.4.3.1) and having a fenced storage area near the operations centre. Details on the size and type of fencing are not defined at this stage of the Project, but will meet the criteria outlined in the EIS. The wellfield is not proposed to be fenced. For the wildlife-specific mitigation measures, refer to Section 9.3.5.2.5 Wildlife Deterrence and Prevention of Wildlife Entrapment and Section 9.3.5.2.8 Waste and Hazardous Materials Management.</p>

Attachment: IR-10

Number	IR-10
Dept.	ECCC
Project effects link	Fish and fish habitat
Reference to EIS, appendices, or supporting documentation	Section 2.2.1.4.2.3, Tertiary Containment of Mining Solution - Freeze Wall
Context and Rationale	<p>Context: The Proponent stated that as a tertiary means of containment for the mining area, the uranium deposit is proposed to be surrounded by a freeze wall that extends from the surface to the basement rock, isolating the mining area from regional groundwater. Current plans are for the freeze wall to be a minimum of 10 m thick, be installed 25 m away from the uranium deposit, and extend 30 m into the basement rock (Figure 2.2-6).</p> <p>As explained in Section 2.2.1.4.2.2, mining solution will be injected into the ore zone under pressure and will likely react, not just with the uranium in the ore zone, but also the binding or cementing material in the sandstone. This means that some portion of the sandstone above the uranium layer and perhaps some portions of the freeze wall will dissolve, thereby creating more void than just the thickness of the uranium layer or horizon. The void may affect the integrity of the freeze wall as containment.</p> <p>Rationale: It is not clear how the Proponent will monitor the freeze wall to verify whether portions of the freeze wall are being dissolved in the mining process and how it plans to verify the integrity of the freeze wall as a containment for the mining solution. In addition, if the dissolution reaction of the uranium ore is exothermic, then the heat generated may also affect the integrity of the freeze wall.</p>
Information Requirement	<ol style="list-style-type: none"> 1. Explain how the integrity of the freeze wall will be maintained as a means of containment that prevents migration of the mining solution out of the ore zone into the receiving environment. 2. Demonstrate that the mining solution injected under pressure will not compromise the integrity of the freeze wall as a containment.

	<p>3. Demonstrate how both exothermic and chemical reactions of the mining solution used to dissolve the uranium ore will not compromise the integrity of the freeze wall as a containment.</p> <p>Technical Discussion Required: Yes. ECCC would like to better understand the chemical constituents that compose the mining solution and the chemical reactions that it will cause</p>
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Response:

The general theme of the comments and questions stated above seem to be related to:

- verification of the freeze wall extents;
- response of the freeze wall to potential chemical interaction with the lixiviant;
- response of the freeze wall to induced hydraulic or lithostatic stress; and
- response of the freeze wall to potential exothermic processes related to ISR.

The alignment of the freeze wall is located 25 m offset from the lateral extent of the recoverable ore and the freeze wall will grow in thickness both towards the ore and away from the ore. The freeze wall will solidify all liquid porewater and develop into a contiguous impermeable barrier many metres thick. Ground temperature monitoring will be installed on both the ore and non-ore sides of the freeze wall to confirm the thickness of frozen ground and to validate thermal finite element models of the entire area. Thermal models can very accurately represent real conditions because ground thermal properties used in the analyses only vary by a factor of two to four across all ground types, unlike hydraulic or strength properties, which can vary by many orders of magnitude across relatively short distances.

The figures below are an example of field data validating modelled predictions for a shaft freeze wall at depth.

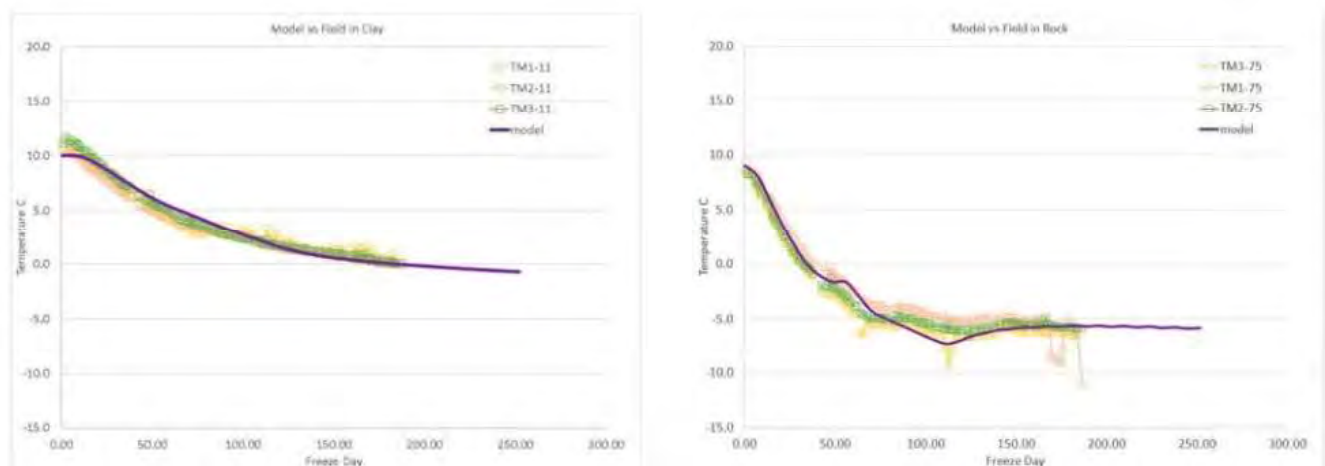


Figure 1: Illustration of a calibrated FEM model for freezing in clay (left) and rock (right). Temperatures were measured offset from the freeze wall pipe locations and compared with model predictions at the same location.

The injection and recovery wells will be set up such that they are within the confines of the ore itself and migration of fluids towards the freeze wall and through non ore ground between the ore and freeze wall should be minimized because hydraulic gradients will induce preferential flow to recovery wells and away from the freeze wall. Having said that, if significant excursion of lixiviant were to occur and it were to contact the freeze wall, it is not expected to chemically dissolve the in situ ice. The freezing point depression of the lixiviant proposed for this project was determined to be -1°C and, as such, it would freeze off and become immobile before significant volume could negatively impact the freeze wall. If the lixiviant were to dissolve some of the host soil / rock binding material at the freeze wall surface, it would occupy the resulting void space, but then freeze off, which would halt further migration within the freeze wall.

Freeze walls, when fully developed, are capable of withstanding significant external pressures because the ice in the pore voids greatly improves the bulk strength of the soil. For example, in the province of Saskatchewan, ground freezing is used to support the sinking of deep potash mine shafts, which must penetrate through the Mannville formation at a depth between 400 and 500 m below surface. The Mannville formation is often described as saturated, unconsolidated beach sand and it would not support shaft excavation in a thawed state. Freezing is used to create a structural and impermeable wall up to 5 m thick, which can resist a stress gradient driven by full hydrostatic and/or lithostatic pressures on the outside of the wall, and an open to atmosphere excavation within the shaft. This loading condition is much more extreme than any condition the freeze walls at the Phoenix deposit will experience because the interior side of the freeze wall where active ISR mining is occurring is not open to atmosphere and is fluid filled in the same way that the regional groundwater system is on the exterior side of the freeze wall, creating a balanced pressure system, where loading is equal on both the interior and exterior sides.. While freeze walls are very strong when fully developed, they are also plastic in nature. This means that they can slowly deform without failing in response to localized ground deformations. As the freeze wall deforms towards a lower stress zone, it maintains its thickness and integrity. While the above example referred to potash shafts, other examples can be drawn from the experience at the McArthur River or Cigar Lake uranium mines. At McArthur River, open stopes are generated directly adjacent to a freeze wall that is a nominal 4 m thick. At Cigar Lake, open mine cavities 10 m high and several metres in diameter commonly exist within the frozen ground. Neither site has had a breach of the freeze wall during mining activity. Given that the freeze wall at Denison will be much thicker than at McArthur River and that it will be located up to 25 m from the ore zone, it is not anticipated that it will be exposed to a stress environment that will put it at risk.

The leaching process has the potential to be exothermic and generate heat, which may flow toward the freeze wall. In this instance, there is low sulphur content in the ore zone and the exothermic reaction will be minimal. Despite this, all thermal modelling in support of the freeze design assumed that the freeze wall had to develop and be sustained in the presence of an ore zone that generated a nominal amount of heat—sufficient enough to sustain a minimum temperature of 10°C even though it would naturally tend to cool below this in response to the freeze system. It is understood that the lixiviant may be heated as part of the pre-injection process, so some accounting for heat in the ore zone was included in the analysis to date. Should the lixiviant generate more exothermic reaction than predicted, there is a very low risk of it degrading the freeze wall in any significant amount. Referring back to the potash mine shaft freezing illustration, it is not uncommon for in shaft excavation activity and concrete work to

generate temperatures between 30 and 60°C that act on a freeze wall only 5 m thick and only a few metres away from the exposed shaft wall. In this extreme case, the freeze wall is more than capable of removing the generated heat. The physics of heat flow are such that heat generated by the ISR process would be free to flow towards the freeze wall; however, most of it would flow to the coldest location (e.g., the actual freeze pipes at the mid-point of the wall thickness) before it is manifested as an observable significant rise in ground temperature. Even if the heat were to warm the ore side of the freeze wall, it would not impact the non-ore side of the wall (which is where half of the total wall thickness resides). This heat may penetrate to the center of the wall but if the refrigeration plant is operating, that heat can not then flow “up gradient” on the non-ore side of the wall and thaw that side.

The concentration of the lixiviant (max ~8% sulfuric acid conc.) has a freezing point of ~-4°C. The lixiviant itself will not react chemically with the freeze wall, other than having a slightly different freezing point than formation water. The main reaction expected is dissolution of uraninite with the combination of sulfuric acid, hydrogen peroxide, and ferric iron. This reaction is exothermic, but there are several natural mitigating factors of the wellfield that aid in minimizing heat transport to the freeze wall:

- The wellfield will have flexibility in terms of reagent concentrations being added. With the bulk of the uranium being contained within a higher-grade core (interior to the deposit), the exterior of the deposit will see either lower injection/recovery flows or lower concentrations of lixiviant to be efficient with reagent consumption. Whether the concentration or flow is reduced, this limits the reaction rate and therefore total heat generation at the extremities of the deposit.
- There is no refortification of reagents underground compared to typical uranium tank leaching. This prevents additional heat generation from dilution of sulfuric acid or hydrogen peroxide.
- The heat capacity of lixiviant/UBS should be higher than the ore in the deposit, which means the UBS solution will carry the majority of the heat to surface rather than keeping the heat of reaction at depth.
- In the event the freeze wall thickness monitoring network detected an actionable thinning to the freeze wall, the concentration of lixiviant could be decreased which would reduce the heat generated per m³ of lixiviant and re-establish the desired freeze wall thickness.

To summarize the risk of the degradation of the freeze wall due to exothermic reaction, it is almost impossible—with the freeze plant operating—to practically add sufficient sustained heat to thaw the proposed freeze wall to the point hydraulic containment is compromised. Sufficient operational controls will be in place to verify the freeze plant is operating, to measure the temperature in the ore zone, and to measure the temperature on adjacent sides of the freeze wall so that early detection of any upset conditions can be identified and addressed. Options for addressing issues are to lower the temperature of the freeze system to draw more heat out, to increase the freeze coolant flow rates in freeze wells nearer to active ISR cells, or to adaptively manage the lixiviant injection and recovery rates in cells located nearer the freeze wall.

Attachment: IR-20, IR-67, IR-69

Number	IR-20
Dept.	NRCan
Project effects link	Fish and fish habitat
Reference to EIS, appendices, or supporting documentation	Section 2.3.3.1.1 Appendix 7-C
Context and Rationale	<p>Context: The proponent's objective for mining area remediation is to restore the groundwater within the confines of the freeze wall to an acceptable remediation target (EIS, sec. 2.3.3.1.1). The proponent's acceptable decommissioning objectives for groundwater quality are provided in EIS Table 2.3-3 and in Table 3-5 of Appendix 7-C. These objectives were based on laboratory core flood tests performed by flushing samples of ore with groundwater and groundwater amended with sodium hydroxide or sodium bicarbonate. The composition of the remediated groundwater observed in the core flood tests serves as the source term for the post-decommissioning reactive transport modeling presented in section 4 of Appendix 7-C.</p> <p>Rationale: In NRCan's opinion, it is important for reviewers to be able to assess the level of remediation achieved in order to reach the proponent's decommissioning groundwater quality objectives. Therefore, the proponent should provide complete water quality data for the pregnant lixiviant that remains in the ore zone after the end of mining and prior to any remediation.</p>
Information Requirement	NRCan requests that the proponent revise Table 3-5 of Appendix 7-C to show the water quality in lixiviant remaining in the ore zone at the end of mining, prior to remediation activities.

Number	IR-67
Dept.	CNSC
Project effects link	Geology and groundwater
Reference to EIS, appendices, or supporting documentation	Section 7.6.2.1 (Remediation Objectives)
Context and Rationale	<p>Context: Metallurgical testing, including batch reaction, coreflood testing and column tests are mentioned frequently throughout Sections 2 and 7 of the EIS. Outside of the composition of restored solutions from coreflood tests #2B and 3C, results from these various tests are not reported in the EIS or any associated Appendices. Rationale: The results from metallurgical testing are important to a number of items discussed in the EIS, including (but not limited to): evolution of hydrochemistry during remediation, source of salts in Lower Sandstone Aquifer porewaters, process plans, industrial wastewater treatment, estimating composition and volume of process precipitates, and composition of mining fluids and leachate. In particular, the EIS posits that mining area decommissioning objectives are achievable based on metallurgical testing and provides these objectives in Table 2.3-3. CNSC staff need to understand the specifics of this metallurgical testing, given</p>

	its importance for the development and justification for mining and remediation activities. Denison must also provide information demonstrating that the proposed restoration actions and remediation targets are As Low As Reasonably Achievable (ALARA).
Information Requirement	1. Please provide a summary of the results and the analysis of results of the metallurgical tests within the EIS, or provide the technical supporting document with this information, and ensure the documentation is appropriately referenced in the EIS. This should include sample information for cores (e.g., mineralogy, location, U content, depth), test conditions (e.g., duration, # of iterations, column length, flow rate, temperature, pressure, sample frequency, influent/effluent composition), as well as results and how they are pertinent to the development of ISR activities. 2. Please provide further clarification/justification on how results from two singular coreflood tests (i.e., Coreflood #2B and Coreflood #3C) can justify large-scale remediation activities and targets following solution mining. 3. Please provide material demonstrating that the proposed restoration actions and remediation targets are ALARA.

Number	IR-69
Dept.	NRCAN
Project effects link	Fish and fish habitat
Reference to EIS, appendices, or supporting documentation	Section 7.6.2.2.3 Appendix 7-C, sections 3.1 and 3.2
Context and Rationale	<p>Context: For hydrogeological and geochemical assessments in support of ISR projects, the proponent identifies two aspects of primary importance (Appendix 7-C, sec. 3.1). These are a) groundwater remediation (Appendix 7-C, sec. 3.1.1); and b) the assimilative capacity of host rocks downgradient from the ore zone (Appendix 7-C, sec. 3.1.2). According to the proponent, the objective of groundwater remediation at decommissioning is to achieve water quality in the mined zone that does not pose a risk to receptors at the point of exposure. Assimilative capacity refers to the ability of groundwater-rock reactions to naturally sequester or attenuate COPCs migrating from the ore zone during the post-decommissioning period.</p> <p>Rationale: However, in NRCAN's opinion, the proponent has neglected to mention the most fundamental aspect for hydrogeological and geochemical assessments in support of ISR projects. That aspect is the choice of ISR lixiviant and its effects on the mineralogy and hydrogeochemistry of the ore zone during mining operations. The proponent provides information on the pre-mining mineralogy (Appendix 7-C, sec. 3.2.1) and hydrogeochemistry (Appendix 7-C, sec. 3.2.2) but no information on their expected changes as a result of ISR mining. This information is important when considering source terms in reactive transport modeling.</p>
Information Requirement	NRCAN requests that the proponent provide a detailed description of the expected mineralogical and hydrogeochemical changes occurring within the ore and barrier zones as a result of the injection of acidic lixiviant.

Response:

It is also important to note that Denison is completing a sequential EA and licensing process for the Project (see draft EIS Section 1). Detailed ISR mining-related information needed to support licensing

and permitting has not been included in the EIS; it will be provided to regulators as part of permitting and licensing.

For the EIS, an initial understanding of the mining area remediation was needed to initiate the assessment of migration of constituents of potential concern in groundwater out of this area in the post-decommissioning period. The findings and conclusions of the EIS were also used, in turn, to inform and bound the engineering and feasibility work. The coreflood 2b and 3c, plus the Pre-Feasibility work (Denison, 2018) on mining area remediation (Section 2 (decommissioning section), Section 7, Appendix 7-C) was used in the draft EIS. This IR response provides additional information to support the selection of these studies.

Response to #1

1.0 Summary of Test Work

This response is focused on the metallurgical test work done to support an understanding of the:

- a) mineralogy and hydrogeochemical changes in the ore and barrier zones as a result of the lixiviant (mining solution) injections (see IR-69);
- b) the composition of the uranium bearing solution (UBS) at the end of mining and prior to any remediation (see IR-20); and
- c) water quality and secondary mineral phases formed during remediation of the ore zone (IR67; this IR).

Metallurgical testing completed, the objectives and results of the work, and the information carried forward for discussion in this response are summarized in Table 1.

Further details on the metallurgical testing, including the sample information for cores (e.g., mineralogy, location, U content, depth), test conditions (e.g., duration, # of iterations, column length, flow rate, temperature, pressure, sample frequency, influent/effluent composition) are provided in the sections below. All data presented herein are from the metallurgical test programs used to support the 2018 Prefeasibility Study (Denison 2018) and the Feasibility Study (Denison 2023).

Table 1: Summary of Metallurgical Testing

Years	Description	Objective	Results	Information informing IR-20, IR-67 and IR-69
2017-2018	Batch leach tests and bottle roll/agitation leach tests	Early testing of leaching with alkaline and acidic based lixivants	Supported decision for Acid Leaching	No discussion herein; very preliminary testing.
	A column leach test conducted using sulfuric acid followed, which also included simulated groundwater restoration tests.	Initial column test with acid leaching and evaluation of groundwater remediation	Early indication of groundwater remediation needs	Water Quality of UBS at the end of mining and Restoration Phase/flushing solution (groundwater remediation)
2021	Column leach tests on blended crushed ore	Test leach recoveries on a range of feed grades. Determine potential recovery and generate a representative sample for process plant testing.	Operationally, the feed sample for Column 1 is was verified as a reasonable blend to represent ISR wellfield production of UBS. Groundwater remediation with groundwater and alkaline solutions	Water Quality of UBS at the end of mining and Restoration Phase/flushing solution (groundwater remediation). Mineralogy.
2022	Column leach and remediation tests on crushed and screened core from individual hydrogeologic units	<ul style="list-style-type: none">•Develop information to support geochemical modelling of the deposit, including leaching and neutralization phases.•Generate a detailed chemical and mineralogical characterization of the dominant hydrogeological units(HGUs) within the ore zone•Evaluate behaviour of different HGUs during ISR and neutralization, in particular those hosting the majority of the resource.•Compare the efficacy of neutralization of different HGUs, with the use of dilute sodium hydroxide	Uranium leachability was found to vary amongst the HGUs. Also, there were some indications of an HGU ("2A") to be avoided during operations to prevent clay mobilization.	Water Quality of UBS at the end of mining.
2018	Static uranium ore dissolution (jar) test on intact core	Room temperature, 1,138 hours (48 days) exposure of drill core to concentrated sulphuric acid (35 g/L) in a very slow-motion shaker.	Provided visual indication that with sufficient soak time, lixiviant will penetrate into intact high grade uranium pieces. The incomplete recoveries at the end of the tests can be attributed largely to requiring longer residence time	No discussion herein; testing limited to visual information.
2018-2022	Coreflood tests on intact core in 2018 to 2022	Simulate the in situ field conditions, to understand and develop the lixiviant conditions necessary for successful full-scale ISR. Objectives were to: evaluate the rate of uraninite dissolution and changes in permeability of the core with leaching; generate laboratory scale test results applicable to planning the 2022 field test; and delineate a life-of-well-pattern production profile.	<p>Results were inconsistent in the early work (Coreflood 1 to 3C) due to highly variable reagent dosages in this pioneering work. Coreflood 4 and 5 (2021-ongoing).</p> <p>In Coreflood 4, as uranium mass gradually leached away, there was a mild trend of increasing flow rate at the same pressure, indicating permeability increase. Lessons learned from past testing, particularly with respect to reagent adjustments, were put into practice with this testing to enable completion of the longest test run to support the feasibility work. In total, 51.8% of the initial dry mass of the sample was removed by leaching; 50% of this was the result of uranium leaching. Feed grade was 26.66% U3O8.</p> <p>In Coreflood 5 is ongoing and is focused on HGU 2B, which has the majority of contained uranium, highest grade and highest natural permeability. The methodology was different from the other coreflood tests in that the flow was directed through a pencil hole in core. Cumulative recovery at end of February 2023 was 33%.</p>	Water Quality of UBS at the end of mining and Restoration Phase/flushing solution (groundwater remediation). Mineralogy.
2022	Feasibility field test (FFT) leaching and remediation in 2022	The FFT was a full-scale proof of concept in an ISR method; to demonstrate injection of lixiviant and recovery of UBS from the CSW test pattern. Injection was into 1 well (GWR-041).	After pH below 3 was achieved in GWR-041, active leaching of uranium began. UBS grade from GWR-041 rose while pH declined. Uranium grade trended upwards to 25 g/L over four days, while injection pressure decreased. This suggests that leaching played a role in reducing resistance to flow. A peak sample grade of 43 g/L U was collected from GWR-041 after a further three days, so the acid injection phase was ended (on October 12). A global leaching recovery curve could be developed using the field testing and coreflood tests.	No discussion included herein.

1.1 2018 Column Leach and Groundwater Restoration Test

In early 2018, a column leach test with acid lixiviant was performed. The core material used for testing came from three drill holes. Select intervals of overlying very low-grade sandstone was blended with very high-grade intervals to create a composite feed grade of 24.2% U. Details on the core material used in the leach tests are provided in Appendix A to this response, in Table A1.

A total of 137 pore volumes (PVs) of uranium bearing solution (UBS) was generated at flow rate ranging between 2 to 4 PV/d. A 90% recovery was achieved with a peak individual sample uranium grade of 27.4 g/L and average UBS grade of 8.4 g/L U. Following the leaching, the column was flushed with simulated groundwater to simulate groundwater restoration. Analytical results from the first pore volume of water removed from the column during the restoration phase are incorporated into the range in UBS composition at the end of mining presented in Table IR-20, IR-67, IR-69-2.

Table 2 addresses IR-20. **This table summarizes information from the metallurgical testing with respect to composition of the UBS at the end of mining, prior to remediation.** See further discussion below in Section 1.3.

Flushing of the column with simulated groundwater (Phase 1 of restoration) was continued for 84 pore volumes. Phase 2 (RPV 84-108) circulated simulated ore zone water quality fortified with 1 g/L Bicarbonate [from NaHCO_3]. The test simulated the operation of a Reverse Osmosis (RO) water treatment step where solution exiting the column would be treated prior to being re-introduced. Phase 3 (RPV 108-114) re-established injection of simulated groundwater quality. The objective of this phase was to displace the bicarbonate and to ensure ground water stability once the circulation of fluid is halted. Analytical results for groundwater collected during this restoration process are shown in Table 9 and Table 10. Information presented in those tables is discussed further in Section 2.0.

1.2 Column and Coreflood Tests

The following were common to all column and coreflood tests performed:

- The pore volume was determined by pumping water (deionized water, site groundwater) into each column or core until filled.
- Temperature was controlled to 10°C by placing the apparatus in a walk-in cooler.
- An online UBS or Remediation/Flushing Solution sample was taken daily.

Table 2:UBS Chemistry at end of Leaching (Mining)

Test	Units	Coreflood 2B (2021)	Coreflood 3C	Number of Samples	Range of Values of UBS constituent concentrations across Metallurgical tests from 2018-2021 representative of End of mining conditions		Baseline Ore Zone Groundwater Chemistry
Sample Name		D-CF2B-57	D-CF3C-142		Minimum	Maximum	GWR-032 (2021-06-04)
Acidity	mg/L			5	65000	87000	
Bicarbonate	mg/L	-	-	6	0	<1	118
Carbonate	mg/L			5	<1	<1	<1
Chloride	mg/L			1	<10	1220	220
Hydroxide	mg/L			0	<1	<1	<1
P. alkalinity	mg/L			0	<1	<1	<1
pH	pH units	2.1	1.1	13	0.63	2.10	6.83
Specific Conductance	uS/cm			9	52100	303000	860
Eh	mV			10	580	870	
Sum of ions	mg/L			5	52700	70100	504
Total alkalinity	mg/L			5	<1	<1	97
Total hardness	mg/L			5	202	1480	182
Nitrate	mg/L			5	<4	<40	<0.04
Fluoride	mg/L			5	1	34	0.23
Total dissolved solids	mg/L			5	8970	47900	599
Calcium	mg/L	557	723	13	58	723	55
Magnesium	mg/L	47	<63	13	<10	240	11
Potassium	mg/L	148.8	<86	13	6.2	149	4.6
Sodium	mg/L	17.9	<77	13	6.0	12300	81
Aluminum, dissolved	mg/L	1738	71	13	69	4609	0.0006
Antimony, dissolved	mg/L			5	0.040	1	<0.0002
Arsenic, dissolved	mg/L	<0.1	<1	13	<0.1	21	0.2
Barium, dissolved	mg/L	<0.1	<1	13	<0.05	<0.5	0.063
Beryllium, dissolved	mg/L			5	0.07	0.4	<0.0001
Boron, dissolved	mg/L			1	<1	<10	0.43
Cadmium, dissolved	mg/L	<0.1	<1	13	0.018	1.809	<0.00001
Chromium, dissolved	mg/L	9.1403	<1	13	<0.1	9.140	<0.0005
Cobalt, dissolved	mg/L	5.41	<1	12	0.5	15	<0.0001
Copper, dissolved	mg/L	5.16	10.23	13	5.2	964	<0.0002
Iron, dissolved	mg/L	3309	4094	13	820	4094	4.2
Lead, dissolved	mg/L	0.97	19.45	13	0.20	19	<0.0001
Manganese, dissolved	mg/L	16.35	<81	13	2.70	41	0.22
Molybdenum, dissolved	mg/L	1.65	59.57	13	1.65	60	0.0038
Nickel, dissolved	mg/L	15.7	<1	13	<1	27	0.001
Selenium, dissolved	mg/L	18.4	<1	13	<0.025	26	<0.0001
Silver, dissolved	mg/L			5	<0.005	<0.05	<0.00005
Strontium, dissolved	mg/L	5.2	<1	7	0.60	5	1.66
Thallium, dissolved	mg/L	-	-	5	0.05	<0.2	<0.0002
Tin, dissolved	mg/L	-	-	5	0.07	0.30	-
Titanium, dissolved	mg/L			5	2.80	32	<0.0002
Uranium, dissolved	mg/L	7.45E+03	3.88E+04	13	7.70E+02	3.88E+04	1.10E-02
Vanadium, dissolved	mg/L	160.88	62.57	13	6.16	161	<0.0001
Zinc, dissolved	mg/L	134.37	4.03	13	2.30	331	2.62
Sulfur	mg/L	9,263	22,877	13	5211	209411	4.3
Phosphorous	mg/L	-	75.4	13	2	75	<0.01
Silica, soluble, dissolved	mg/L	-	-	6	31	192	13.3
Radium-226*	Bq/L	-	-	4	230	3000	180
Radium-228*	Bq/L	-	-	1	5	5	-
Lead-210*	Bq/L	-	-	4	600	1700	2200
Polonium-210*	Bq/L	-	-	4	290	2000	110
Thorium-230*	Bq/L	-	-	4	21000	220000	7
Thorium-232*	Bq/L	-	-	4	2	12	-
Radium-226*	mg/L	-	-	4	6.29E-06	8.21E-05	4.92E-06
Thorium-230*	mg/L	-	-	4	2.75E-02	2.88E-01	9.17E-06

Notes

* Analytical results for radionuclides are limited. The ranges of radionuclide concentrations (Bq/L) provided are considered conservative because they reflect composite samples collected over the ISR leaching period in the 2021 column samples, not UBS at the end of mining

Analytical results for Coreflood 2B and 3C are provided (in addition to the range of UBS Constituent Concentrations) because results from the remediation portion of these tests was used for development of the Restored Solutions modelled in the draft EIS (Appendix 7-C)

Used to highlight baseline groundwater quality in the ore zone for comparison with UBS Composition at end of mining.

2021 UBS Column Tests

The objective of the 2021 column tests was to test leach recoveries on a range of feed grades. Four samples were generated from nine drill holes, all proximal to the WS Shear where most of the resource lies. The samples contain varying amounts of uraninite, sulphides, clay and iron and represent blends of the various hydrogeologic units within the deposit (HGUs). Samples were crushed to -10 mm. Columns with a diameter of ~100 mm were packed with the samples. Four column tests were conducted, with details for each sample listed in Table 3.

The 2021 column tests used the full-size distribution of crushed core and achieved relatively high mineral liberation in contact with lixiviant. This results in relatively rapid leach kinetics compared to intact core. The initial flow rate was calculated based on a retention time of eight hours (3 column pore volumes per day (PV/d)).

Table 1: Summary of Samples for Column Test 1 to 4

Column No.	Sample ID	Mass (g)	Feed U ₃ O ₈ (wt%) ^a	HGUs in Blend ^b	Hole IDs	Number of PVs - Leaching	Number of PVs - Remediation
1	Sample A	27,338	48.1	2A/B/C/D	GWR-10, 16, 19, 21	116	6.7 (D.I. Water)
2	Sample B	18,619	46.1	2B	GWR-10, 19, 23, 26	120.4	16.5 (Site GW, 10g/L NaOH Solution)
3	Sample D	9,180	1.8	2A/C/D/E	GWR-15, 16, 19, 26	14.7	15.5 (Site GW, 10g/L NaOH Solution)
4	Samples C&E	8,742	26.9	2A/C/D/E	GWR-01, 19, 22	29.7	11.2 (Site Water, 1.5g/L NaHCO ₃)

Notes

^a Back Calculated^b HGUs = Hydrogeological Units in the Ore Zone

A single pass flow of dilute sulfuric acid and hydrogen peroxide lixiviant was run between 22 to 38 days. Lixiviant strength was generally decreased over the course of each run. UBS composition from each of the column leach tests at the end of leaching is shown in Table 2.

On completion of the leaching tests, each column was flushed with water (de-ionized water or groundwater) and for columns #2, #3 and #4, neutralization of groundwater was evaluated using alkaline solutions. Solutions used and porewater volumes flushed are summarized in Table 3. Analytical results for solution composition during the remediation phase are included in Table 9 and Table 10.

Mineralogy of the column samples pre-testing were analyzed by XRD and QEMSCAN; the mineral assemblages aligned with the overall understanding of the ore zone mineralogy, provided as Table IR-20, IR-67, IR-69-A2 (Appendix A to this response). XRD results for the fine particles are provided as Table 4. These results show the formation of secondary sulphate minerals during the uranium ore leaching process. The other mineral phases are associated with the (pre-mining) ore zone mineralogy, provided in the draft EIS as Table 3-1 of Appendix 7-C, and provided herein in Appendix A as Table 2.

Table 4: XRD Results for Fine Particles in UBS, Column Experiments #1 to #4 (2021)

Mineral Phase	Column #1	Column # 2	Column #3	Column #4
Anglesite	18.1	9.8	-	6.6
Anhydrite	7	-	-	-
Biotite	-	38	24.2	8.3
Chlinochlore	62.6	21.2	20.3	20.1
Gypsum	-	4.4	-	-
Kaolinite	-	22	41.1	57
Quartz	-	-	5.4	-
Pyrite	12.3	4.6	8.9	7.1

Notes

Secondary Minerals

2022 Column Leaching and Remediation Tests

A suite of 5 column leaching tests was undertaken to support remediation planning. Whereas core flood testing may more realistically represent the ISR conditions with respect to operational conditions (i.e., using intact core and pressure applied), this phase of column testing used crushed material to accelerate the testing process and, thus, provide key information on the remediation phase and prepare for the (2022) field feasibility study.

The 2022 column testing program consisted of five 100mm diameter columns loaded with samples from different HGUs providing characterization of ore variability. The samples were selected from a blend of assay sample splits of fresh core from GWR-054 through GWR-061, supplemented by preserved core from GWR-016, GWR-022 and GWR-024 stored frozen by Denison. The hole locations are shown Figure 1 ranging along the length of the deposit. Intervals from five to eight different drill holes were composited to meet required sample mass and/or to meet representativeness for each HGU.

The samples were hand crushed to minimize fines generation, to a maximum size of 30 mm. Minimum size fraction was +0.212 mm by wet screening out fines. This was designed to promote flow through the column and minimize exposed mineral surface area. Overall procedures were like 2021 column tests. The lixiviant was a mixture of sulphuric acid and hydrogen peroxide and was prepared using Wheeler River groundwater. Lixiviant was injected upwards in essentially flooded plug flow conditions. The flow rate was calculated based on ~0.67 measured column PV/d. Test parameter variables were minimized, so the differences between HGUs could be distinguished.

Initially, all five columns were fed lixiviant from a common tank. The low-grade columns 2A and 2E were run until fully leached. From that point forward, 2A and 2E were fed from a separate tank to perform groundwater flush and neutralization. A summary of details of the column tests including pore volumes during leaching, during post-leaching flushing with groundwater, and during neutralization are provided in Table 5.

UBS composition at the end of the leaching period is provided in Table 2, and groundwater quality following the groundwater flushing and neutralization is provided in Table 9 and Table 10.

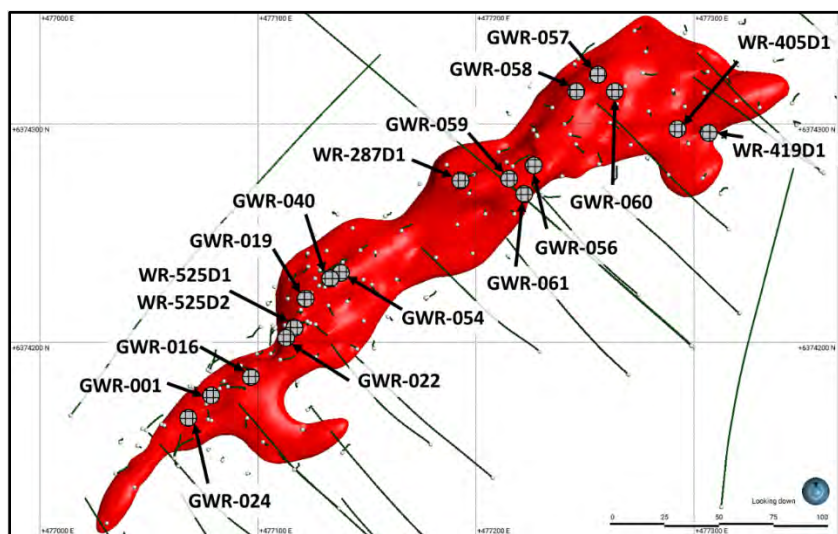


Figure 1: Metallurgical Hole Locations for 2022 Column Leach Testing

Table IR-20, IR-67, IR-69-2: 2022 Column Leach Testing Details

Columns	2a	2b	2c	2d	2e
Estimated Grade (wt % U ₃ O ₈)	5.0%	58.3%	41.3%	46.1%	1.6%
	Numbers of Pore Volumes				
Phase 1: Groundwater equilibration	2.9	3.1	3.0	2.8	3.1
Phase 2: In-Situ Recovery (ISR)	20.8	66.7	64.1	62.4	19.4
Phase 3: Groundwater Flushing	15.0	16.2	15.1	11.6	14.9
Phase 4: Neutralization	4.4	4.2	11.0	2.6	3.7
Total Pore Volumes	43.1	90.3	93.1	79.4	41.1
pH at end of Phase 2	0.93	0.95	0.91	0.91	0.95
pH at end of Phase 4	9.53	7.1	3.8	7.22	7.87

QEMSCAN was done on the column pre-testing and at the end of the flushing period. The results are presented as Table 6. Mineral phases that reflect basement-derived materials in the ore zone residuals include biotite, spodumene, petalite and garnet.

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Table 6: 2022 Column Leach Test QEMSCAN results

QEMSCAN	Column 2a		Column 2b		Column 2c		Column 2d		Column 2e	
	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)
Mineral	2A-BATCH-1	DCL-2a-R	2B-BATCH-1	DCL-2b-R	2C-BATCH-1	DCL-2c-R	2D-BATCH-1	DCL-2d-R	2E-BATCH-1	DCL-2e-R
Anglesite		3.84		3.28		3.99		14.18		1.15
Biotite	4.84	1.38	0.25	0.44	4.26	0.83	1.16	1.41	2.96	1.98
Bornite	0.36	0.07					0.70	1.15	0.43	0.20
Calcite			0.42	0.69		0.14				
Chalcocite (CuS)			1.54		0.28		0.31		1.28	
Chalcopyrite	12.37	13.03	0.71	2.27	0.11	0.16		0.25	8.76	3.48
Chlorite				3.15						
Clinocllore-(Fe)		11.34				0.8		9.39		52.26
Covellite (CuS)	0.35	0.38	0.19	2.61	0.39	1.34	0.06	0.18	0.10	0.20
Fe-oxide		0.03				1.15		0.53		0.03
Galena	0.63	0.40	0.43	1.23	0.25	0.3	0.53	3.06	0.10	0.02
Garnet	0.25				2.52		1.47		0.43	
Goethite-Clay mix	4.31	0.03	0.35	0.10	7.37	16.78	10.95	1.66	1.52	0.41
Illite	0.21	0.52		0.05					0.32	0.67
Ilmenite		0.08				0.09				0.47
Kaolinite	42.04	40.41	1.52	3.28	7.12	11.67	0.75	2.09	62.20	28.63
Muscovite	9.46	6.09	0.79	3.35	0.81	1.2	0.15	2.06	13.69	8.79
Petalite		0.15		0.05				0.03		0.02
Pyrite	8.48	10.44	1.49	3.38	0.98	1.58	0.12	0.09		0.84
Quartz	4.40	9.11		1.05	0.05	0.42		1.74	1.01	0.12
Rutile	0.61	0.58	0.07	0.04	0.04	0.04			0.44	0.32
Sphalerite	0.56	0.41		0.04	0.03			0.02		
Spodumene		0.17		0.05		0.16				0.05
Uraninite	10.70	1.07	92.10	74.89	75.74	58.72	83.73	61.93	6.67	0.29
Zircon	0.36	0.45	0.06	0.02		0.04				
Siderite						0.54				

2018-2022 Coreflood Tests

Core testing machines (CTM) were typically used to study in situ oil recovery processes, for flooding uranium deposit drill core with lixiviant to simulate ISR conditions on a micro scale which are referred to as coreflood tests. All drill cores tested were from vertically oriented drill holes allowing the flow from end to end of the coreholder to simulate flow in the vertical direction of the deposit. This is tangential to the intended predominantly horizontal flow path between wells in situ.

From late 2019 to mid-2021, coreflood tests numbered 1, 2A, 2B, 3A, and 3C were performed. The main objective was to simulate the in situ field conditions, to understand and develop the lixiviant conditions necessary for successful full-scale ISR. Priority was placed on testing a large number of samples over short durations. Tests were ended early, so, uranium recoveries were low relative to later testing (generally < 10%). Results for Coreflood 2B and 3C are discussed further herein.

Coreflood 2B and 3C

Details for the testing of Coreflood 2B and 3C are provided in Table 7.

Table 7: 2021 Coreflood Test Details

Coreflood	2B		3C	
Corehole	GWR-024		GWR-019	
Core Dimensions (average diameter, average length), in mm	60 x100		78*70	
Core Pore volume (mL)	36.9		53.1	
Estimated Grade (wt % U3O8)	24		70.7	
	Number of Pore Volume	pH (at end of Leaching or Remediation Phase)	Number of Pore Volume	pH (at end of Leaching or Remediation Phase)
In-Situ Recovery (ISR)	34.4	2.1	82.7	0.98
Groundwater Flushing	22.7	1.91	91.6	2.83
Neutralization with NaOH	55.6	11.92	-	-
Neutralization with NaHCO ₃	-	-	62.4	6.87
Post-Neutralization Groundwater Flush	9.3	11.47	17.2	6.43
Total Pore Volumes	122	-	253.9	-

The UBS composition at the end of leaching for Coreflood 2B and 3C is provided in Table 2. The analytical results for these samples were provided in Table 2 because Corefloods 2B and 3C were the primary basis for the development of the restored solutions. UBS composition during flushing for these coreflood tests is discussed further in Section 2.0 and is summarized in Table 9 and Table 10.

At the end of testing, the core from Coreflood 2B was frozen. The frozen core was cut in the middle into two sides. XRD, QEMSCAN and SEM was done on one half of the sample, on the inside cut. The XRD results indicated:

- 19.5 wt% Kaolinite
- 26.7 wt % Montmorillonite
- 45.3 wt % Dickite
- 2.9 % Fluorite
- 5.6 % Pyrite

The cumulative uranium recovery for core 2B was low, and thus the sample (post-leaching) has a mineralogical composition comparable to that of the unmined ore zone. The portion of the sample that underwent mineralogical analysis was also rich in clay minerals. The QEMSCAN results are shown in Figure 2. The SEM image (not shown) shows the presence of uraninite, pyrite, and sphalerite.

The QEMScan shows a minor amount of mineral phase suggestive of a small amount of jarosite (“Fe-Al-Si-S”) closely associated with pyrite. This suggests formation of oxidation products/secondary minerals in the core with exposure to lixiviant.

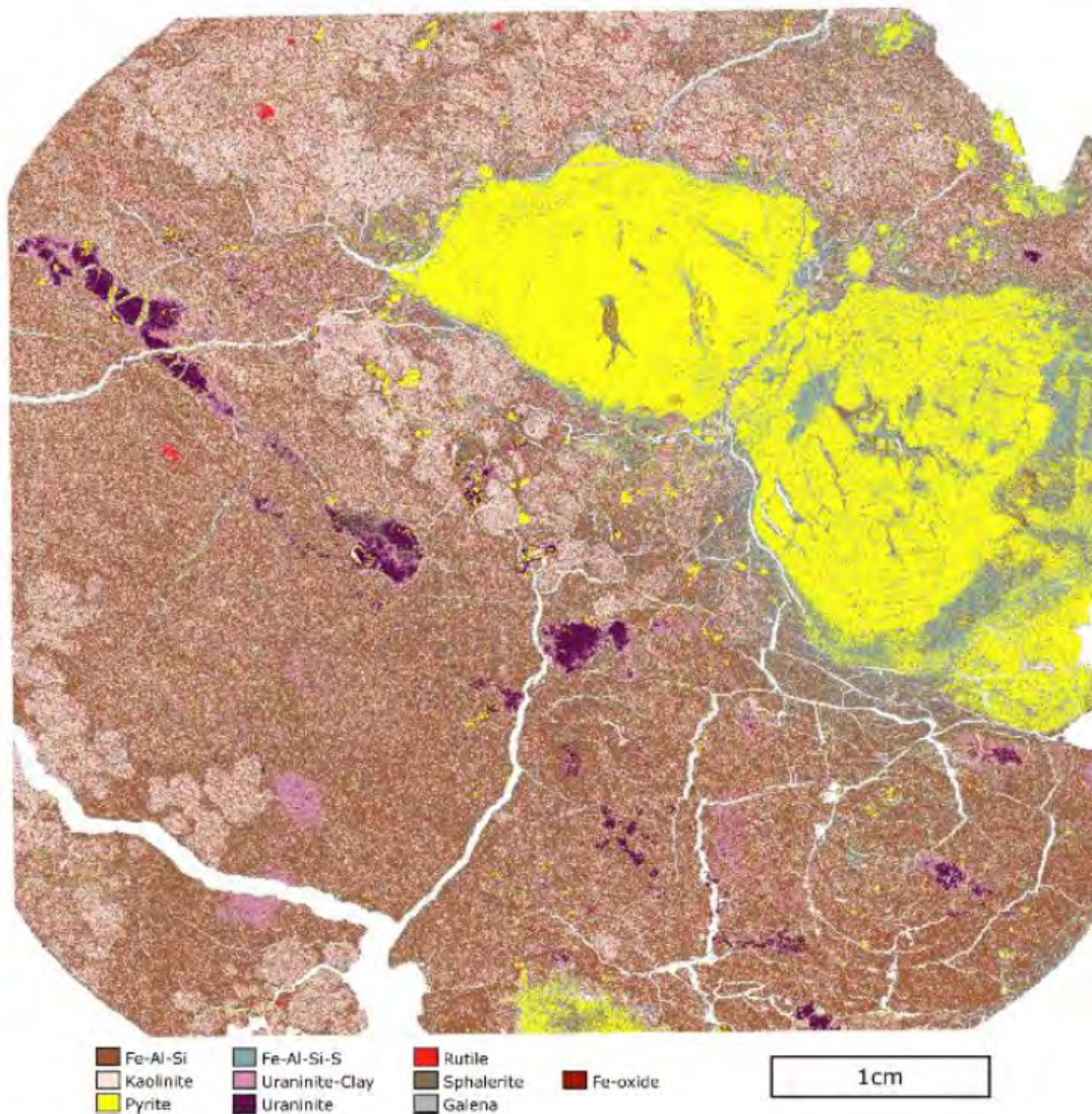


Figure 2: Coreflood 2, QEMSCAN

Coreflood 4

The Coreflood 4 sample was taken from a high-grade segment of HGU 2C from hole GWR-040, which is the middle CSW in the planned field feasibility test (FFT) well pattern. Thus, it was an excellent candidate to correlate with subsequent FFT results.

Coreflood 4 feed sample side view is shown in Figure 3. Near-horizontal mineral banding is evident.



Figure 3: Coreflood 4 Feed Sample Side View, Prior to Placement in Coreflood Machine

Coreflood 4 ran for a total of 113 PVs over 391 days, with life-of-test average UBS grade of 18.7 g/L U and reagent consumptions of 2.78 kg H₂SO₄ and 0.35 kg H₂O₂ per kg U. Part of the difficulty of production ramp-up of Coreflood 4 was due to the flow constraint of low micro scale permeability through the intact core, particularly with generally lower permeability in the vertical flow direction of coreflood samples. As uranium mass gradually leached away, there was a mild trend of increasing flow rate at the same pressure, indicating permeability increase.

In total, 51.8% of the initial dry mass of the sample was removed by leaching. Just over half of the mass loss is accounted for by uranium leaching, and the remainder is accounted for by gangue mineralization leaching. The feed grade was back calculated from measurements of the total uranium in UBS collected throughout the test plus leach residue sections. Feed grade was 26.66% U₃O₈, and final recovery was 97.1%. Coreflood 4 is the most comprehensive simulation of ISR for the Phoenix FS, with the highest recovery demonstrated from an intact core to date.

Coreflood 4 provides the most information about the mineralogical and hydrogeochemical changes that are occurring in the ore zone during mining. Post-leaching, the core leached in Coreflood 4 was cut into segments, as shown in Figure 4, assayed and visually examined (photographed) for changes to the core due to leaching. The mineralogy of each section was determined.

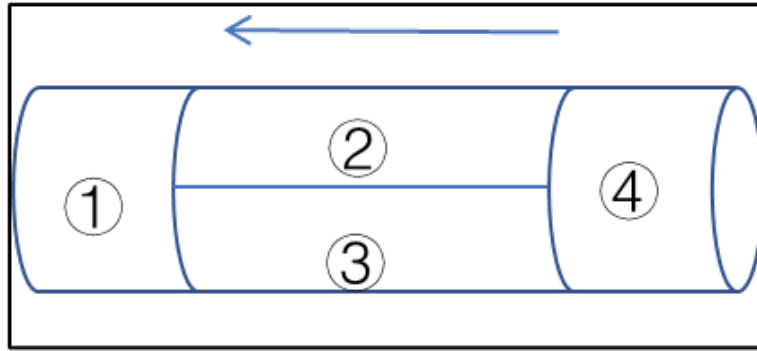


Figure 4: Coreflood 4 Cut Sections and Direction of Flow

Coreflood 4 feed side puck (Section 4), inlet face view is shown in Figure 5. The feed end was deeply eroded, nearly through to the discharge side of the section.



Figure 5: Coreflood 4 Feed Side Puck (Section 4), Inlet Face View

Coreflood 4 middle (Section 2), centre longitudinal cut face view is shown in Figure 6. It was strongly bleached throughout, with cracks that appeared after drying.



Figure 6: Coreflood 4 Middle (Section 2), Centre Longitudinal Cut Face View

Coreflood 4 discharge end puck (Section 1), inlet face view, dried, is shown in Figure 7. It was strongly bleached across the entire cross-section.



Figure 7: Coreflood 4 Discharge End Puck (Section 1), Inlet Face View, Dried

XRD for each of the sections is given in Table 8. Mineral phases that reflect basement-derived materials in the ore zone residuals include anorthite.

Table 8: XRD Results for Coreflood 4 Core Sections

Mineralogical Composition Post-Extraction	D-CF4A-1	D-CF4A-2	D-CF4A-3	D-CF4A-4
Location/section in the coreflood column	Discharge End	Midsection	Midsection	Feed End
Kaolinite (Al ₂ Si ₂ O ₉ H ₄)	74.7	22.1	38.3	43.8
Pyrite (FeS ₂)	17.9	20	12.4	16
Chamosite (Mg _{2.518} Fe _{2.482} Al _{1.25} Si _{3.80} H ₁₀) (Chlorite Group)	7.3	5.8	1.4	--
Gypsum (CaSO ₄ H ₂)	--	7.5	4.5	4.8
Barite (BaSO ₄)	--	1.6	0.7	--
Anorthite (CaSi ₂ Al ₂ O ₈)	--	30.7	31.8	--
Goethite (FeO ₂ H)	--	12.4	10.9	4.3
Anglesite (PbSO ₄)	--	--	--	31.1

1.3 Composition of the UBS remaining in the Ore Zone at the end of Mining (IR-20)

The analytical results for the UBS composition in Coreflood 2B and 3C are shown in Table 2 along with a range of UBS composition that was developed from the relevant analytical results for a total of 13 samples from across the column and coreflood tests. The ranges of values for constituents of potential concern (COPCs), as defined in Appendix 7-C of the draft EIS, are provided in Table 2. Uranium and other COPC concentrations generally vary by 2-3 orders of magnitude. There is expected variability in the UBS composition because of the nature of the deposit, which has been captured in the conditions of the metallurgical testing, and the nature of the testing (e.g., core vs. crushed rock, test duration, lixiviant composition, etc.). The analytical results were given explicitly for Coreflood 2B and 3C because of the use of results from these coreflood tests to develop the restored solutions, which is discussed further in Section 2.0.

The range of UBS composition at the end of mining has been included in Table 3-5 of Appendix 7-C as was requested as part of IR-20, such that UBS quality at the end of mining and remediated conditions (represented by the Restored Solutions) can be compared. The updated Table 3-5 has been added to this response as Appendix B.

1.4 Mineralogical and Hydrogeochemical Changes to the Ore Zone with Mining (IR-69)

Understanding of changes in the mineralogy of the ore zone with mining are informed by the XRD results from Coreflood 4, as this test was terminated at the completion of the ISR process, and QEMSCAN results for the 2022 columns, because these tests provide quantitative information on the mineral assemblage following mining and with remediation. The following conclusions are made with respect to changes in the mineralogy in the ore zone with mining:

- The mining process is effective as leaching uraninite from the ore zone and also results in partial dissolution of sulphide minerals (pyrite, sphalerite, galena, etc.);
- Secondary sulphate minerals are formed as a result of the mining process. The associated equations are shown in Appendix A. Jarosite minerals were suggested surrounding pyrite particles in the QEMSCAN of Coreflood 2, but were not detected in any of the other post-mining residuals. Gypsum and barite were detected in XRD but not present at quantifiable levels in association with the 2022 column residuals. Formation of anglesite is shown by XRD and QEMSCAN in post-mining residuals.

- The elevated concentration of aluminum in solution evidences clay mineral dissolution, but overall the relative abundance of clays in the ore zone increases with ISR mining, as would be expected with ore dissolution.

The hydrochemistry of the ore zone post-mining is presented in Table 2. Consistent with the dissolution of parent minerals and the pH of the UBS, most COPCs concentrations in the UBS at the end of mining are elevated with respect to baseline groundwater conditions in the ore zone.

2.0. Composition of the Restored Solutions (Addresses Question #2 of IR-67)

The restored solutions were developed using the metallurgical data that were available when conditions in Post-Decommissioning were being conceptualized in 2020-2021 for numerical modelling and effects assessment (Appendix 7-C of the draft EIS). This included the early results on acid leaching of the core (2018) and Coreflood 2B and 3C results. At that time, the coreflood tests provided the most detailed information from which to develop the chemistry of the Restored Solutions #1 and #2, using the remediation portion of the tests. From the results of that testing, “Restored Solution #1” and “Restored Solution #2” (Table 3-5) were developed to represent the bounding scenarios for groundwater quality considered in the reactive transport model to evaluate the potential for environmental effects following remediation of the mining area. As is discussed further below, these solution compositions were developed to reflect remediation of the ore zone through flushing and neutralization, without over-neutralization – meaning, base addition past circumneutral conditions to alkaline conditions.

Since that time, more information from the column and coreflood tests has become available that supports the composition of the Restored Solutions put forward in the draft EIS as being representative of porewater within the mining zone with remediation.

When developing the restored solutions for the draft EIS, the approach was generally to select concentrations for any given element/parameter that represented a low to mid-range value for the COPC from the metallurgical testing solutions, to be conservative with respect to evaluating potential effect, but also to reflect the goal of the remediation (to align with ALARA, as is discussed below). For dissolved uranium, the concentration in Restored Solutions #1 and #2 were set to upper bounds of 100 mg/L and 30 mg/L, respectively. In some cases, like Co and Ni, the values selected for modelling were identified to be on the high end upon subsequent metallurgical testing. Thus, the concentrations for these elements modelled are conservative with respect to anticipated pore water concentrations of these elements post-remediation.

The basis of the selected concentrations for Restored Solution #1, which was the solution modelled in Appendix 7-C of the draft EIS, is provided below in Table 9. As Restoration Solution #1 contains the higher remaining concentrations, and lower pH (i.e., differs more from baseline conditions in the ore zone), this solution was carried forward for geochemical reactive transport modelling to evaluate environmental effects.

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Table 9: Groundwater Chemistry basis for Restored Solution #1

Metallurgical Test		2018 Pre-Feasibility: Restoration Phase Data	Coreflood 2B	Coreflood 2B	Coreflood 2B	Coreflood 3C	2021 Column, 2	2021 Column, 3	2021 Column, 4	2022 Column, 2a	2022 Column, 2c	2022 Column, 2d	2022 Column, 2e	2022 Column, 2e	Restored Solution #1	Notes on Value Carried Forward in Restored Solution for Model	
Sample Name		RPV30-23	D-CF2B-121-143	D-CF2B-134-144,146	D-CF2B-COMBINED-1 (D-CF2B-134-144,146)	D-CF3C-225-237	D-CL2-FW-2	D-CL3-FW-2	D-CL4-FW-2	D-CL2A-68	D-CL2C-114	D-CL2D-111	D-CL2E-63	D-CL2E-68			
Statistic		-	Average Value ^a	Average Value ^a	-	Average Value ^a	-	-	-	-	-	-	-	-			
Remediation Method		GW Flush	NaOH Neutralization	NaOH Neutralization	NaOH Neutralization	Bicarbonate Neutralization	Groundwater	Groundwater	NaOH Neutralization	NaOH Neutralization	GW Flush	GW Flush	GW Flush	NaOH Neutralization			
pH	pH units	3.87	4.4	4.42	Same as adjacent (D-CF3C-238-256)	2.97	2.6	2.44	2.66	3.80	2.58	2.46	2.48	4.05	4.3	High end of observed	
Eh	mV		520	525		598						570	542	426	648	-	Set in model to reflect oxidized conditions
Pore Volumes of remediation		-	30-32	59-74		69-76	109-130				19.4	15.1	11.6	14.9	18.6	-	
Aluminum, dissolved		mg/L	5.6	9.7	10.3	7.0	<5	5.4	26	9.1	9.0	9.9	12	32.8	15.6	7	Low end of observed
Arsenic, dissolved		mg/L	<0.010	0.17	0.22	0.03	0.48	0.15	0.31	0.1	0.02	0.14	0.06	0.4	0.012	0.06	Low end of observed
Barium, dissolved		mg/L	<0.05	0.10	<0.1	<0.05	<0.1	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	0.006	0.018	0.05	Mid range of observed
Total Inorganic Carbon (C(4))		mg/L	-	-	-	-	-	-	-	-	-	-	-	-	58	Assumed to be approximately equivalent to GW values and considers some bicarbonate	
Calcium		mg/L	109	228	210	-	81.7	11	43	23	21	22	380	20	35	110	Mid range of observed
Cadmium, dissolved		mg/L	<0.001	<0.1	<0.1	0.015	<0.1	0.061	0.033	0.020	0.051	0.001	0.004	0.0004	0.0003	0.015	Mid range of observed
Chloride		37			-	-	1	<1	1	33	<1	6	3	9	200	Very limited information available. Set to a higher value to consider potential for values closer to baseline ore zone water quality	
		mg/L															
Cobalt, dissolved		mg/L		2.8	2.1	2.0	<0.1				0.15	0.03	0.16	0.53	0.42	2	High end of observed
Chromium, dissolved		mg/L	0.04	0.22	0.14	<0.05	<0.1	0.18	0.76	0.16	<0.05	<0.05	<0.05	0.17	0.013	0.05	Mid range of observed
Copper, dissolved		mg/L	2.23	0.21	0.24	0.17	<0.1	6.2	5.8	9.2	25	3.1	3.2	20.1	4.7	0.17	Low end of observed
Fluoride		mg/L	NA	-	-	-	-	2.4	0.32	1.6	3	6.0	4.2	2	3		No data available at time of developing Restored Solution
Iron, dissolved		mg/L	54.1	378	334	324	13.0	23.2	92	40	124	33	75	74	57	100	Mid range of observed
Potassium		mg/L	<1	10.1	9.5	-	<8	3.5	4.7	1.5	3.7	1.5	5.6	1.9	1.4	9	High end of observed
Magnesium		mg/L	3.7	-	-	-	<6	0.6	11	0.2	3.0	0.4	4.4	38	43	6	Mid range of observed
Manganese, dissolved		mg/L	0.68	9.3	-	3.4	<8	0.57	0.63	0.85	2.0	0.98	4.1	0.31	0.30	3.4	Mid range of observed
Molybdenum, dissolved		mg/L	0.05	0.22	0.22	0.10	<0.1	0.16	2.1	0.10	0.05	0.05	0.03	0.58	0.019	0.1	Mid range of observed
Sodium		mg/L	221	283.2	351.0	-	120	3.1	4.1	2.8	760	3.0	4.3	3.7	378	190	Mid range of observed
Nickel, dissolved		mg/L	0.20	12.8	10.0	9.7	<0.1	0.56	3.2	0.75	0.55	0.06	0.35	1.04	0.92	9.7	High end of observed
Lead, dissolved		mg/L	3.08	2.9	3.41	3.1	1.8	4.97	0.68	0.96	1.3	0.22	0.10	2.64	0.50	3.1	Mid-high range of observed
Sulfate		mg/L	860	2700	2724	-	679	300	750	480	2180	470	1460	690	1220	620	Mid range of observed
Selenium, dissolved		mg/L	<0.025	0.31	0.23	0.08	<0.1	0.39	0.10	0.13	0.01	0.02	0.05	0.042	0.098	0.08	Mid range of observed
Si		mg/L	71.9	-	-	-	-	-	-	-	-	-	-	-	-	40	limited information available; value similar to available data assumed
Strontium, dissolved		mg/L	-	4.5	4.4	4.4	3.2	0.32	0.70	0.22	0.62	0.43	0.58	0.67	0.76	4.4	Upper range of observed
Zinc, dissolved		mg/L	1.48	1.6	1.4	1.4	0.14	1.7	3.6	3.0	10	0.14	-	0.20	0.13	1.4	Mid-range of observed
P		mg/L	-	-	-	-	<4	-	-	-	-	-	-	-	-	4	applied limited information
Uranium		mg/L	105	586	334	338	45.2	92	217	579	145	288	328	38.1	30.8	100	Mid-low end of observed; value set as upper bound in the EIS
Vanadium, dissolved		mg/L	0.09	2.9	0.8	0.51	0.32	0.35	2.8	1.1	0.13	0.70	0.51	1.8	0.006	0.51	Low end of observed
Polonium-210		Bq/L	6.3+/-0.5	-	-	1600	-	-	-	-	-	-	-	-	-	-	Not modelled (lack of thermodynamic constants)
Radium-228		Bq/L	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	Not modelled
Thorium-228		Bq/L	-	-	-	<3	-	-	-	-	-	-	-	-	-	-	Not modelled
Thorium-230		Bq/L	105+/-9.6	-	-	<500	-	-	-	-	-	-	-	-	-	-	See Below for values in mg/L
Radium-226		Bq/L	65.8+/-0.3	-	-	<200	-	-	-	-	-	-	-	-	-	-	See Below for values in mg/L
Lead-210		Bq/L	530+/-1.3	-	-	2400	-	-	-	-	-	-	-	-	-	-	Not modelled (transport behaviour taken into account with Pb)
Thorium-232		Bq/L	0.2+/-0.04	-	-	0.05	-	-	-	-	-	-	-	-	-	-	Not modelled
Radium-226		mg/L	1.80E-06	-	-	<5.47E-06	-	-	-	-	-	-	-	-	-	5.47E-06	Limited data, high end value ^b
Thorium-230		mg/L	1.38E-04	-	-	<6.55E-04	-	-	-	-	-	-	-	-	-	3.93E-06	Limited data set ^c

Notes

^a Data Available when developing the Restored Solutions for the modelling in Appendix 7-C of the EIS^b Arithmetic average values, calculated using detected measurements or where all values were non-detect, assumed the detection limit. pH value is the median, not the arithmetic average.^c Limited data set meant that PFS groundwater flushing data at pH 5.8 was also considered in setting this value, with a Th-230 concentration of 2.62E-07 mg/L and a Ra-226 value of 1E-05 mg/L (see Table IR-67-10)

Annex 1 – FIRT IR Table – Technical Review of the **Wheeler River Project** draft EIS
Denison Response - August 18, 2023

Table 10: Groundwater Chemistry basis for Restored Solution #2

Metallurgical Test		2018 Pre-Feasibility; Restoration Phase Data			Coreflood 3C	Coreflood 3C	2021 Column, 4	2022 Column, 2b	Restored Solution #2	Notes on Value Carried Forward in Restored Solution for Model
Sample Name		RPV 38-42	RPV 42-53	RPV 54-57	D-CF3C-238-256	D-CF3C-COMBINED-1 (D-CF3C-238-256)	D-CL4-FW-3	D-CL2b-116		
Statistic		-	-	-	Average ^a	-	-	-		
Remediation Method		GW Flush	Neutralization (NaHCO ₃)	GW Flush	Bicarbonate Neutralization	Bicarbonate Neutralization	Distilled Water Flush Post NaOH Neutralization	NaOH Neutralization		
pH	pH units	5.8	8.5	8.3	6.51	Same as adjacent (D-CF3C-238-256)	7.48	6.51	6.1	Low end of Observed
Eh	mV				402		-	387	-	Set in model to reflect oxidized conditions
Pore Volumes of remediation		-	76-84	82-108	-	131-162	-	18.70	-	
Aluminum, dissolved	mg/L	0.27	1.32	4.4	<5	0.56	0.70	10	0.56	Low end of observed
Arsenic, dissolved	mg/L	0.10	0.04	0.06	0.25	0.1	<0.01	0.000259	0.1	Upper end of observed
Barium, dissolved	mg/L	<0.05	0.05	0.04	<0.1	0.05	<0.05	0.2	0.05	Mid range of observed
Total Inorganic Carbon (C(4))		mg/L	-	-	-	-	-	-	105	Assumed to be approximately equivalent to GW values and considers some bicarbonate neutralization
Calcium	mg/L	28	13	5	48.1	-	16	127	10	Low end of observed
Cadmium, dissolved	mg/L	0.002	<0.001	<0.001	<0.1	0.004	0.004	<0.1	0.004	Mid range of observed
Chloride	mg/L	15	2	12	-	-	6	-	50	Set to a higher value to consider potential for values closer to baseline ore zone water quality
Cobalt, dissolved	mg/L				0.11	<0.01		<0.1	0.01	Low end of observed
Chromium, dissolved	mg/L	<0.01	<0.01	<0.01	<0.1	<0.05	0.05	<0.1	0.05	Mid range of observed
Copper, dissolved	mg/L	0.04	<0.01	<0.01	0.12	<0.02	0.33	0.2	0.02	Low end of observed
Fluoride	mg/L	0.5	1.2	0.8	-	-	1.4	-	0.8	Mid range of observed
Iron, dissolved	mg/L	6.13	0.44	1.23	9.1	4.7	1.7	10	4.7	Mid range of observed
Potassium	mg/L	<1	<1	2	<8	-	1.2	<8	3.5	Mid range of observed
Magnesium	mg/L	<1	<1	<1	6.7	-	1.2	<6	3	Mid range of observed
Manganese, dissolved	mg/L	0.07	0.02	0.05	<8	0.48	0.28	<8	0.48	Mid range of observed
Molybdenum, dissolved	mg/L	0.03	0.05	<0.005	0.47	0.13	<0.01	0.4	0.13	Mid range of observed
Sodium	mg/L	36	235	87	251	-	351	887	90	Low range of observed
Nickel, dissolved	mg/L	0.03	<0.01	<0.01	0.10	<0.01	0.21	0.1	0.01	Low end of observed
Lead, dissolved	mg/L	2.13	0.36	0.39	0.20	0.32	0.25	10.0	0.32	Mid range of observed
Sulfate	mg/L	174	117	100	718.7	-	440	2480	136	Low end of observed
Selenium, dissolved	mg/L	<0.025	<0.025	0.026	0.86	<0.01	0.09	<0.1	0.01	Low end of observed
Si	mg/L	43.7	43.8	44.4	-	-	-	132.6	40	Mid range of observed
Strontium, dissolved	mg/L				2.0	2.4	0.20	0.7	2.4	Upper end of observed
Zinc, dissolved	mg/L	0.08	<0.01	<0.01	0.10	<0.05	0.46	0.1	0.05	Mid-range of observed
P	mg/L				<4	-	-	<5	4	applied limited information available
Uranium (mg/L)	mg/L	3.5	4.1	0.5	19.3	26.4	187	38.7	30	Upper End of Observed
Vanadium, dissolved	mg/L	<0.01	0.007	0.03	0.13	0.16	0.03	0.2	0.16	Upper end of observed
Polonium-210	Bq/L	14.9+/-0.3	1.9+/-0.1	2.7+/-0.1	-	280	-	-	-	Not modelled (lack of thermodynamic constants)
Radium-228	Bq/L	-	-	-	-	<2	-	-	-	Not modelled
Thorium-228	Bq/L	-	-	-	-	<1	-	-	-	Not modelled
Thorium-230	Bq/L	0.2+/-0.03	1.36+/-0.14	3.2+/-0.4	-	<100	-	-	-	See Below for values in mg/L
Radium-226	Bq/L	389+/-0.7	262+/-0.5	129+/-0.4	-	370	-	-	-	See Below for values in mg/L
Lead-210	Bq/L	301+/-0.7	40+/-0.3	22+/-0.2	-	660	-	-	-	Not modelled (transport behaviour taken into account with Pb modelled)
Thorium-232	Bq/L	<0.01	<0.01	<0.01	-	0.007	-	-	-	Not modelled
Radium-226	mg/L	1.06E-05	7.17E-06	3.53E-06	-	1.01E-05	-	-	1.01E-05	Limited data, high end value
Thorium-230	mg/L	2.62E-07	1.78E-06	4.19E-06	-	<1.31E-04	-	-	1.31E-06	Limited data set ; Low end of observed

Notes

Data Available when developing the Restored Solutions for the modelling in Appendix 7-C of the EIS

Data Available when developing the Restored Solutions for the modelling in Appendix 7-C of the EIS, but not considered in the development of Restored Solution #2 as pH was alkaline

^a Arithmetic average values, calculated using detected measurements or where all values were non-detect, assumed the detection limit. pH value is the median, not the arithmetic average.

3.0. Remediation of Mining Area within the context of ALARA (Addresses Question #3 of IR-67)

Section 2.2.3 of the draft EIS presents the conceptual decommissioning plan (CDP). As part of the CDP, and as highlighted in Section 2.3.3.1.1 of the draft EIS, remediation of the mining area will continue until recovered water reaches and is demonstrated to be stabilized (maintained) at acceptable mining area decommissioning objectives. Such decommissioning objectives consider protection of plausible downgradient water uses. For the purpose of the assessment "plausible use" has been determined to be the protection of aquatic life in Whitefish Lake, since numeric 3D groundwater modelling has indicated that Whitefish Lake is where groundwater associated with the remediated mining area will discharge to. It is within this frame of reference therefore that the ALARA concept should be considered. That is, ALARA can be defined for the purpose of the remediation of the mining area to the extent that subsequent discharge of groundwater to Whitefish Lake does not adversely affect aquatic biota in the lake.

The metallurgical testing done to date evidences an amelioration of UBS quality post-mining with flushing using groundwater and base (hydroxide or bicarbonate) to a restored solution of pH in the range of 4.5-5.5. The intent of the remediation approach is to raise the pH consistently but incrementally, so as to avoid over-neutralizing and yielding an alkaline solution. Alkaline pH conditions favour the formation of precipitates that are not desired from a physical (clogging) or chemical standpoint (secondary solids formed in place of removal of COPCs in the dissolved-phase from the subsurface). Potential environmental effects were thus evaluated based on plausible use, as defined above, at a pH and groundwater conditions that were shown to be achievable through groundwater flushing and addition of base without the risk of over-neutralization. Restoration Solution #1 contains the higher remaining concentrations, and lower pH (i.e., differs more from baseline conditions in the ore zone) and was carried forward for geochemical reactive transport modelling to evaluate environmental effects.

It is noted that the freeze wall will remain in place during mining area remediation (see draft EIS Section 2.3.3.1.1), until decommissioning objectives are achieved to ensure there is no loss of tertiary control of the mining fluid (even in a diluted state). Refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which as shown are protective of aquatic biota in Whitefish Lake. The final acceptable mining area decommissioning objectives will be developed prior to initiation of groundwater remediation, as part of the Detailed Decommissioning Plan (DDP).

References

Denison (Denison Mines Corp), 2018. Prefeasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada. Report dated: September 24, 2018.

Denison (Denison Mines), 2023. Feasibility Study.

IR-20, IR-67, IR-69 Appendix A

2018 Column Leach Testing

Table A1: Sample Inventory for 2018 ISR Column Leach Test

Original Sample Purpose	Sample I.D.	WR Hole No.	Lithology	Est. U%	Mass (g)	Mass U (g)
Porosity/Perm.	S066906	419D1	BSMT	0.22	320	0.61
Porosity/Perm.	S066907	525D2	SDST	0.06	323	0.17
Porosity/Perm.	S066908	405D1	SDST	0.06	270	0.14
Porosity/Perm.	S066909	405D1	BSMT	0.08	299	0.21
Porosity/Perm.	S066910	525D1	BSMT	51.72	843	375
Leach Testing	S066911	525D1	SDST	0.06	282	0.17
Leach Testing Composite Sample	S066912- S066916	525D1 525D2	SDST & BSMT	29.4	1,090	276
Leach Testing Total Composite Sample	S066906- S066916	405D1 419D1 525D1 525D2	SDST & BSMT	19.03 (wet)	3,427 (wet)	652.3

Table A2: Mineralogy of the Ore Zone*

Unit	Mineral	Ideal Formula	Major (≥2% w/w)	Minor (< 2% w/w, or, shown to be present in Petrography or core logging)
Ore Zone	Pyrite	FeS ₂	X	
	Galena	PbS	X	
	Chalcopyrite	CuFeS ₂	X	
	Quartz	SiO ₂	X	
	Chlorite	(Fe,Mg)2(Al,Fe3+)3Si3AlO10(OH)8	X	
	Muscovite/Illite	KAl2(Si3Al)O10(OH,F)2	X	
	Kaolinite	Al2Si2O5(OH)4	X	
	Fe-oxy-hydroxides	FeO(OH)·nH ₂ O	X	
	Uraninite	UO ₂	X	
	UO ₂ .33	U ₃ O ₇	X	
	UO ₂ .25	U ₄ O ₉	X	
	Schoepite	UO ₃ ·2H ₂ O	X	
	Siderite	FeCO ₃	X	
	Fluorite	CaF ₂	X	
	Gersdorffite	NiAsS		X
	Nickeline	NiAs		X
	Dravite	NaMg3Al6(Si6O18)(BO3)3(OH)3(OH)		X
	Pyrrhotite	Fe _{1-x} S (x=0-0.17)		X
	Sphalerite	(Zn,Fe)S		X
	Feldspar	KAlSi3O8		X
	Calcite	CaCO ₃		X
	Apatite	Ca5(PO4)3(F,Cl,OH)		X
	Corundum	Cr ₂ O ₃		X
	APS Minerals	CaAl3(PO4)(PO3OH)(OH)6		X

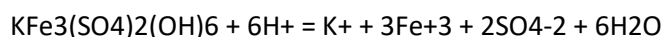
Notes

*The table above is excerpted from Table 3-1 of Appendix 7-C of the draft EIS (mineralogy for other “Units” provided therein are not shown here)

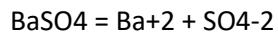
Uraninite **Blue bolded text** indicates dominant minerals; can be present at values exceeding 40% w/w

Reactions forming secondary sulphate minerals

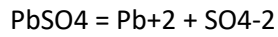
K-Jarosite



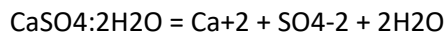
Barite



Anglesite



Gypsum



Annex 1 – FIRT IR Table – Technical Review of the **Wheeler River Project** draft EIS
Denison Response – August 18th, 2023

IR-20, IR-67, IR-69 Appendix B

Table 3-5: Restored Solutions, UBS Composition representative of End of Mining conditions, and Representative Groundwater Composition by Hydrostratigraphic Unit

Parameter/ Groundwater or Restored Solution	Unit	Ore Zone (GWR-032)	PWZ (GWR-031 and Cigar Lake)	Lower Sandstone Aquifer and Decalcified Zone (GWR-011)	Intermediate Sandstone Aquitard (GWR-046)	Overburden and Upper Sandstone Aquifer (GWR-036, Primarily)	Range of Values of UBS constituent concentrations across Metallurgical tests from 2018-2021 representative of End of mining conditions		Restored Solution #1	50% Restored Solution #1	Restored Solution #2	50% Restored Solution #2
							Minimum	Maximum				
pH	unit	6.83	6.7	6.46	7.053	6.45	0.63	2.1	4.3	5.1	6.1	6.3
pe	unitless	-1.3	1.9	2.3	4.5	1.2	9.80	14.7	10	(set) 7	7.8	(set) 4
temp	°C	7	7	7	7	7	7	7	7	7	7	7
Al	mg/L	6.00E-04	3.40E-02	5.20E-02	8.00E-01	3.70E-02	6.90E+01	4.61E+03	7.00E+00	3.53E+00	5.60E-01	3.06E-01
As	mg/L	2.00E-04	5.00E-02	1.30E-03	4.75E-06	3.00E-04	<0.1	2.12E+01	6.00E-02	3.07E-02	1.00E-01	5.07E-02
Ba	mg/L	6.30E-02	3.60E-02	5.40E-02	2.41E-01	5.70E-03	<0.05	<0.5	5.00E-02	5.20E-02	5.00E-02	5.20E-02
C(4)	mg/L	1.76E+02	1.54E+02	8.66E+01	1.01E+02	3.39E+01	-	-	5.80E+01	7.23E+01	1.05E+02	9.58E+01
Ca	mg/L	5.50E+01	6.76E+00	9.78E+00	1.07E+01	2.70E+00	5.80E+01	7.23E+02	1.10E+02	6.00E+01	1.00E+01	9.89E+00
Cd	mg/L	1.00E-05	1.00E-05	1.00E-05	3.36E-05	1.00E-05	1.80E-02	1.81E+00	1.50E-02	7.52E-03	4.00E-03	2.01E-03
Cl	mg/L	1.90E+02	8.65E+01	7.20E+00	8.63E+00	6.86E+00	<10	1.22E+03	2.00E+02	1.04E+02	5.00E+01	2.86E+01
Co	mg/L	1.00E-04	1.00E-02	1.00E-04	5.84E-03	4.00E-04	5.00E-01	1.49E+01	2.00E+00	1.00E+00	1.00E-02	5.05E-03
Cr	mg/L	5.00E-04	4.50E-03	5.00E-04	1.69E-03	5.00E-04	<0.1	9.14E+00	5.00E-02	2.53E-02	5.00E-02	2.53E-02
Cu	mg/L	2.00E-04	5.00E-03	1.80E-03	6.29E-03	6.00E-04	5.16E+00	9.64E+02	1.70E-01	8.60E-02	2.00E-02	1.09E-02
F	mg/L	2.30E-01	5.30E-01	1.80E-01	5.90E-02	6.00E-02	1.00E+00	3.40E+01		9.00E-02	8.00E-01	4.90E-01
Fe	mg/L	4.20E+00	4.90E-01	8.60E-01	6.03E+00	4.05E-01	8.20E+02	4.09E+03	1.00E+02	5.05E+01	4.70E+00	2.78E+00
K	mg/L	4.60E+00	5.60E+00	2.00E+00	6.77E+00	2.80E+00	6.20E+00	1.49E+02	9.00E+00	5.51E+00	3.50E+00	2.75E+00
Mg	mg/L	1.10E+01	3.09E+00	1.60E+00	3.91E+00	1.80E+00	<10	2.40E+02	6.00E+00	3.80E+00	3.00E+00	2.30E+00
Mn	mg/L	2.20E-01	7.00E-01	3.60E-01	3.91E+00	1.40E-01	2.70E+00	4.10E+01	3.40E+00	1.88E+00	4.80E-01	4.20E-01
Mo	mg/L	3.80E-03	1.28E-02	4.20E-03	3.89E-03	7.00E-04	1.65E+00	5.96E+01	1.00E-01	5.22E-02	1.30E-01	6.71E-02
Na	mg/L	8.10E+01	7.61E+01	6.10E+00	8.96E+00	2.90E+00	6.00E+00	1.23E+04	1.90E+02	9.82E+01	9.00E+01	4.81E+01
Ni	mg/L	1.00E-03	1.50E-02	1.00E-04	4.87E-02	1.80E-03	<1	2.68E+01	9.70E+00	4.86E+00	1.00E-02	5.05E-03
Pb	mg/L	1.00E-04	1.00E-04	1.00E-04	1.57E-03	1.00E-04	2.00E-01	1.95E+01	3.10E+00	1.55E+00	3.20E-01	1.60E-01
S(6)	mg/L	1.30E+01	4.55E+00	4.70E+00	1.01E+01	1.90E+00	5.21E+03	2.09E+05	7.03E+02	3.54E+02	1.36E+02	7.04E+01
S(-2)	mg/L	1.00E-08	1.00E-09	1.00E-09	1.00E-09	1.00E-09	-	-	1.00E-09	1.00E-09	1.00E-09	1.00E-09
Se	mg/L	1.00E-04	1.00E-04	1.00E-04	3.59E-04	8.00E-04	<0.025	2.64E+01	8.00E-02	4.01E-02	1.00E-02	5.05E-03
Si	mg/L	1.33E+01	9.18E+00	2.41E+01	1.31E+01	2.62E+01	3.07E+01	1.92E+02	4.00E+01	3.21E+01	4.00E+01	3.21E+01
Sr	mg/L	1.66E+00	1.17E+00	1.20E-01	1.15E-01	1.20E-02	6.00E-01	5.19E+00	4.40E+00	2.26E+00	2.40E+00	1.26E+00
Zn	mg/L	2.62E+00	4.25E-03	1.20E-02	1.25E-02	4.40E-03	2.30E+00	3.31E+02	1.40E+00	7.07E-01	5.00E-02	3.10E-02
P	mg/L	1.00E-02	1.00E-02	1.00E-01	5.00E-02	4.00E-02	2.20E+00	7.54E+01	4.00E+00	2.05E+00	4.00E+00	2.05E+00
U	mg/L	1.10E-02	1.24E-02	7.00E-04	2.26E-02	5.00E-04	7.70E+02	3.88E+04	1.00E+02	5.01E+01	3.00E+01	1.50E+01
V	mg/L	1.00E-04	1.00E-04	1.00E-04	1.20E-03	1.00E-04	6.16E+00	1.61E+02	5.10E-01	2.55E-01	1.60E-01	8.01E-02
²²⁶ Ra	mg/L	4.92E-06	5.47E-09	1.37E-08	2.54E-08	1.64E-09	6.29E-06	8.21E-05	5.47E-06	2.75E-06	1.01E-05	5.06E-06
²³⁰ Th	mg/L	9.17E-06	1.00E-06	1.31E-07	2.62E-07	2.62E-08	2.75E-02	2.88E-01	3.93E-06	2.02E-06	1.31E-06	7.14E-07



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Appendix 9-D Wildlife Species At Risk

New Appendix to final EIS, Section 9

Version 1

July 2023

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Acronyms and Abbreviations

Term	Definition
BBS	Breeding Bird Survey
BC	British Columbia
CEA	Cumulative effects assessment
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
EMS	Environmental Management System
FIRT	Federal-Indigenous Review Team
IRs	Information requests
ISR	In situ recovery
KI	Key Indicator
LSA	Local Study Area
Project	Wheeler River Project
QP	Qualified Professional
RSA	Regional Study Area
SAR	Species at risk
SARA	<i>Species at Risk Act</i>
SARGSS	Saskatchewan Activity Restriction Guidelines for Sensitive Species
SKCDC	Saskatchewan Conservation Data Centre
VC	Valued Component

1 Introduction

1.1 Background

On October 21, 2022, Denison Mines Corp. (Denison) submitted a draft Environmental Impact Statement (EIS) for the proposed Wheeler River Project (the Project). Based on their initial review, the Canadian Nuclear Safety Commission indicated that the submission contained the required information to proceed with the Federal-Indigenous Review Team (FIRT) technical review of the draft EIS. On March 20, 2023, the FIRT provided Denison with a list of information requests (IRs) for Denison to respond to and eventually submit a final EIS document.

This Appendix provides additional information to address several IRs provided by Environment and Climate Change Canada (ECCC) as part of the initial round of Federal Indigenous Review Team (FIRT) comments. These IRs were related to 16 wildlife species at risk (SAR) listed under Schedule 1 of the federal *Species at Risk Act* (SARA). The draft EIS approach was conservative in that it considered appropriate representative species as Valued Components (VCs) and Key Indicators (KIs) in sections 9.3 Ungulates, Furbearers, and Woodland Caribou and 9.4 Raptors, Migratory Breeding Birds, and Bird SAR. Of the 16 wildlife SAR listed in Table 1.1, seven had been included as VCs or KIs in the EIS after a thorough scoping process (refer to Section 1.2 for additional information).

Nine of the sixteen were not included as individual VCs or KIs but are considered important from a regulatory perspective. The SARA-listed species identified by ECCC are listed in Table 1.1. Those noted in bold font indicate those for which further assessment is provided in this appendix.

Table 1.1 Wildlife Species at Risk Listed by Environment and Climate Change Canada

Common Name	Scientific Name	Discussed in the draft EIS
Nine-spotted lady beetle	<i>Coccinella ovemnotata</i>	No
Transverse lady beetle	<i>Coccinella transversoguttata</i>	No
Yellow-banded bumble bee	<i>Bombus terricola</i>	No
Northern leopard frog	<i>Lithobates pipiens</i>	No
Little brown myotis	<i>Myotis lucifugus</i>	No
Northern myotis	<i>Myotis septentrionalis</i>	No
Wolverine	<i>Gulo gulo</i>	Yes
Woodland caribou	<i>Rangifer tarandus caribou</i>	Yes
Bank Swallow	<i>Riparia riparia</i>	No
Barn Swallow	<i>Hirundo rustica</i>	No
Common Nighthawk	<i>Chordeiles minor</i>	Yes
Horned Grebe	<i>Podiceps auritus</i>	No
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Yes
Rusty Blackbird	<i>Euphagus carolinus</i>	Yes

Common Name	Scientific Name	Discussed in the draft EIS
Short-eared Owl	<i>Asio flammeus</i>	Yes
Yellow Rail	<i>Coturnicops noveboracensis</i>	Yes

Of the 16 species listed in Table 1.1, seven had been included as VCs or KIs in the EIS after a thorough scoping process, as summarized below.

1.2 Valued Component Selection

The VCs considered in the effects assessment for the Project are aspects of the biophysical and human environments that were considered to be likely to be affected (adversely or positively) by the Project. The VCs reflect identified scientific, local knowledge, and Indigenous Knowledge, and community interests regarding the Project and its potential effects. The potential effects are typically identified early in the environmental assessment process as a result of questions and concerns raised through engagement with Indigenous and community groups, government departments and agencies, and the general public.

Denison reviewed and considered all received input to develop a VC list that reflects the key environmental, socio-economic, heritage, and human health components and interests to appropriately focus the EA.

The initial VCs selected to represent bird SAR in the habitat-based assessment that were provided in the Terms of Reference (Denison 2019) were evaluated, consolidated, and organized to allow for the logical assessment of Project effects, and are presented in Table 1.2 and Table 1.3, which formed the basis for the subsequent VC-specific assessment.

Table 1.2 Wildlife Species at Risk Valued Component and Rationale for their Inclusion in the Habitat-based Environmental Assessment for the Denison Wheeler River Project

Valued Component	Rationale
Biophysical Environment	
<i>Terrestrial Environment</i>	
Furbearers	Project activities and infrastructure may affect local furbearer populations, including species at risk (SAR), resulting in non-compliance with permit conditions (e.g., <i>Species at Risk Act</i> [SARA; Government of Canada 2022], <i>The Wildlife Act 1998</i> [Government of Saskatchewan 2020]).
Woodland Caribou	Project activities and infrastructure may affect woodland caribou populations, resulting in non-compliance with permit conditions (e.g., SARA [Government of Canada 2022], <i>The Wildlife Act, 1998</i> [Government of Saskatchewan 2020]).
Bird Species at Risk	Project activities and infrastructure may affect bird SAR (specifically disturbance and/or destruction of eggs, young, and adults) resulting in non-compliance with regulatory requirements (e.g., SARA [Government of Canada 2022], <i>Migratory Birds Convention Act 1994</i> [Government of Canada 2017], <i>Saskatchewan Activity Restriction Guidelines for</i>

Valued Component	Rationale
	<i>Sensitive Species</i> [Government of Saskatchewan 2017], <i>The Wildlife Act 1998</i> [Government of Saskatchewan 2020]).

Table 1.3 Valued Components, Key Indicators, and Measurable Parameters for the Wildlife Component included in the Habitat-based Environmental Assessment for Denison Wheeler River Project

Valued Component	Key Indicator	Measurable Parameter
Furbearers	Wolverine	Amount of habitat (km ²) (not necessarily occupied) that may be altered or lost relative to its availability in the Regional Study Area (RSA). The number of wolverine mortalities directly or indirectly attributable to the Project.
Woodland Caribou	Woodland caribou	Amount of habitat (km ²) (not necessarily occupied) that may be altered or lost relative to its availability in the RSA. The number of woodland caribou mortalities directly or indirectly attributable to the Project.
Bird Species at Risk	Common Nighthawk	Percentage of habitat for Common Nighthawk altered/lost directly or indirectly as a result of Project activities. The number of Common Nighthawk mortalities directly or indirectly attributable to the Project.
	Rusty Blackbird	Percentage of habitat for Rusty Blackbird altered/lost directly or indirectly as a result of Project activities. The number of rusty blackbird mortalities directly or indirectly attributable to the Project
	Olive-sided Flycatcher	Percentage of habitat for Olive-sided Flycatcher altered/lost directly or indirectly as a result of Project activities. The number of Olive-sided Flycatcher mortalities directly or indirectly attributable to the Project
	Short-eared Owl	Percentage of habitat for Short-eared Owl altered/lost directly or indirectly as a result of Project activities. The number of Short-eared Owl mortalities directly or indirectly attributable to the Project.
	Yellow Rail	Percentage of habitat for Yellow Rail altered/lost directly or indirectly as a result of Project activities. The number of Yellow Rail mortalities directly or indirectly attributable to the Project.

The five bird species identified in Table 1.3 were selected as SAR VCs for the habitat-based EA in consideration of information/responses received during extensive Indigenous and community engagement completed by Denison, and they represent wildlife species of local importance. For these five species, additional information is not be provided in this Appendix. Rather, the reader is referred to the applicable sections in the EIS where appropriate information on existing conditions (Section 9.4.3.3), potential project-related effects (Section 9.4.4), mitigation measures (Section 9.4.5), residual effects and their significance (Section 9.4.6), and cumulative effects (Section 9.4.7) is provided.

2 Supplemental Information

As requested by ECCC, the following subsections provide supplemental information for the remaining nine species listed in Table 2.1 that were not included as VCs or KIs in the EIS. For these nine species, a brief overview of life history requirements (existing environment), a discussion on the effects assessment and mitigation measures, and a summary of residual and cumulative effects are included.

Table 2.1 Wildlife Species At Risk Considered in the Wheeler River Project Environmental Impact Statement

Common Name	Scientific Name	Provincial Status	Federal Status ¹	Preferred Habitat	Documented Occurrence in the Local Study Area ²	Reference in the Environmental Impact Statement (EIS)
Arthropods						
Nine-spotted lady beetle	<i>Coccinella novemnotata</i>	S4	Endangered	Habitat generalist – uses a diverse range of habitats and consumes a variety of prey. See Section 2.1.1 for further details.	Unlikely LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Not included as a Valued Component (VC) in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Transverse lady beetle	<i>Coccinella transversoguttata</i>	S4	Special Concern	Habitat generalist – uses a diverse range of habitats and consumes a variety of prey. See Section 2.1.2 for further details.	Unlikely LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Yellow-banded bumble bee	<i>Bombus terricola</i>	S4	Special Concern	Habitat generalist – uses a variety of habitats and consumes nectar and pollen from many different flowering plants. See Section 2.1.3 for further details.	Unlikely LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Amphibians						
Northern leopard frog	<i>Lithobates pipiens</i>	S3	Special Concern	Three district habitats: (1) overwintering waterbodies that are cold, well oxygenated, and do not freeze to bottom; (2) breeding and larval waterbodies with	LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.

Common Name	Scientific Name	Provincial Status	Federal Status ¹	Preferred Habitat	Documented Occurrence in the Local Study Area ²	Reference in the Environmental Impact Statement (EIS)
				shallow, open habitats, neutral pH, and no fish; and (3) summering areas in shallow marshes, moist upland meadows where grass height is less than 1 m. See Section 2.2.1 for further details.	observations to date. Amphibian nocturnal call and visual search surveys were completed in the LSA and Regional Study Area (RSA) as part of the baseline program; however, only boreal chorus frogs (<i>Pseudacris maculata</i>) were detected (Appendix 9-C).	
Bats						
Little brown myotis	<i>Myotis lucifugus</i>	S4B, S4N	Endangered	Seasonal habitat requirements: (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies. See Section 2.3.1 for further details.	Documented during the acoustic bat surveys as part of the baseline field program as present in the LSA and RSA, and previously observed in the RSA (SKCDC 2023).	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Northern myotis	<i>Myotis septentrionalis</i>	S3	Endangered	Seasonal habitat requirements: (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies. See Section 2.3.2 for further details.	Documented during the acoustic bat surveys as part of the baseline field program as present in the LSA and RSA (Appendix 9-C).	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.

Common Name	Scientific Name	Provincial Status	Federal Status ¹	Preferred Habitat	Documented Occurrence in the Local Study Area ²	Reference in the Environmental Impact Statement (EIS)
Terrestrial Wildlife Species						
Wolverine	<i>Gulo gulo</i>	S2	Special Concern	See Section 9.3.3.2 of the EIS for details.	LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Included as a Key Indicator (KI) of the Furbearer VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Woodland caribou	<i>Rangifer tarandus caribou</i>	S3	Threatened	See Section 9.3.3.3 of the EIS for details.	Documented within the RSA during the baseline field program (Appendix 9-C)	Included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Avian Species						
Bank Swallow	<i>Riparia riparia</i>	S4B, S5M	Threatened	Nesting colonies are typically characterized by steep embankments with a sand, silt, or clay substrate that can be easily excavated for burrows. They are often adjacent to slow-moving or still waterbodies and may occur in natural habitats or in anthropogenic features. Bank Swallows are aerial insectivores that forage over a variety of open habitats. See Section 2.4.1 for further details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Not included as a KI of the Bird Species at Risk (SAR) VC in the EIS (Common Nighthawk was used as a surrogate species). A review of life history requirements and discussion on effects assessment are included in this Appendix. Any new species-specific mitigation measures identified in this appendix will be added to the final EIS (Section 9.4.5).
Barn Swallow	<i>Hirundo rustica</i>	S4B	Threatened	Breeding habitat typically requires a suitable nesting site with a vertical or horizontal surface underneath a roof of	Documented during the breeding bird surveys as part of the baseline field	Not included as a KI of the Bird SAR VC in the EIS (Common Nighthawk was used as a surrogate species). A review of life history

Common Name	Scientific Name	Provincial Status	Federal Status ¹	Preferred Habitat	Documented Occurrence in the Local Study Area ²	Reference in the Environmental Impact Statement (EIS)
				some sort, open areas for foraging, and a waterbody with mud for nest building. Anthropogenic features such as barns, houses, bridges, and culverts are commonly used nesting sites. See Section 2.4.2 for further details.	program as present in the LSA (Appendix 9-C), and previously observed in the RSA (SKCDC 2023)	requirements and discussion on effects assessment are included in this Appendix. Any new species-specific mitigation measures identified in this appendix will be added to the final EIS (Section 9.4.5).
Common Nighthawk	<i>Chordeiles minor</i>	S4B	Special Concern	See Section 9.4.3.3 of the EIS for details.	Documented during the baseline field program as present in the LSA (Appendix 9-C), and previously observed in the RSA (SKCDC 2023)	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Horned Grebe	<i>Podiceps auritus</i>	S5B	Special Concern	Breeding habitat consists of small to medium-sized freshwater lakes, ponds, and marshes that are shallow with open water (at least 40%), emergent vegetation, anchorage for nests, and concealment for nests and young. See Section 2.4.3 for further details.	Documented during the baseline field program as present in the LSA (Appendix 9-C).	Not included as a KI of the Bird SAR VC in the EIS (Yellow Rail was used as a surrogate species). A review of life history requirements and discussion on effects assessment are included in this Appendix. Any new species-specific mitigation measures identified in this appendix will be added to the final EIS (Section 9.4.5)..
Olive-sided Flycatcher	<i>Contopus cooperi</i>	S4B	Special Concern	See Section 9.4.3.3 of the EIS for details.	Documented during the baseline field program as present in the LSA (Appendix 9-C), and previously observed in the RSA (SKCDC 2023)	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.

Common Name	Scientific Name	Provincial Status	Federal Status ¹	Preferred Habitat	Documented Occurrence in the Local Study Area ²	Reference in the Environmental Impact Statement (EIS)
Rusty Blackbird	<i>Euphagus carolinus</i>	S3B, SUN	Special Concern	See Section 9.4.3.3 of the EIS for details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Short-eared Owl	<i>Asio flammeus</i>	S3B, S2N	Special Concern	See Section 9.4.3.3 of the EIS for details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Yellow Rail	<i>Coturnicops noveboracensis</i>	S3B	Special Concern	See Section 9.4.3.3 of the EIS for details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.

Note: shaded rows indicate SAR was included as a VC or KI in the draft EIS

1 Schedule 1 under the *Species at Risk Act*.

2 Potential for Occurrence – based on known species occurrence data from Saskatchewan Conservation Data Centre (2023), Omnia (Appendix 9-C), Birds of Saskatchewan (2019), and Atlas of Saskatchewan Birds (Smith 1996) and/or presence of suitable habitat.

2.1 Arthropods

2.1.1 Nine-Spotted Lady Beetle

The nine-spotted lady beetle is a small beetle species found across southern Canada and the continental United States (COSEWIC 2016a). Its northern range limit in Saskatchewan is reported to occur near Lake Athabasca (COSEWIC 2016a). Based on records provided by the Saskatchewan Conservation Data Centre Hunting, Angling and Biodiversity of Saskatchewan (HABISask) database (SKCDC 2023), there are no historical observations of this species documented in the Regional Study Area (RSA).



Source: COSEWIC (2016a).

The nine-spotted lady beetle is a habitat generalist that uses a diverse range of habitats (e.g., open to semi-open forests, grasslands, riparian areas) and consumes a variety of prey (e.g., many species of arthropods [particularly aphids], sap, nectar and pollen) (COSEWIC 2016a). Being a habitat generalist allows the nine-spotted lady beetle to exploit seasonally available prey sources, with prey availability influencing the species' distribution more than habitat availability (COSEWIC 2016a).

The nine-spotted lady beetle has four life stages (i.e., egg, larva, pupa, and adult) and may produce two generations per year (i.e., spring and fall) depending on regional climate conditions (COSEWIC 2016a). Lady beetles, in general, are highly mobile and may undertake short (few hundred metres) and long-distance (18 to 120 km) movements (COSEWIC 2016a). The nine-spotted lady beetle is not migratory nor does it display strong site fidelity (COSEWIC 2016a). The nine-spotted lady beetle overwinters in aggregations in well-ventilated habitats (e.g., in rock crevices, grass tussocks, or leaf litter, or under stones or tree bark), becoming active in the early spring when temperatures start to increase (COSEWIC 2016a).

The nine-spotted lady beetle is federally listed under Schedule 1 of SARA as Endangered (Government of Canada 2023) and is designated as an S4 species in Saskatchewan (i.e., Apparently Secure) (Saskatchewan Conservation Data Centre 2023). The species has undergone significant population declines in Canada since 1975, going from one of the more common lady beetles collected to being rarely collected relative to other lady beetles, despite comprehensive and targeted surveys (COSEWIC 2016a). Reasons for these population declines are currently unknown but are thought to be driven by competition, predation, and introduced diseases from non-native species (including non-native lady beetles), agricultural pesticide use to control aphids, habitat loss via urban expansion, and other human disturbances (COSEWIC 2016a).

2.1.2 Transverse Lady Beetle

The transverse lady beetle is a small beetle species found across the United States and Canada, including all provinces and territories (COSEWIC 2016b). The species is a habitat generalist and uses similar habitat types and consumes similar prey as the nine-spotted lady beetle, which means it is also able to exploit seasonally available prey sources (COSEWIC 2016b). According to the information from the HABISask database, there are no historical observations of this species documented in the RSA.



Source: COSEWIC (2016b).

The transverse lady beetle has four life stages (i.e., egg, larva, pupa, and adult) and may produce two generations per year (i.e., spring and fall) depending on regional climate conditions (COSEWIC 2016b). Lady beetles in general are highly mobile and may undertake short (few hundred metres) and long-distance (18 to 120 km) movements (COSEWIC 2016b). The transverse lady beetle is not migratory nor does it display strong site fidelity (COSEWIC 2016b). The transverse lady beetle overwinters in aggregations in well-ventilated habitats (e.g., in rock crevices, grass tussocks, or leaf litter, or under stones or tree bark), becoming active in the early spring when temperatures start to increase (COSEWIC 2016b).

The transverse lady beetle is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S4 species in Saskatchewan (i.e., Apparently Secure) (Saskatchewan Conservation Data Centre 2023). The species was once abundant across its range in Canada and was one of the most common lady beetles collected; however, since 1986, the species is now absent, below detection limits, or present in low numbers in many parts of its range (COSEWIC 2016b). The transverse lady beetle has not been detected in Saskatchewan since 2001 (COSEWIC 2016b). Reasons for these population declines are currently unknown but are thought to be driven by the same factors listed for the nine-spotted lady beetle in Section 2.1.1.

2.1.3 Yellow-banded Bumble Bee

The yellow-banded bumble bee is a medium-sized bumble bee species found throughout eastern North America, from eastern British Columbia (BC) to Newfoundland and Labrador and from the northern United States up to the southern portion of the territories (COSEWIC 2015). The species is a habitat generalist (e.g., boreal habitats, mixed woodlands, montane meadows) and consumes nectar and pollen from many different flowering plants (COSEWIC 2015). According to the information from the HABISask database, there are no historical observations of this species documented in the RSA.



Source: COSEWIC (2015).

The yellow-banded bumble bee has four life stages (i.e., egg, larva, pupa, and adult) and produces one generation per year, with mated queens establishing new colonies each year (COSEWIC 2015). After overwintering underground in loose soil or decomposing organic material, the mated queens emerge in the spring and search for potential nest sites, which are typically located underground in existing cavities (e.g., abandoned rodent burrows, rotten logs, openings in dead wood, and grassy hummocks) (COSEWIC 2015). Once a queen has found a suitable nest site, she forages for nectar and pollen and then returns to her nest site to lay eggs, which will develop into her future workers (i.e., unmated daughters that do not typically reproduce) (COSEWIC 2015). After the initial eggs hatch and the larva and pupa develop into adult workers, the workers take over nest and brood care, foraging duties, and colony protection while the queen continues to lay eggs (COSEWIC 2015). Males and potential queens are produced by late summer once the colony reaches maximum worker production, at which point they leave the colony and mate (COSEWIC 2015). All males and workers die by fall while the mated queens hibernate through the winter in suitable overwintering sites (COSEWIC 2015).

The yellow-banded bumble bee is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S4 species in Saskatchewan (i.e., Apparently Secure)

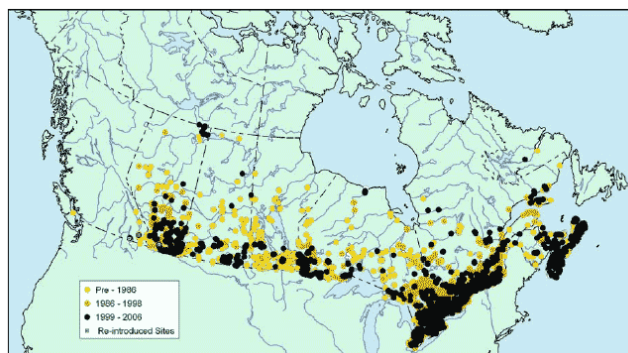
(Saskatchewan Conservation Data Centre 2023). Prior to the 1990s, the yellow-banded bumble bee was one of the more common bumble bees collected in eastern and boreal Canada (COSEWIC 2015, Environment and Climate Change Canada 2022a). Population declines started to occur in the early 1990s, with an average rate of decline of 66.5% in proportional abundance across central and southern Canada between 1992 and 2011 (COSEWIC 2015, Environment and Climate Change Canada 2022a). The species is no longer found at several historical collection sites (COSEWIC 2015).

The status of the yellow-banded bumble bee in boreal habitats and Arctic regions is unknown (COSEWIC 2015, Environment and Climate Change Canada 2022a). Reasons for these population declines are currently unknown but are thought to be driven by introduced diseases from managed bumble bee species, agricultural pesticide use, habitat loss via urban and agricultural expansion, and climate change (COSEWIC 2015). The species' unique type of sex determination, where colonies must reach maximum worker production to produce males and potential queens, has been identified as a limiting factor (COSEWIC 2015, Environment and Climate Change Canada 2022a).

2.2 Amphibians

2.2.1 Northern Leopard Frog

The northern leopard frog is found across most of west-central and northeastern North America (COSEWIC 2009a). The species is widespread in Canada, ranging from southeastern BC to Labrador, and from southcentral Northwest Territories (COSEWIC 2009a, NCC 2023).



Source: COSEWIC (2009a).

Three distinct habitats are used by the northern leopard frog on an annual basis: (1) overwintering waterbodies that are cold, well oxygenated, and do not freeze to bottom (e.g., rivers, streams, deep lake ponds and creeks, and spillways below dams); (2) breeding and larval waterbodies with shallow, open habitats (e.g., ponds, lakeshores, marshes, and slow-moving streams; may be permanent or semi-permanent), neutral pH, well vegetated, and no fish; and (3) summering areas in shallow marshes, moist upland meadows, forests and grasslands where grass height is less than 1 m (COSEWIC 2009a, NCC 2023). These habitats must be in proximity with suitable dispersal corridors interconnecting them (e.g., riparian areas and waterways) as the species is not capable of long-distance movements (COSEWIC 2009a, Environment Canada 2013).

Northern leopard frogs emerge from their overwintering waterbodies in early spring shortly after ice off (COSEWIC 2009a). The breeding season extends from mid-April to June, with exact timing dependent on location and latitude (COSEWIC 2009a). Females lay several thousand eggs, attaching them to submerged vegetation, which develop into tadpoles within two weeks depending on water temperatures (COSEWIC 2009a). The tadpoles in turn develop into small frogs over a two-to-three-month period, after which they migrate to their summering areas and forage on a variety of arthropods, worms, and snails, sometimes preying on small birds and smaller frogs (COSEWIC 2009a).

Three populations are recognized for the northern leopard frog in Canada: the Rocky Mountain, the Western Boreal/Prairie, and the Eastern (COSEWIC 2009a, NCC 2023). The Western Boreal/Prairie population is found in Alberta, Saskatchewan, Manitoba, and the Northwest Territories (COSEWIC 2009a,

NCC 2023). The Western Boreal/Prairie population is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S3 species in Saskatchewan (i.e., Vulnerable) (Saskatchewan Conservation Data Centre 2023).

Population data are limited for the northern leopard frog in Canada (COSEWIC 2009a, Environment Canada 2013). Large-scale population declines occurred in the early 1970s, with populations in western Canada (i.e., BC and Alberta) most dramatically affected (COSEWIC 2009a). Information is lacking on the current status of northern leopard frog populations in Saskatchewan (COSEWIC 2009a, Environment Canada 2013).

Threats to the northern leopard frog include emerging diseases (e.g., *Chytridiomycosis*), introduced non-native species, habitat loss and fragmentation, environmental contamination, and increased frequency and severity of droughts (COSEWIC 2009a). The species' specific habitat requirements and vulnerability to diseases and prolonged periods of drought have been identified as limiting factors (Environment Canada 2013).

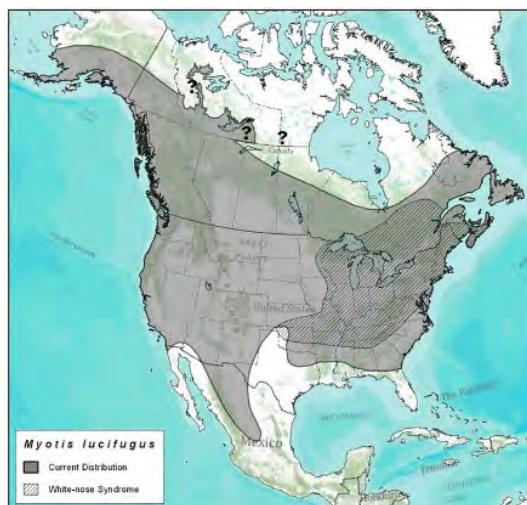
2.3 Bats

2.3.1 Little Brown Myotis

The little brown myotis is a small bat species found across North America, including across Canada south of the treeline (COSEWIC 2013a). The species is considered a short-distance regional migrant between its summer and winter ranges, with the distance travelled dependent on the location of suitable overwintering hibernacula (COSEWIC 2013a).

Habitat for the little brown myotis is composed of (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies (COSEWIC 2013a). Hibernacula and maternity sites are the main limiting habitat features for this species (COSEWIC 2013a). Hibernacula occur in parts of caves, mines, and buildings that have stable and specific temperature (-4 to 13°C) and humidity (>80%) conditions (COSEWIC 2013a). Maternity sites occur in large-diameter trees, rock crevices, buildings, and bat houses that offer warm and relatively stable microclimate conditions that allow females to avoid going into torpor so they can focus on caring for their young (COSEWIC 2013a, Slough and Jung 2020). Males are more versatile in their summer roosting requirements and use tree cavities, raised bark, foliage, rock crevices, buildings, and bridges with a broader range of microclimate conditions (COSEWIC 2013a, Johnson et al. 2019). Foraging areas for the little brown myotis include a variety of habitats situated close to roosting and maternity sites, including over water (e.g., wetlands, lakes, ponds, and rivers), along riparian areas and forest edges, and in forest gaps (COSEWIC 2013a).

The little brown myotis is federally listed under Schedule 1 of SARA as Endangered (Government of Canada 2023) and is designated as an S4B, S4N species in Saskatchewan (i.e., Apparently Secure breeding population, Apparently Secure non-breeding population) (Saskatchewan Conservation Data Centre 2023).



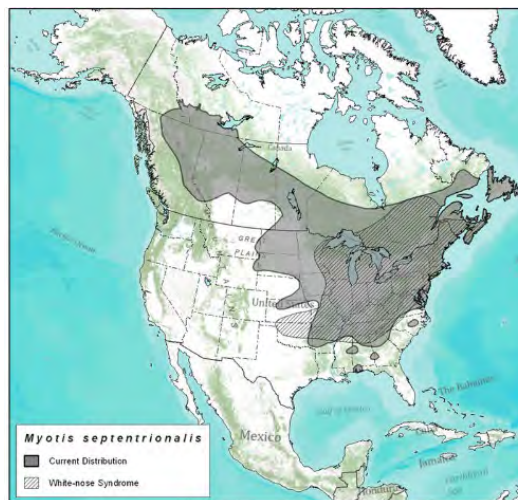
Source: COSEWIC (2013a).

The current size of the little brown myotis population in Canada is unknown. Prior to the arrival of White-nose Syndrome in 2010, the population in Canada was estimated to be over one million individuals (COSEWIC 2013a, Environment and Climate Change Canada 2018). White-nose Syndrome is a disease that causes high rates of mortality among hibernating bats, and it has been identified as the main threat for bat populations in Canada (COSEWIC 2013a). Other threats to the little brown myotis include habitat loss, colony eradication, chemical contamination, and wind turbines (COSEWIC 2013a).

2.3.2 Northern Myotis

The northern myotis is a small bat species found across North America, including across Canada south of the treeline (COSEWIC 2013a). The species is considered a short-distance regional migrant between its summer and winter ranges, with the distance travelled dependent on the location of suitable overwintering hibernacula (COSEWIC 2013a).

Habitat for the northern myotis is composed of (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies (COSEWIC 2013a). Hibernacula and maternity sites are the main limiting habitat features for this species (COSEWIC 2013a). Hibernacula occur in parts of caves, mines, and buildings that have stable and specific temperature (0.6 to 14°C) and humidity (>80%) conditions (COSEWIC 2013a). Summer roosting trees are typically found in mature to old-growth forests, swamps, and riparian areas, although retained older trees and snags in younger forests may occasionally provide suitable roosting habitat (Environment and Climate Change Canada 2018). Females strongly prefer tall, large-diameter trees (both living and dead, typically deciduous) with early- to mid-decay for maternity sites (COSEWIC 2013a, Environment and Climate Change Canada 2018). Anthropogenic features (e.g., barns) may occasionally be used as maternity sites in fragmented landscapes with few potential roost trees (Environment and Climate Change Canada 2018). Maternity sites that maintain warm and relatively stable microclimate conditions are important to reproductive females and young as they allow more energy to be directed toward growth and development (Caceres and Barclay 2000, COSEWIC 2013a). Males are more versatile in their summer roosting requirements; they most frequently roost under exfoliating, raised bark but may also roost in the cavities and crevices of trees and snags with early- to mid-decay (Jung et al. 2004, COSEWIC 2013a).



Source: COSEWIC (2013a).

The northern myotis is well adapted to flying in areas of dense or structurally complex vegetation where it catches flying insects on the wing or feeds by gleaning prey from foliage (Caceres and Barclay 2000, Henderson and Broders 2008). The species typically forages within the interior of mature to old-growth deciduous and mixedwood forests, but may also forage in forest gaps, along forest edges and riparian areas, and over rivers (Henderson and Broders 2008, COSEWIC 2013a).

The northern myotis is federally listed under Schedule 1 of SARA as Endangered (Government of Canada 2023) and is designated as an S3 species in Saskatchewan (i.e., Vulnerable) (Saskatchewan Conservation Data Centre 2023). The current size of the northern myotis population in Canada is unknown. Prior to the arrival of White-nose Syndrome in 2010, the population in Canada was estimated to be over one million individuals (COSEWIC 2013a, Environment and Climate Change Canada 2018). White-nose Syndrome has

been identified as the main threat for northern myotis populations in Canada (COSEWIC 2013a). . Other threats to the northern myotis include habitat loss, colony eradication, chemical contamination, and wind turbines (COSEWIC 2013a)

2.4 Avian Species

2.4.1 Bank Swallow

The Bank Swallow is a small songbird that occurs on every continent (except Antarctica and Australia), breeds throughout Canada, and winters primarily in South America (COSEWIC 2013b). Nesting colonies are typically characterized by steep embankments with a sand, silt, or clay substrate that can be easily excavated for burrows (COSEWIC 2013b, Government of Canada 2019a). These steep sand, silt, or clay embankments are frequently subject to erosion or slumping (COSEWIC 2013b, Garrison and Turner 2020).

Nesting colonies are often adjacent to slow-moving or still waterbodies (e.g., low gradient rivers or lakes) and may occur in natural habitats or in anthropogenic features (e.g., quarries or road cuts) (COSEWIC 2013b, Government of Canada 2019a, Garrison and Turner 2020). Colony size can range from less than half a dozen burrows to hundreds or thousands of burrows (COSEWIC 2013b, Government of Canada 2019a). Individual burrows within colonies may be recolonized in subsequent years if the integrity of the colony remains intact (i.e., does not erode and collapse) (Garrison and Turner 2020). Bank Swallows are aerial insectivores that forage over a variety of open habitats such as lakes, ponds, rivers, wetlands, grasslands, and agricultural areas (COSEWIC 2013b, Garrison and Turner 2020).

The Bank Swallow is federally listed under Schedule 1 of SARA as Threatened (Government of Canada 2023) and is designated as an S4B, S5M species in Saskatchewan (i.e., Apparently Secure breeding population, Secure aggregating transient population [migrants]) (Saskatchewan Conservation Data Centre 2023). The most recent breeding population estimate for Canada is 2.4 million individuals (Environment and Climate Change Canada 2022b). Based on Breeding Bird Survey (BBS) data collected between 1970 and 2019, the Bank Swallow population in Canada has declined at a rate of 5.3% per year, for an overall decline of 98.0% (Environment and Climate Change Canada 2022b). The long-term population decline appears to be driven by several threats acting cumulatively, including loss of nesting and foraging habitats, incidental take during anthropogenic activities (e.g., aggregate extraction and erosion control), large-scale declines in aerial insect populations, and climate change (COSEWIC 2013b). Bank Swallows are also particularly vulnerable to collisions with vehicles partly due to the attraction of individuals to intraspecific carcasses; one swallow hit by a vehicle could attract several individuals to a road, potentially resulting in subsequent collisions and large mortality events (COSEWIC 2013b, Garrison and Turner 2020).

Although colonial nesting may provide advantages (e.g., predation protection and assistance with thermoregulation), it has been identified as a limiting factor for the Bank Swallow, potentially making

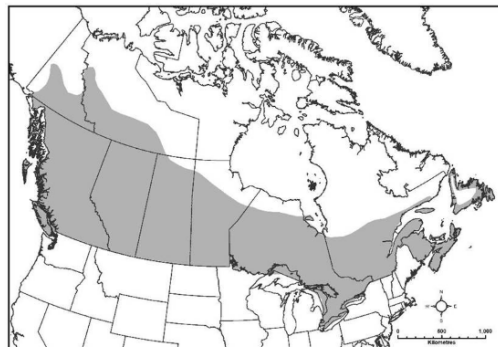


Source: COSEWIC (2013b).

them more vulnerable to natural events or anthropogenic activities, which may result in mass mortality events (Environment and Climate Change Canada 2022b).

2.4.2 Barn Swallow

The Barn Swallow is a medium-sized songbird that occurs on every continent (except Antarctica), breeds throughout Canada, and winters in the southern United States, Mexico, and southwards (COSEWIC 2021). Breeding habitat typically requires a suitable nesting site with a vertical or horizontal surface underneath a roof of some sort, open areas for foraging (e.g., grasslands, fields, wetlands, and shorelines), and a waterbody with mud for nest building (Government of Canada 2019b, Brown and Brown 2020, COSEWIC 2021).



Source: COSEWIC (2021).

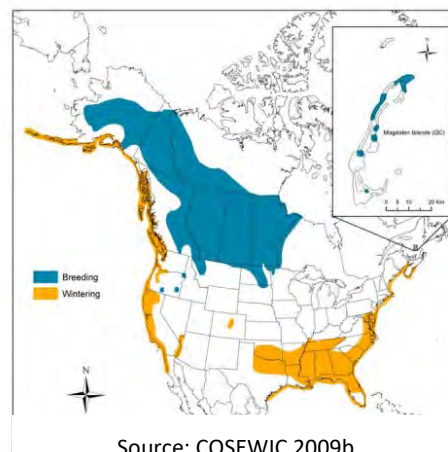
Historically, suitable nesting sites were likely provided by caves, cliff faces, rock ledges, tree branches, and hollow trees (Brown and Brown 2020, COSEWIC 2021). Today, nesting sites are usually located within agricultural and rural areas, and along roads and highways (Brown and Brown 2020, COSEWIC 2021). Anthropogenic features such as barns, houses, bridges, and culverts are commonly used for nesting sites (COSEWIC 2021). Barn Swallows nest in colonies or independently and typically return to the same nesting sites each year and may reuse old nests (Government of Canada 2019b, Brown and Brown 2020, COSEWIC 2021).

The Barn Swallow is federally listed under Schedule 1 of SARA as Threatened (Government of Canada 2023) and is designated as an S4B species in Saskatchewan (i.e., Apparently Secure breeding population) (Saskatchewan Conservation Data Centre 2023). An estimated 6.4 million individuals currently breed in Canada, with over 60% of the population breeding throughout the prairie provinces (COSEWIC 2021). Based on BBS data collected between 1970 and 2019, the Barn Swallow population in Canada has declined at a rate of 2.34% per year, for an overall decline of 68.6% (COSEWIC 2021). Intensification of agriculture, loss of nesting sites, large-scale declines in aerial insect populations, and climate change are cited as the most imminent threats for the Barn Swallow, and its dependence on aerial insects for prey and low post-fledging survival rates are cited as limiting factors for the species (COSEWIC 2021). The repeated use of anthropogenic features for nesting makes Barn Swallows vulnerable to incidental take, especially if the anthropogenic features require routine maintenance. In addition, their frequent use of anthropogenic features for nesting makes Barn Swallows vulnerable to entrapment (e.g., buildings, pipes, vents, other enclosed spaces) as they search for potential locations to build a nest (COSEWIC 2021).

2.4.3 Horned Grebe

The Horned Grebe is a small waterbird that occurs in North America and Eurasia (COSEWIC 2009b). Within North America, the species breeds across western Canada from BC and Yukon across to the Magdalen Islands in Quebec and winters along the Pacific and Atlantic coasts (COSEWIC 2009b).

Breeding habitat for the Horned Grebe consists of small to medium-sized freshwater lakes, ponds, and marshes that are shallow with open water (at least 40%), emergent vegetation,



Source: COSEWIC 2009b

anchorage for nests, and concealment for nests and young (COSEWIC 2009b, Stedman 2020). Horned Grebes use a range of waterbody sizes for breeding, but typically prefer waterbodies between 0.3 and 2.0 ha in size (COSEWIC 2009b). Most pairs are solitary, but loose colonies of up to 20 pairs have been found on larger waterbodies with abundant food resources (COSEWIC 2009b, Stedman 2020). Nests are typically located in shallow water near shore on a floating or emerging mass of vegetation (COSEWIC 2009b). Horned Grebes are diving birds that feed on a variety of aquatic arthropods and fish (COSEWIC 2009b, Stedman 2020).

The Western population of the Horned Grebe is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S5B species in Saskatchewan (i.e., Secure breeding population) (Saskatchewan Conservation Data Centre 2023). An estimated 200,000 to 500,000 individuals occur in the Western population, with most breeding in southern Alberta and Saskatchewan (COSEWIC 2009b, Environment and Climate Change Canada 2022c). Based on BBS data collected between 1970 and 2019, the Western population of the Horned Grebe in Canada has declined at a rate of 1.7% per year, for an overall decline of 57.0% (Environment and Climate Change Canada 2022c). The reasons for this population decline are unknown. Probable threats include permanent habitat loss, temporary loss of habitat during droughts, eutrophication and degradation of habitat due to fertilizers, predator expansion on the prairies, Type E botulism in the Great Lakes, entanglement in commercial fishing gear, climate change and extreme weather, and oil spills on wintering grounds (COSEWIC 2009b).

3 Mitigation Measures

The Project will require the construction, operation, and decommissioning of several components (as described in Section 2 of the EIS). Expected interactions between these Project components and activities and the wildlife VCs and their associated KIs are summarized by Project phase and activity in Tables 9.3-6 and 9.4-5 of the EIS. Based on the timing and nature of interactions identified in Tables 9.3-6 and 9.4-5 of the EIS, the following adverse effects on the wildlife VCs, including SAR, are likely to occur during the lifetime of the Project:

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

These potential effects apply to Wildlife SAR as well. The potential effects are described in Sections 9.3.4.2 and 9.4.4.2 of the EIS for each Project phase as they may affect the wildlife VCs and associated KIs.

Mitigation in this EIS is defined as the elimination, reduction, or control of potential adverse effects of the Project on the environment throughout all Project phases. Project-specific mitigation measures include: Project design; implementation of best management practices; development of management plans; implementation of emergency response programs; and provision of training, education and awareness (Denison 2020). Mitigation measures for each potential effect are described in Sections 9.3.5 and 9.4.5 of the EIS. The following subsections summarize mitigation measures that will be implemented to avoid or minimize adverse effects on the Wildlife SAR.

3.1 Project Design Measures

Potential adverse effects on Raptors, Migratory Breeding Birds, and Bird SAR VCs will be avoided or minimized to the extent practical through Project design. All of the Project design measures listed here are consistent with those presented in Section 9 of the EIS (i.e., there are no new Project design measures proposed in this appendix):

- The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent practicable resulting in reduced habitat disturbance and noise propagation.
- Much of the proposed footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
- The powerline to the main substation at the site is relatively short (i.e., approximately 7 km) and will be constructed from the existing provincial power line adjacent to Highway 914.
- During Operation, progressive reclamation activities will be completed where possible, and the progress and success of these activities will be assessed annually.
- Cleared brush will be stockpiled when possible, to be used in progressive reclamation.
- Ongoing decommissioning of Project components will be completed when possible.
- Dust deposition on vegetation and waterbodies (including potential deposition of trace metals and radionuclides) will be reduced by:
 - directing processing plant exhaust from drying and packaging areas through a stack prior to release outside of the building;
 - designing the stack height based on results of air dispersion modelling to be an appropriate height for optimal dispersion;

- controlling access to the property with both a north and south security gate (the north gate is on a decommissioned road and the south gate is manned);
 - making a wash bay available to clean items, equipment and vehicles that may have been in contact with potentially contaminated materials. Contaminated water from the wash bay will be collected in a sump tank and routed to the water treatment plant for treatment and discharge;
 - conducting radiological clearance scanning as required for any items, equipment, and vehicles leaving the Project Area; and.
 - watering and traffic controls on roads.
- Battery-powered light vehicles and mobile equipment, and an AC powered dual rotary drill for ISR wellfield development instead of a traditional diesel-powered unit, will be employed, where practical, to reduce air emissions and noise levels and improve energy efficiency.
 - The main sources of noise will be related to transport of people and goods, drilling of holes for the freeze wall and wellfield, operation of the batch plant, operation of the processing plant, and operation of the pumphouses. The use of high-quality, low sound emission equipment and regular maintenance will reduce noise associated with Project activities.
 - Bulk storage tanks for processing chemicals such as sulphuric and/or hydrochloric acid, sodium hydroxide, and hydrogen peroxide will sit inside appropriately designed and sized secondary containment basins, physically separated from the containment basins for other chemical systems.
 - Surface pipelines will be designed to have secondary containment or catchment and have leak detection systems in place at key locations.
 - A freeze wall will be established around the uranium deposit to reduce groundwater disturbance.
 - Mining solution and process water will be reused throughout the mining process, reducing water use requirements to the extent feasible and reducing the volume of treated effluent requiring discharge. Make-up water will be preferentially sourced from site runoff where possible.
 - Double-walled, high-density polyethylene or equivalent piping will be used in the wellfields and will be freeze protected and secured to minimize pipe movement.
 - Contaminated wastes (e.g., mineralized drill cuttings, solid impurities removed from mining solution, dewatered reject solids) will be properly contained on a double lined waste pad with leak detection capabilities and an associated monitoring program. An adjacent pond will be used to collect runoff from the pad and water in the waste pond will be piped to the water treatment plant. Such waste will be disposed of either on site or off site at an approved facility.
 - The ISR wellfield and processing plant will be designed to re-use most of the solutions inside each circuit; any excess water will be released to a surface water body once acceptable water quality is achieved. All treated effluent released to surface water will meet federal and provincial regulatory discharge limits.
 - All contaminated areas, such as waste ponds and pads, and the domestic landfill will be fenced to avoid contact with workers and wildlife. Fences will be monitored and maintained.

3.2 General Mitigation Measures for Wildlife Species at Risk

Mitigation measures specific to the Wildlife SAR, in accordance with the *Migratory Birds Convention Act* and tailored to Project features will be incorporated into various Project management and monitoring plans such as the erosion and sediment controls, soil and vegetation monitoring, wildlife monitoring, the Decommissioning Plan, air quality monitoring, Spill Response Plan, Radiation Protection Plan, surface water and effluent monitoring and Waste Management Plan.

The management plans within the Environmental Management System (EMS) will provide specific mitigation measures based on proven and accepted mitigation measures following standard industry guidelines and best management practices. The EMS will provide guidance to avoid or minimize potential adverse effects of the Project on avian species and their habitat, including monitoring and follow-up programs, as appropriate. It will be in place during all phases of the Project and will be subject to ongoing review and revision as required. If monitoring identifies a need for additional or revised mitigation measures, a process of adaptive management (as described in the plan) will be triggered. The Project management plans provide direction on monitoring and adaptive management so that responses are timely and effective.

The following subsections provides a description of the mitigation measures that will be applicable during all Project phases and expected to be effective immediately following implementation. Additional mitigation measures specific to the Wildlife SAR that were not included or that were revised from what was described in the draft EIS are provided in **bold text**.

3.2.1 Work Timing Windows and Habitat Disturbance

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the nesting season, when practical. **The nesting season for many Wildlife SAR in Saskatchewan spans a period from March 15 to August 31; however, the dates differ for certain species. The Wildlife Management Plans within the EMS will provide details on nesting windows for avian species, as well as other sensitive time periods (e.g., caribou calving periods) occurring in the Terrestrial RSA based on the Saskatchewan Activity Restriction Guidelines for Sensitive Species (SARGSS), which were established to support the avoidance of sensitive species' habitats during sensitive periods (SK MOE 2017).**
- Prior to commencing any site clearing (i.e., vegetation clearing and/or soil disturbance) during the nesting and breeding season, pre-disturbance wildlife clearance surveys will be conducted by a Qualified Professional (QP) at that location within the Project Area to identify sensitive species and habitat features (e.g., nests as well as roosts and hibernacula used by bat species).
- Active and/or suspected breeding and roosting locations identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance and species until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations). If guidelines cannot be met, due to safety or operational concerns, SK MOE will be contacted for advice on the appropriate response to the situation.

3.2.2 Wildlife Education and Awareness

- Employees and contractors will be provided with wildlife education and awareness training, including education about potential Wildlife SAR issues on site and training on the mitigation measures to avoid or minimize potential adverse Project effects on Wildlife SAR and their habitats.
- Employees and contractors will be educated on waste management policies that limit human-avian interactions.
- Designated employees will be trained in appropriate avian deterrent techniques to minimize avian interactions with the Project.
- **Employees and contractors will be requested to report avian observations on site, injured or dead birds (which will be reported to SK MOE). Avian encounters and outcomes will be monitored, and logbooks will be used to record observations. Logbooks and reports will be available to employees.**

3.2.3 Wildlife and Habitat Protection

- Personal firearms will be prohibited for employees and contractors within the Project Area to prevent hunting activities.
- If any individual were seeking access around the Project area to undertake Aboriginal and/or Treaty Rights, Denison staff would facilitate this, provided it were safe to do so given activities in the area.
- Policies will be implemented prohibiting employees and contractors from feeding, approaching, or harassing avian species within the Project Area.
- To support habitat regeneration, progressive reclamation and ecosystem-based revegetation will be conducted on disturbed areas as soon as practicable in accordance with the Reclamation and Closure Plan.

3.2.4 Wildlife Deterrence and Prevention of Wildlife Entrapment

- **Buildings and other Project infrastructure will be designed and maintained to exclude birds (e.g., barn swallows) and bats as much as possible. This would include installing solid barriers (e.g., corner slope panels, wooden panels) or flexible barriers (e.g., netting, tarps or geotextiles) under roof eaves or other exterior surfaces.**
- **Physical, visual, and/or auditory deterrents will be used to discourage bird and bat use of buildings and other Project infrastructure (e.g., water or waste treatment ponds) for refuge, shelter, breeding, and roosting, and to deter birds and bats from potentially becoming entrapped.**
- **Noise emitting Project activities will be managed to minimize sensory disturbance of wildlife SAR species, especially during sensitive time periods (i.e., breeding and nesting).**
- Low sound emission equipment, regular maintenance of equipment, and the use of silencers or mufflers (whenever practical) will be used to reduce noise associated with Project activities, to the extent practical.
- **Directed lighting or light shielding, rather than broad lighting, will be implemented to minimize sensory disturbance on the wildlife SAR, and lighting will be focused on work sites and not surrounding areas.**

- Dust generation and subsequent deposition on vegetation and in waterbodies (including potential deposition of trace metals and radionuclides) will be limited through dust suppression techniques such as road watering and traffic management.

3.2.5 Road and Traffic Management

- Traffic and access control measures will be implemented will include reducing traffic volume by scheduling truck convoys, using high-volume haul trucks, and restricting public access to the Project site and roads (e.g., private vehicles, snowmobiles, all-terrain vehicles, and foot traffic). It is important to note that if any individual were seeking access around the Project area to undertake Aboriginal and / or Treaty Rights, Denison staff would facilitate this, provided it were safe to do so given activities in the area.
- Appropriate road signage will be installed (e.g., speed limits) along Project roads to raise awareness and minimize the potential for wildlife SAR-vehicle collisions.
- Wildlife will have the right-of-way on Project roads, unless it is unsafe to stop (i.e., if a collision is imminent). Vehicles will not be used to encourage wildlife to move off Project roads.
- Processes will be implemented for employees and contractors to slow down and/or stop vehicles/equipment to allow animals to move away or off the road before resuming normal road speeds for the area.
- Employees and contractors will report and communicate the location and circumstances of any roadkill observed on or alongside Project roads. Large-bodied wildlife carcasses found will be reported to SK MOE and disposed of as directed to discourage avian scavengers.
- **Vegetation management, such as mowing and brush cutting, will be implemented along Project roads to reduce site attractiveness for wildlife SAR and maintain appropriate sightlines for drivers to minimize wildlife-vehicle collisions.**
- Alternative measures on Project roads for de-icing and winter traction (e.g., sand, gravel) or dust suppression (e.g., water) will be implemented, whenever practicable.
- Appropriately sized gaps in the roadside snowbanks during winter will be maintained to facilitate wildlife crossing and escape thereby reducing the risk of wildlife-vehicle collisions.
- New Project site and access roads will be designed to minimize sightlines for predators, whenever practicable, while still maintaining general road safety.
- Ditches and culverts along Project roads will be designed and maintained to minimize pooling of water. Roadside pools that form may attract wildlife.

3.2.6 Waste and Hazardous Materials Management

- A "no littering policy" for employees and contractors will be implemented within the Project Area.
- **Vegetation management will be incorporated in the vicinity of waste ponds to discourage wildlife SAR use of potentially affected vegetation.**
- Waste will be collected and temporarily stored in wildlife-proof containers to avoid attracting scavengers and with that increase the risk for human-wildlife interact.
- The wildlife-proof containers will be inspected regularly for evidence of avian presence (e.g., gull species) or access to waste disposal facilities. If evidence of avian presence or access to waste disposal facilities is detected, modified systems will be implemented and/or off-site waste disposal frequencies will be increased.
- The use of hazardous materials will be limited as much as possible.

- Hazardous materials will be handled, stored, and disposed of appropriately and in accordance with a Waste Management Plan to avoid attracting avian scavengers (e.g., wildlife-proof containers, exclusion fencing).
- Physical deterrents (e.g., fencing) will be employed around contaminated areas (e.g., waste ponds and waste pads), the domestic landfill, or hazardous materials storage areas to discourage wildlife use.
- Appropriate hazardous materials management practices will be implemented in accordance with industry guidelines and a Waste Management Plan to minimize the risk of accidental spills or leakage.
- Appropriate spill response kits will be positioned adjacent to areas where hazardous materials are stored in accordance with the Spill Response Plan.
- A minimum 100 m distance from any waterbody will be maintained for fuel storage, refueling activities, or equipment servicing in accordance with the Spill Response Plan.
- Appropriate fuel, chemical, and materials management practices will be followed in accordance with the Spill Response Plan to minimize the risk of accidental spills or leakage of diesel fuel, other hydrocarbons, and other hazardous materials.
- Air emissions will be reduced to the extent practical through implementation of an air quality monitoring plan within the EMS.
- All vehicles and equipment will be equipped with industry-standard emission control systems; unnecessary idling of vehicles will be prohibited.
- Vehicles and equipment will be maintained in good working condition (e.g., no leaks) and furnished with industry-standard spill response kits.
- Mitigation measures to reduce the potential for dispersion of radiological contaminants of potential concern to vegetation will be implemented in accordance with the Radiation Protection Plan.
- Education on and enforcement of proper waste and hazardous materials management practices will be provided to employees and contractors.

3.3 Species-Specific Mitigation Measures for Wildlife Species at Risk

The following provides a summary of the species-specific mitigation measures that will be implemented during Project activities. Mitigation measures specific to the Wildlife SAR that were not included or that were revised from what was described in the draft EIS are provided in **bold text**. These will be added to the final EIS.

3.3.1 Arthropod Species

- Mitigation measures designed for the Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5) VCs are expected to mitigate adverse effects on the arthropod species that are considered SAR (i.e., nine-spotted lady beetle, transverse lady beetle, and yellow-banded bumble bee) primarily related to limiting the loss and/or disruption of suitable habitat for these species. These include:
 - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation.

- Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
- During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.
- **Herbicide use as part of vegetation management will be limited to the immediate Project Footprint and applied by licensed professional applicators, when necessary, to limit the potential for adverse effects on arthropod species.**

3.3.2 Amphibian Species

- Mitigation measures designed for the Wetlands VC (Section 9.2.5) are expected to mitigate adverse effects on the northern leopard frog primarily related to limiting the loss and/or disruption of suitable habitat for these species. These include:
 - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation.
 - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
 - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.
- **Pre- disturbance wildlife clearance surveys will be conducted to identify site-specific habitat features (e.g., amphibian breeding ponds) and implement the setbacks and/or timing windows (that will be defined in the Wildlife Management Plan).**
- **Locations of site-specific habitat features used by amphibians will be communicated to Project personnel and the requirement to limit disturbance in these areas will be implemented.**
- **Appropriate setback and buffer distances from wetland features where amphibians are known to occur will be implemented and maintained under the direction of a wildlife QP.**
- **Vehicle traffic and construction activities will be restricted to the approved access routes and work areas and will not cross or enter a watercourse or wetland.**

3.3.3 Bat Species

- Vegetation clearing activities will occur outside of roosting periods, when practical.
- **Pre- disturbance wildlife clearance surveys will be completed to identify site-specific habitat features such as maternal roosting sites and hibernacula used by bat species. If features are identified in the Project Footprint, appropriate setbacks and/or timing windows will be implemented in accordance with the SARGSS (SK MOE 2017 (that will also be defined in the Wildlife Management Plan).**
- **In the event a maternal roosting site is identified on the Project Footprint, exclusionary methods (e.g., installing a one-way bat exit) will be implemented following the summer maternity roost season. This installation would allow for bats to leave but not the ability to re-enter the roosting site.**

- Locations of these site-specific habitat features used by bats will be communicated to the appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.
- Specific exclusion methods will be added as mitigation measures (Section 9.4.5 of the final EIS) to prevent access to buildings and other infrastructure.

3.3.4 Avian Species

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the nesting season, when practical. The breeding and nesting season for most avian species in Saskatchewan typically spans a period from March 15 to August 31; however, the dates differ for certain species.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of avian SAR and/or their nests.
- Active and/or suspected breeding and roosting locations identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) for other grebe species (as there is currently no activity restriction guidelines for horned grebe in Saskatchewan) in accordance with the level of the disturbance and species until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).
- Locations of nesting sites used by bank swallows, barn swallows, and horned grebe will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.
- Deterrents designed to discourage or prevent barn swallows from using buildings and other Project infrastructure have been described in Section 3.2.4 of the EIS.
- Buildings and other Project infrastructure will be designed and maintained to exclude birds (e.g., barn swallows) and bats as much as practical. This would include installing solid barriers (e.g., corner slope panels, wooden panels) or flexible barriers (e.g., netting, tarps or geotextiles) under roof eaves or other exterior surfaces.

4 Residual and Cumulative Effects Summary

The approach to assessing residual Project effects on wildlife VCs followed the methodology outlined in Section 5.8 of the EIS, which included a habitat-based approach. For each VC and associated KI, each residual effect was assessed in the context of the Project activities that will occur within each Project phase. Each residual effect was then characterized based on the combined predicted residual effect for all phases. See Sections 9.3.6 and 9.4.6 of the EIS for specific details regarding the residual effects assessment for wildlife VCs (i.e., residual effect characterization and significance determination). A summary of the environmental assessment considerations and determination for predicted residual effects for Wildlife SAR is provided in Table 4.1. Mitigation measures specific to the Wildlife SAR that were not included or that were revised from what was described in the draft EIS are provided in bold text. These will be added to the final EIS.

The cumulative effects assessment (CEA) followed standard methodology as per provincial (e.g., Guidelines for an Environmental Assessment under the [Saskatchewan] *Environmental Assessment Act* 1980) and federal (e.g., Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act 2012*) guidance, and is discussed in detail in Section 5.9 of the EIS. Similar to the residual effects assessment, the CEA included a habitat-based approach. See Sections 9.3.7 and 9.4.7 of the EIS for specific details regarding the CEA for wildlife VCs. A summary of the significance determination of the cumulative effects on Wildlife SAR is provided in Table 4.2.

Table 4.1 Summary of the Environmental Assessment Considerations and Determination for Predicted Residual Effects for Wildlife Species At Risk

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
Terrestrial Environment	Nine-spotted lady beetle Transverse lady beetle Yellow-banded bumble bee	Amount of habitat that is altered or lost relative to its availability in the Terrestrial Regional Study Area (RSA).	<ul style="list-style-type: none"> Development of access roads and air strip. Site preparation and earthworks; clearing, levelling, and grading of the Project Area. Waste management (composting, domestic and industrial landfill operation, recycling). Water management (including treatment). Surface water withdrawal. On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Construction	<ul style="list-style-type: none"> The proposed mitigation measures outlined in the EIS, particularly those designed for the Valued Components (VCs) Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5), adequately and appropriately address potential for adverse effects on these species, primarily related to limiting the loss and/or disruption of suitable habitat. These include the following: <ul style="list-style-type: none"> The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation. Much of the proposed Project Footprint will be developed within previously disturbed areas, including 	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, and fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for the arthropod SAR within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			<ul style="list-style-type: none"> Water withdrawal from groundwater or surface water body. Management of surface water (including seepage and site runoff). Water release to groundwater and/or surface water body. On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Operation			

¹ Mitigation measures specific to the Wildlife SAR that were not included or that were revised from what was described in the draft EIS are provided in bold text.

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
			<ul style="list-style-type: none">• Site water management, treatment, and release• Process water treatment and release.• Demolition and disposal of non-salvageable surface infrastructure and materials.• On-site and off-site operation of vehicles and transport of materials.• Reclamation of disturbed areas.	Decommissioning	<p>roads currently used for exploration activities, thereby minimizing additional habitat disturbance.</p> <p>- During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.</p>		
		Mortalities directly or indirectly attributable to the Project.	<ul style="list-style-type: none">• Development of access roads and air strip.• Site preparation and earthworks; clearing, levelling, and grading of the Project Area.• On-site and off-site operation of vehicles and transport of materials.• Air transportation for workers.	Construction	<ul style="list-style-type: none">• Herbicide use as part of vegetation management will be limited to the immediate Project Footprint applied by licensed professional applicators when necessary to limit the potential for adverse effects on arthropod species.	Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of the arthropod SAR to the point where they are not sustainable or available to contribute to ecological functions.
			<ul style="list-style-type: none">• On-site and off-site operation of vehicles and transport of materials.• Air transportation for workers.	Operation			
			<ul style="list-style-type: none">• Demolition and disposal of non-salvageable surface infrastructure and materials.• On-site and off-site operation of vehicles and transport of materials.• Reclamation of disturbed areas.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
Terrestrial Environment	Northern leopard frog	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	<ul style="list-style-type: none"> Development of access roads and air strip. Site preparation and earthworks; clearing, leveling and grading of the Project Area. Water management (including treatment and site runoff). Surface water withdrawal. On-site and off-site operation of vehicles and transport of materials. 	Construction	<ul style="list-style-type: none"> The proposed mitigation measures outlined in the EIS, particularly those designed for the Wetlands VC (Section 9.2.5), adequately and appropriately address potential adverse effects on northern leopard frogs, primarily related to limiting the loss and/or disruption of suitable habitat for this species. These include the following: <ul style="list-style-type: none"> The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation. Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance. 	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for northern leopard frog within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			<ul style="list-style-type: none"> Water withdrawal from groundwater or surface water body. Management of surface water (including seepage and site runoff). Water release to surface water body. On-site and off-site operation of vehicles and transport of materials. 	Operation			
			<ul style="list-style-type: none"> Site water management, treatment, and release. Process water treatment and release. Demolition and disposal of non-salvageable surface infrastructure and materials. On-site and off-site operation of vehicles and transport of materials. Reclamation of disturbed areas. 	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
		Mortalities directly or indirectly attributable to the Project.	<ul style="list-style-type: none"> Development of access roads and air strip. Site preparation and earthworks; clearing, leveling and grading of the Project Area. On-site and off-site operation of vehicles and transport of materials. 	Construction	<ul style="list-style-type: none"> - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually. 	Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of northern leopard frog to the point where they are not sustainable or available to contribute to ecological functions
			<ul style="list-style-type: none"> Water withdrawal from groundwater or surface water body. Management of surface water (including seepage and site runoff). Water release to surface water body. On-site and off-site operation of vehicles and transport of materials 	Operation	<ul style="list-style-type: none"> • Pre- disturbance wildlife clearance surveys will be conducted to identify site-specific habitat features (e.g., amphibian breeding ponds) and implement the setbacks and/or timing windows (that will be defined in the Wildlife Management Plan). 		
			<ul style="list-style-type: none"> Site water management, treatment, and release. Demolition and disposal of non-salvageable surface infrastructure and materials. Reclamation of disturbed areas). On-site and off-site operation of vehicles and transport of materials. 	Decommissioning	<ul style="list-style-type: none"> • Locations of site-specific habitat features used by amphibians will be communicated to Project personnel and the requirement to limit disturbance in these areas will be implemented. • Appropriate setback and buffer distances from wetland features where amphibians are known to occur will be implemented and maintained under the direction of a wildlife QP. 		

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
					<ul style="list-style-type: none"> Vehicle traffic and construction activities will be restricted to the approved access routes and work areas and will not cross or enter a watercourse or wetland. 		
Terrestrial Environment	Little brown myotis Northern myotis	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	<ul style="list-style-type: none"> Development of access roads and air strip. Site preparation and earthworks; clearing, leveling and grading of the Project Area. On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Construction	<ul style="list-style-type: none"> Vegetation clearing activities will occur outside of roosting periods, when practical. Pre- disturbance wildlife clearance surveys will be completed to identify site-specific habitat features such as maternal roosting sites and hibernacula used by bat species. If features are identified in the Project Footprint, appropriate setbacks and/or timing windows will be implemented in accordance with the SARGSS (SK MOE 2017 (that will also be defined in the Wildlife Management Plan). In the event a maternal roosting site is identified on the Project Footprint, exclusionary methods (e.g., installing a one-way bat 	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for bat species within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			<ul style="list-style-type: none"> On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Operation			
			<ul style="list-style-type: none"> Demolition and disposal of non-salvageable surface infrastructure and materials. On-site and off-site operation of vehicles and transport of materials. Reclamation of disturbed areas. 	Decommissioning			
		Mortalities directly or indirectly	<ul style="list-style-type: none"> Development of access roads and air strip. 	Construction		Change in mortality: predicted to be low	The predicted residual effect of

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
		attributable to the Project.	<ul style="list-style-type: none"> Site preparation and earthworks; clearing, leveling and grading of the Project Area. On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 		<p>exit) will be implemented following the summer maternity roost season. This installation would allow for bats to leave but not the ability to re-enter the roosting site.</p> <ul style="list-style-type: none"> Locations of these site-specific habitat features used by bats will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented. Specific exclusion methods will be added as mitigation measures (Section 9.4.5 of the final EIS) to prevent access to buildings and other infrastructure. 	magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	change in mortality is not expected to alter the integrity of the regional populations of the bat species to the point where they are not sustainable or available to contribute to ecological functions
			<ul style="list-style-type: none"> On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Operation			
			<ul style="list-style-type: none"> Demolition and disposal of non-salvageable surface infrastructure and materials. On-site and off-site operation of vehicles and transport of materials. Reclamation of disturbed areas. 	Decommissioning			
Terrestrial Environment	Bank Swallow Barn Swallow Common Nighthawk Horned Grebe Olive-sided Flycatcher Rusty Blackbird	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	<ul style="list-style-type: none"> Development of access roads and air strip. Site preparation an earthworks; clearing, leveling and grading of the Project Area. Water management (including treatment and site runoff). Surface water withdrawal. On-site and off-site operation of vehicles and transport of materials. 	Construction	<ul style="list-style-type: none"> Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the nesting season, when practical. The breeding and nesting season for most avian species in Saskatchewan typically spans a period from March 15 to 	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for the avian SAR within the Terrestrial RSA to the

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
	Short-eared Owl Yellow Rail		<ul style="list-style-type: none"> Air transportation for workers. 		August 31; however, the dates differ for certain species.		point where it is not sustainable or available to contribute to ecological functions.
			<ul style="list-style-type: none"> Management of surface water (including seepage and site runoff). Water release to surface water body. On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Operation	<ul style="list-style-type: none"> In the event Project activities such as vegetation clearing and/or soil disturbance are required during the breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of avian SAR and/or their nests. 		
			<ul style="list-style-type: none"> Site water management, treatment, and release. Process water treatment and release. Demolition and disposal of non-salvageable surface infrastructure and materials. On-site and off-site operation of vehicles and transport of materials. Reclamation of disturbed areas. 	Decommissioning	<ul style="list-style-type: none"> Active and/or suspected breeding and roosting locations identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) for other grebe species (as there is currently no activity restriction guidelines for horned grebe in Saskatchewan) in accordance with the level of the disturbance 		
		Mortalities directly or indirectly attributable to the Project.	<ul style="list-style-type: none"> Development of access roads and air strip. Site preparation an earthworks; clearing, leveling and grading of the Project Area. On-site and off-site operation of vehicles and transport of materials. Air transportation for workers. 	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of the avian SAR to the point where they are not sustainable or available to
			<ul style="list-style-type: none"> On-site and off-site operation of vehicles and transport of materials. 	Operation			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
			<ul style="list-style-type: none">Air transportation for workers.Demolition and disposal of non-salvageable surface infrastructure and materials.On-site and off-site operation of vehicles and transport of materials.Reclamation of disturbed areas.	Decommissioning	<p>and species until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).</p> <ul style="list-style-type: none">Locations of nesting sites used by bank swallows, barn swallows, and horned grebe will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.Deterrents designed to discourage or prevent barn swallows from using buildings and other Project infrastructure have been previously described in Section 3.2.4 of the EIS.Buildings and other Project infrastructure will be designed and maintained to exclude birds (e.g., barn swallows) and bats as much as practical. This would include installing solid barriers (e.g., corner slope panels, wooden panels) or flexible		contribute to ecological functions.

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures ¹	Predicted Residual Effect	Significance
					<div>barriers (e.g., netting, tarps or geotextiles) under roof eaves or other exterior surfaces</div> <ul style="list-style-type: none">Minimize height of salvaged soil stockpiles and avoid vertical slopes to deter bank swallows from creating nesting cavities.		

Table 4.2 Summary of Significance of the Cumulative Effects on Wildlife Species At Risk

Component	Valued Component	Key Indicator	Cumulative Effects	Summary of Significance of the Cumulative Effects
Terrestrial Environment	Wildlife Species at Risk	<ul style="list-style-type: none">Nine-spotted lady beetleTransverse lady beetleYellow-banded bumble beeNorthern leopard frogLittle brown myotisNorthern myotisBank SwallowBarn Swallow	Alteration and/or loss of habitat.	Not significant: The cumulative effect of alteration and/or loss of habitat is not expected to alter the integrity of the Wildlife Species at Risk habitat within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
		<ul style="list-style-type: none">Common NighthawkHorned GrebeOlive-sided FlycatcherRusty BlackbirdShort-eared OwlYellow Rail	Change in mortality.	Not significant: The cumulative effect of change in mortality is not expected to alter the integrity of the regional populations to the point where they are not sustainable or available to contribute to ecological functions.

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From: [Carolanne Inglis-McQuay](#)
To: [Brent Laroque](#)
Cc: [Janna Switzer](#)
Subject: Denison Response to Métis Nation - Saskatchewan Comments on draft Environmental Impact Statement for the Wheeler River Project
Date: Friday, December 1, 2023 1:33:00 PM
Attachments: [20231201-DEN_MNS-ResponseEISComments_All.pdf](#)
Importance: High

Dear Brent:

On behalf of Janna Switzer, please find attached correspondence related to the Métis Nation - Saskatchewan Comments on draft Environmental Impact Statement for the Wheeler River Project.

Sincerely,
Carolanne Inglis-McQuay

Carolanne Inglis-McQuay
Director, Corporate Social Responsibility

t: 306-652-8200 x 128 | f: 306-652-8202
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December 1, 2023

Brent Laroque
Director of Environment
Métis Nation – Saskatchewan
310-20th Street East
Saskatoon, SK S7K 0A7

Sent via email: [REDACTED]

Dear Brent:

On March 4, 2023 Denison received a copy of the comments made by the Métis Nation – Saskatchewan (“MN-S”) on the Wheeler River Project (“the Project”) draft Environmental Impact Statement (“EIS”). Since receipt of those comments, Denison and the MN-S have generally discussed our mutual interest in establishing a co-designed process whereby Denison could respond to the comments made in a manner deemed appropriate to the MN-S. To date, we have been unable to conclude such a process. We remain committed to working with the MN-S on this important endeavour. In the meantime, however, we see value in the MN-S having clear responses to the issues by Denison to the issues and concerns raised in relation to the draft EIS and the Project, and as such, Denison has taken the initiative to provide a comprehensive response to comments made by the MN-S (see attached). Please note, the format for our responses is set out in table form, following the manner in which the CNSC provided Denison with the complete suite of public comments made on the EIS. We remain committed to continuing our discussions regarding a process in relation to the resolution of the issues and concerns raised regarding the Project.

Further, on October 24, 2023, Denison received a draft copy of the Métis Knowledge Study (“MKS”) by email, and understood that the report had not yet been reviewed with the community but no significant changes were expected for finalization. Since receipt of that email, Denison has contacted you multiple times, with the objective being to confirm the next steps with the information contained within the MKS, and in relation to the EIS for the Project. As we have not yet been able to connect on this matter, I can advise you that, consistent with Denison’s commitment made to the MN-S, we will update the final EIS with applicable information pertaining to the effects assessment from the MKS. I would like to note, as well, that Denison is committed to paying for the MKS, consistent with the provisions set out in the Capacity Funding Agreement between Denison and the MN-S, of October 22, 2022. As we’ve previously requested, please forward appropriate documentation to us as soon as possible, in order to ensure timely remuneration.

We trust the attached information will provide clear responses to the issues identified by the MN-S, and demonstrate that the Project, as proposed and assessed, is a sustainable mining project. We look forward to hearing from you regarding the materials attached, the next steps for engagement with the MN-S, and in relation to the MKS – including payment required to the MN-S for the work completed to date.

Sincerely,

A handwritten signature in black ink, appearing to read 'Janna Switzer', with a stylized, flowing script.

Janna Switzer
Director, HSE Regulatory Compliance

Attach: Table: Denison Responses to MN-S draft EIS Comments
IR-10
IR-20, IR-67, IR-69
Conceptual Caribou Mitigation Plan
IR-137

Denison's Responses to Comments from MN-S on the Wheeler River Project draft EIS

Denison Response – December 01, 2023

Denison's Responses to Comment from Métis Nation-Saskatchewan (March 4, 2023) for the Wheeler River Project Environmental Impact Statement

Ref. No.	Source	Reference to EIS, appendix, or supporting documentation	Comment Summary (all original submissions can be found on Canadian Impact Assessment Registry reference: 80171)	Denison Response
439	Métis Nation-Saskatchewan (MN-S) (March 4, 2023)	Executive Summary, Section 2 Project Overview EIS, Section 4.3.4.1 Engagement with Indigenous Organizations	<p>Issue #ES-001: To date, Denison's engagement approach has not been collaborative. Denison has not engaged all potentially impacted Métis communities. Denison has focused engagement efforts on Métis communities in NR3.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to engage all potentially impacted Métis communities. Specifically, to see Denison equally engage NR1 Locals and NR3 Locals in addition to Kineepik Métis Local #9 throughout the life of the Project. Denison needs to include MN-S, NR1 Locals, and NR3 Locals under Indigenous Communities of Interest Denison needs to engage MN-S, NR1 Locals, and NR3 Locals on Project information, Project-related employment, procurement, and cultural opportunities, engagement expectations (e.g., involvement of youth and Elders), and approach for gathering and incorporating Métis Knowledge into Project reports, plans, and processes. 	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>
440	MN-S (March 4, 2023)	Executive Summary, Section 3 Project Setting Executive Summary, Section 3.4.3 Proposed Schedule and Activities Executive Summary,	<p>Issue #ES-002: Denison does not acknowledge that the Project falls within the MN-S Homeland.</p> <p>Issue #ES-013: MN-S is listed under Indigenous Organizations instead of Indigenous Communities of Interest.</p> <p>Issue #ES-012, ES-005 and 4-001: Per Denison's definition, MN-S, NR1 Locals, and NR3 Locals should be considered an Indigenous Community of Interest. Denison notes site visits as the only engagement-associated activities in each Project</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.</p> <p>Denison will update the executive summary to acknowledge that the Project falls within the MN-S Homeland, including the unique situation that the MN-S have in the area.</p>

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		Section 4 General EIS, Glossary	<p>Phase. Additional involvement opportunities should be provided to MN-S throughout the life of the Project.</p> <p>Further, MN-S refers to CNSC correspondence (Appendix A) indicating that consultation and engagement was expected to be with NR1 Locals, NR2 Locals, NR3 Locals, and MN-S. Given NR2's involvement in NexGen and Fission, MN-S limited its engagement and consultation expectations to NR1 Locals, NR3 Locals, and itself.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> • Denison needs to engage all potentially impacted Métis, including MN-S, NR1 Locals, and NR3 Locals, in addition to Kineepik Métis Local #9, as an Indigenous Community of Interest throughout the life of the Project. • Denison needs to revise their Indigenous Community of Interest definition in the Final EIS to reflect the uniqueness of Métis governance structures. Specifically, a definition that recognizes Métis Locals proximate to the Project, MN-S, and MN-S regional leadership. • Denison needs to engage MN-S, NR1 Locals, and NR3 Locals, to understand their preferred level of involvement throughout the life of the Project. • Denison needs to acknowledge MN-S, NR1 Locals, and NR3 Locals as an Indigenous Community of Interest in the Final EIS. • Denison needs to revise the Final EIS Executive Summary to note that the Project falls within the Homeland of MN-S, NR1 Locals, and NR3 Locals. Denison needs to apply this change throughout the EIS, where applicable. 	<p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>

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			<ul style="list-style-type: none"> Denison to acknowledge that lease review data is not an appropriate way to determine Métis traditional resource use in and around the Project in the Final EIS. <p>[Additional questions on this topic directed to regulators or government entities are included in the CNSC table]</p>	
441	MN-S (March 4, 2023)	Executive Summary, Section 3.4.2.4 Waste Management	<p>Issue #ES-004: Denison's EIS does not outline where hazardous waste will be taken for proper recycling or disposal.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to share where hazardous waste will be taken for proper recycling and disposal with MN-S, NR1 Locals, and NR3 Locals 	<p>Waste management is described in Section 2.2.4 of the Draft EIS and includes discussion of all waste types that will be generated by Project-related activities. The following is noted in Section 2.2.4 for reference, "Conventional waste, radiologically contaminated waste, and hazardous waste will be managed at the Project. Denison is committed to conducting stringent waste characterization throughout the life of the Project. This includes physical, radiological, and chemical characterization to maintain accurate waste inventories and determine how wastes will be dispositioned through either re-use, recycling, temporary storage, or permanent disposal (on or off site). This includes clearance of material that meets unconditional release requirements and can be safely removed from site.</p> <p>A waste management program will be developed for the Project to support licensing and permitting. The waste management program and associated plans developed to support licensing will be based on the 4 R's: Reduce, Reuse, Recycle, and Recover, and will detail how each type of waste generated on site will be managed. Resources used to develop the waste management program will include, but are not limited to, the CNSC's REGDOC-2.11 series, related Canadian Standards Association (CSA) standards, and the Hazardous Substances and Waste Dangerous Goods Regulations (Government of Saskatchewan 2000)."</p> <p>Hazardous waste management in particular discussed in Section 2.2.4.4. of the Draft EIS where the following is noted, "Denison identified a need to have a small (250 m2) pad designated for temporary storage of hazardous waste such as paints, solvents, hydrocarbons, and used oil. The temporary storage pad will have a composite liner system (Figure 2.2 24). Hazardous wastes will be taken off site by waste management service providers for proper recycling as soon as practical."</p> <p>As referenced in the Draft EIS, the specific details related to hazardous waste management will be documented as part of the overall, waste management program that will be developed as the Project advances from the environmental assessment process into licensing and permitting. Hazardous wastes will be managed consistent with regulatory requirements, using licensed third-party waste management/hauling</p>

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				providers and licensed waste management facilities. Denison will inform the MN-S and relevant locals when such documentation has been prepared through engagement mechanisms in place at that time.
442	MN-S (March 4, 2023)	Executive Summary, Section 3.4.8 Indigenous Knowledge	<p>Issue #ES-003 and ES-007: Denison did not engage MN-S on potential Project-related effects to Métis traditional use activities (such as but not limited to hunting, trapping, and fishing) and therefore may not be aware of potential traditional use activities conducted by Métis peoples in and around the Project. Denison's reliance on reviewing traditional resource user leases is not an appropriate way to determine Métis traditional resource use in and around the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to incorporate Métis Knowledge from the Métis Knowledge Study (MKS) into their discipline-specific effects assessment, the Final EIS, and all monitoring plans for the Project, where applicable. ☐ Denison needs to engage MN-S, NR1 Locals, and NR3 Locals to determine the appropriate funding, process, and timeline to conduct the MKS. 	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>
443	MN-S (March 4, 2023)	Executive Summary, Section 4.1 Introduction	<p>Issue #ES-009: MN-S has not had an opportunity to review Denison's engagement plan.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to share all engagement plans and reports of interest to MN-S, NR1 Locals, and NR3 Locals for review and comment. 	<p>Since being advised by the MN-S in October 2019 that a number of Métis Locals had delegated to the MN-S the Duty to Consult for the Project, Denison has been engaged in extensive ongoing discussions with the MN-S with the goal of reaching agreement regarding the EA process and MN-S' participation in it. Denison continues to engage with the MN-S at their direction and there is no formal engagement plan, as such Denison does not feel there is a need for MN-S to review an engagement plan as continued engagement is informed by and at the direction of the MN-S in an ongoing manner.</p> <p>The parties have specifically agreed to a Capacity Funding Agreement between each other that will be funded by Denison and undertaken on behalf of the MN-S in connection with the EA of the Project: a Métis Knowledge Study, meetings to focus on</p>

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				VCs and preliminary effects, and regular meetings and associated costs for hosting such meetings.
444	MN-S (March 4, 2023)	Executive Summary, Section 4.1 Introduction Executive Summary, Section 4.2 Engagement Approach EIS, Section 2.2.1 Mining EIS, Section 4.3.1 Engagement with Identified Indigenous Communities and Organizations, and Supporting Criteria EIS, Section 4.3.2.1.3 Key Engagement Activities EIS, Section 4.3.4 Engagement with Indigenous Organizations	<p>Issue #ES-008 and ES-010: Denison has not engaged all potentially impacted Métis communities.</p> <p>Issue #4-006: Métis communities in NR1 and NR3 meet multiple evaluation criteria identified by Denison. Denison's engagement to date has not included Métis communities in NR1. Denison's explanation related to the selection of Indigenous groups to be engaged on the Project is unsatisfactory.</p> <p>Issue #4-007: The Project is located within Métis NR1 in Saskatchewan. However, several key Métis communities with whom Denison is engaging are located in Métis NR3. Denison's explanation related to the selection of Indigenous groups to be engaged on the Project is unsatisfactory. The MN-S website states that "consultations must be with the Métis government structures that are elected and supported by the Métis people." (MN-S n.d.c.)". Denison has not engaged with Métis communities outside of NR3.</p> <p>Issue #ES-011: Denison's engagement to date has largely been with Métis communities in NR3. Particularly, the Kineepik Métis Local #9 community. There are only two entries related to engagement with Métis communities (with exclusion to Kineepik Métis Local #9) in Appendix 2A: Section 2 – Engagement Database Summary Table – Project Description.</p> <p>Kineepik Métis Local #9. This record demonstrates little engagement was conducted with Métis communities in NR1 and NR3.</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>

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			<p>Issue #2-001 and 4-008: Denison has not had meetings to introduce the Project, share information on Project alternatives and options, VCs, the ISR mining method and proposed freezing method, or any other topics of interest to the MN-S and Métis communities in NR1. These communities also did not receive a VC survey to identify VCs of importance to Citizens and/or other interests and concerns related to the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to engage all potentially impacted Métis communities. Specifically, to equally engage all NR1 and NR3 communities, in addition to Kineepik Métis Local #9 throughout the life of the Project. Denison needs to include MN-S, NR1 Locals, and NR3 Locals under Indigenous Communities of Interest. ☐ To facilitate a collaborative approach to engagement, Denison needs to engage MN-S, NR1 Locals, and NR3 Locals on Project information, Project-related employment/procurement/cultural opportunities, engagement expectations (e.g., involvement of youth and Elders), and approach for gathering and incorporating Métis Knowledge into Project reports, plans, and processes. 	
445	MN-S (March 4, 2023)	Executive Summary, Section 5 General	<p>Issue #ES-014: Denison did not engage MN-S on potential Project-related effects to Métis traditional use activities such as (but not limited to): hunting, trapping, and fishing. No Métis Knowledge was used to inform the Project's spatial boundaries.</p> <p>Issues #ES-015 to ES-24: Denison has not engaged MN-S to understand Métis knowledge to inform the development of the Project's environmental</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement,</p>

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			<p>monitoring and management plans (e.g., Caribou Management Plan). This applies to monitoring air emissions, noise monitoring, geology, groundwater quantity and quality, surface water quality, sediment quality, fish and fish habitat and human health. Information to be gathered during the Métis Knowledge Study will contribute to the development of these plans.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to incorporate Métis Knowledge from the MKS into their discipline-specific effects assessment, the Final EIS, and all monitoring and management plans for the Project, where applicable. Denison needs to engage MN-S to determine the appropriate funding, process, and timeline to conduct the MKS. MN-S would like the opportunity to review applicable Project management documents that provide information that is relative to the potential impacts of the Project on traditional land use activities, these include, but are not limited to the following: Preliminary Decommissioning Plan, Status of the Environment reports, Environmental Effects Monitoring reports, annual reports, updated environmental risk assessments and the Final Decommissioning. Denison needs to provide plain language summaries, posters/handouts, and presentations on monitoring and effects management plans and programs to MN-S, NR1 Locals, and NR3 Locals. Denison needs to share all engagement plans and reports of interest to MN-S, NR1 Locals, and NR3 Locals for review and comment. 	<p>Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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			<ul style="list-style-type: none"> Denison needs to engage MN-S, NR1 Locals, and NR3 Locals to better understand how they would like to be informed of monitoring results (e.g., 1-page plain language summaries, annual monitoring report, community meetings etc.). 	
446	MN-S (March 4, 2023)	Executive Summary, Section 5.4.2 Surface Water Quality	<p>Issue #ES-20: The draft EIS does not clarify the influence of groundwater temperature on Whitefish Lake.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to confirm the influence of groundwater temperature on Whitefish Lake in the Final EIS. 	There is no expectation of influence of groundwater temperature on Whitefish Lake during any phase of the Project. Groundwater would be expected to enter (discharge) to Whitefish Lake at its typical ambient temperature.
447	MN-S (March 4, 2023)	Section 2.2.1.3.2 Freeze Wall Timeline	<p>Issue #2-002: The removal of the freeze wall may cause increased migration of constituents that could cause environmental release to the receiving environment unintentionally.</p> <p>Recommendations:</p> <p>Denison needs to clarify the following with MN-S, NR1 Locals, and NR3 Locals:</p> <ol style="list-style-type: none"> the freezing effects on the Upper and Lower barrier zones post mining, and if the freeze thaw process could cause increased fracturing potential within these zones. 	A separate technical memo including information related to freeze wall integrity and the basis for design of the freeze wall, which relies on site field data and lived experience from several exiting Saskatchewan mining operations, is provided as an attachment to this comment / disposition table for reference (see Attachment to IR-10).
448	MN-S (March 4, 2023)	Section 2.3.4	<p>Issue #2-002: Denison does not acknowledge MN-S, NR1, or NR3 involvement in the design and implementation of the post-decommissioning monitoring program.</p> <p>Recommendations:</p> <p>Denison needs to engage MN-S, NR1 Locals, and NR3 Locals in the design and implementation of decommissioning planning and all subsequent monitoring programs for the Project. This will allow Métis to share their interests in the long-term state</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final</p>

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			of the land and incorporate Métis knowledge. It will also create opportunities for Métis youth and Elders to participate in monitoring programs.	EIS to include relevant information in the assessment from the Métis Knowledge Study. As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.
449	MN-S (March 4, 2023)	Section 2.3.5 Ancillary Projects	Issue #2-004: Denison's EIS suggests SaskPower's work related to the extension of an existing 138 kV line will be independent from work led by Denison. Recommendations: <ul style="list-style-type: none"> • Denison needs to clarify whether the additional 138 kV line was factored into the cumulative effects evaluation. • Denison needs to clarify whether the proposed Project can proceed without the 138 kV line construction. • Denison needs to clarify the timing of the construction of the line and Wheeler River Project construction. • Denison needs to confirm that SaskPower will engage with MN-S, NR1 Locals, and NR3 Locals on line routing and design. • Denison needs to confirm if/when the 138 kV line will be decommissioned. 	Denison provides that the SaskPower extension of an existing 138 kV line is part of the Project component. As it is part of the Project undergoing the assessment, it is not a distinct reasonably foreseeable development included separately in the CEA.
450	MN-S (March 4, 2023)	Section 2.7 Project Benefits	Issue #2-005: Denison notes some jobs will require a Grade 12 education in addition to in-house training programs but does not offer to support Métis peoples obtain Grade 12 education to access available positions.	Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as

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			<p>Recommendations:</p> <ul style="list-style-type: none"> MN-S would like confirmation on what kind of education and training support Denison will make available to maximize employment from Communities of Interest. Denison needs to support Métis training opportunities through Northlands College. MN-S would like additional details on which roles will need Grade 12, and how many roles are available for people without Grade 12. 	<p>on-the-job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions (such as Northlands College) to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.</p> <p>All positions at the Project will require a Grade 12 education or equivalent. Section 13.3.2.1 describes how foundational positions (i.e., entry level) require Grade 12 education and in-house training programs, although a combination of skills and experience may be considered. These positions would include process plant operators, site services, drillers, and catering/janitorial staff.</p>
451	MN-S (March 4, 2023)	Section 2.7 Project Benefits	<p>Issue #2-006 and 2-007: Denison does not specify the goods and services during Construction, Operation, and Decommissioning. MN-S is interested in sharing potential goods and services opportunities for Métis peoples (e.g., chefs and artisans). Denison has not specified how it is transmitting knowledge nor provided an explanation of the procurement approach.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide specific information on the goods and services opportunity available to Métis as per labour force and business analysis. Denison needs to clarify how it has made MN-S, NR1, and NR3 Locals aware of the procurement approach and opportunities, and how it will keep them informed through the life of the Project. 	<p>Denison will establish a procurement approach throughout all phases of the Project, prioritizing the procurement of goods and services for the Project toward businesses based within the LSA communities prior to looking elsewhere in northern Saskatchewan, southern Saskatchewan, and/or outside of Saskatchewan. This procurement approach may consider advance sharing of purchasing requirements of goods and services throughout all phases of the Project, efforts to increase the capacity and capabilities of businesses to increase successful bidding outcomes, and the development of a business registry.</p>
452	MN-S (March 4, 2023)	Section 2.9.1.3.1 Environmental Protection Program	<p>Issue #2-008 and 2-009: The Draft EIS does not include a draft Environmental Protection Plan (EPP) or a summary of how the EPP will be developed. The Métis Knowledge Study is yet to be completed and these plans should not be completed without</p>	<p>With respect to Part i) of the comment the following is noted. The MN-S review comments accurately indicates that a draft Environmental Protection Plan was not included in the EIS submission; rather, Section 2.9.1.3.1 of the draft EIS provides the commitment to develop an Environmental Protection Program (EPP) and associated plans. The EPP would be established to provide an overarching framework for key</p>

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			<p>considering the Métis Knowledge Study. Draft monitoring plans were not available for review to confirm how Denison plans to inform plans with existing local and traditional knowledge.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide an Environmental Protection Plan with the Final EIS. Denison needs to involve MN-S, NR1 Locals, and NR3 Locals in the development and implementation of the Environmental Protection Program so that Métis can ensure their interests and Métis Knowledge are included. Additionally, involvement in the development of monitoring plans and review of MN-S knowledge usage and how it informed the plan should also be undertaken. Denison needs to share all engagement plans and reports of interest to MN-S, NR1 Locals, and NR3 Locals for input, review, and comment. Denison needs to include an implementation and reporting plan with the monitoring plans. 	<p>environmental monitoring and management plans and to ensure a means to demonstrate compliance with applicable environmental regulatory requirements and other performance targets. The EPP would be developed in a manner that aligns with the ISO 14001 EMS Standard. As noted on the draft EIS, Denison has opted to execute the overall Project approvals process - that is, the environmental assessment and licensing / permitting processes - in series and not simultaneously. As such, the documentation referenced in the MN-S review comment will be developed during the licensing / permitting phase and will be available for review at that time rather than as part of the final EIS. The level of information provided in the draft EIS is appropriate for the stage at which the overall Project approvals process currently sits, and as noted, MN-S, and others, will have an opportunity to review documentation that is developed at later stages of the overall approvals process as appropriate.</p> <p>With respect to Parts ii), iii) and iv) of the comment the following is noted. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLRO are understood as organizations. A study agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. Denison is now in receipt of this study and is in the process of reviewing the information contained therein to identify how the information will be incorporated into the final EIS. It is important to note that Denison has incorporated Métis land use information and perspectives into the draft EIS, through the funding of the Kineepik Métis Land and Occupancy information along with the KML VEC statement, of which relevant information has been incorporated directly into the draft EIS to determine effects to the human environment. Additionally, and as noted in the draft EIS, Section 8.2.9 "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." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce</p>

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				effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.
453	MN-S (March 4, 2023)	Section 2.9.1.3.5 Emergency Preparedness and Response Program	<p>Issue #2-010: No Emergency Preparedness and Response Program was available for review.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include an Emergency Preparedness and Response Program in the Final EIS for review. Denison to include information on transportation accidents within the Emergency Preparedness and Response Program. 	<p>With respect to Part i) of the comment the following is noted. The MN-S review comments accurately indicates that a draft Emergency Preparedness and Response Program was not included in the EIS submission; rather, Section 2.9.1.3.5 of the draft EIS provides the commitment to develop an Emergency Preparedness and Response Program (EPRP). The EPRP would be established to identify how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property. The EPRP would be developed in a manner that aligns with guidance provided by CNSC in REGDOC-2.10.1. As noted on the draft EIS, Denison has opted to execute the overall Project approvals process - that is, the environmental assessment and licensing / permitting processes - in series and not simultaneously. As such, the documentation referenced in the MN-S review comment will be developed during the licensing / permitting phase and will be available for review at that time rather than as part of the final EIS. The level of information provided in the draft EIS is appropriate for the stage at which the overall Project approvals process currently sits, and as noted, MN-S, and others, will have an opportunity to review documentation that is developed at later stages of the overall approvals process as appropriate.</p> <p>With respect to Part ii) of the comment the following is noted. The EPRP will include information relevant to transportation accidents and responses thereof. Further, information regarding aspects of emergency response with respect to transportation accidents was provided in the draft EIS and direction to that information is highlighted as follows for reference. Postulated traffic accident scenarios were considered in the Accidents and Malfunctions Technical Supporting Document (TSD; Appendix 14-A) as summarized in Section 14 of the draft EIS. As mitigation for such scenarios the accidents and malfunctions assessment highlighted commitments to develop the EPRP and several plan and procedure level documents (e.g., spill response plan; an emergency response plan; a traffic and transportation plan; a travel management plan; personnel training procedures). Additionally, Section 12.3 of the draft EIS discusses mitigation measures that will be implemented to reduce adverse traffic effects, as well as mitigation measures to be implemented to reduce adverse effects on emergency services capacity such as:</p> <ul style="list-style-type: none"> All drivers serving the Project will receive appropriate training related to the nature of materials being transported, including driver training to the highest standards based on the transportation of nuclear substances.

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				<ul style="list-style-type: none"> • Vehicles transporting dangerous goods and/or hazardous products will display required placards and labels in accordance with provincial legislation and will follow designated highway corridors. • All materials transported by truck will be compliant with any weight restrictions or permits, spring road restrictions, or geometric constraints set out by the Saskatchewan MOHI. • Denison will maintain Project roads and the main access road to the site. First aid facilities will be supplied during construction. • A primary care paramedic will be contracted to provide care on site through all phases of the Project. Denison will provide the appropriate amount of First Aid and CPR training to make sure employees have adequate coverage. • Mandatory safety orientations will be held for contractors and workers. • First aid personnel will provide transport to a hospital by air when required or by Saskatchewan's air ambulances; • Health and safety management programs will be developed for Construction, Operation, and Decommissioning. • Workers will be trained in fuel handling, equipment maintenance, and fire prevention and response measures. • Denison's Environment, Health, Safety, and Sustainability Policy will be enforced. • Continued liaison with LSA communities and relevant authorities (e.g., RCMP, health and service providers) will be undertaken to provide updates, discuss any Project-related concerns, and make sure that the required resources are in place. • Project-specific contingency, emergency response, and spill prevention plans will be developed to reduce the likelihood and severity of accidents and potential fires. • Based on the outcomes of discussions with COI, Denison may provide support and/or training to local emergency services to make sure that staff are adequately prepared in the unlikely event of an accident, malfunction, or spill on Highways 914 or 165. This may include the provision of specialty materials or equipment to deal with an emergency response.
454	MN-S (March 4, 2023)	Section 3.4.2.3 Métis Nation – Saskatchewan Section 3.4.8 Lands Taken Up	Issue #3-001 and 3-002: The Draft EIS does not yet include Métis Knowledge from NR1 and NR 3 other than Kineepik. The Draft EIS does not include	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLRO

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		from an Indigenous Perspective	<p>information on how Denison intends to include the outcome of the Métis Knowledge Study.</p> <p>Perspectives on cumulative impacts have only been considered for English River First Nation and Kineepik Métis. This has resulted in an absence of MN-S perspective regarding cumulative impacts within the Project and surrounding areas.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide a clear indication of how the MKS findings were included in the Final EIS (e.g., effects analysis, cumulative effects analysis, mitigation measures, etc.) including confirming use with MN-S. The Assessment should not be considered complete until the Métis Knowledge Study is finished and factored in. 	<p>are understood as organizations. A study agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. Denison is now in receipt of this study and is in the process of reviewing the information contained therein to identify how the information will be incorporated into the final EIS. It is important to note that Denison has incorporated Métis land use information and perspectives into the draft EIS, through the funding of the Kineepik Métis Land and Occupancy information along with the KML VEC statement, of which relevant information has been incorporated directly into the draft EIS to determine effects to the human environment.</p>
455	MN-S (March 4, 2023)	Section 3.4.6 Addressing Divergence Between Indigenous Knowledge and Western Scientific Knowledge Systems	<p>Issue #3-003: Details are not provided regarding how these programs and plans will be developed and implemented, or how they will integrate the needs of all the Indigenous and Métis communities.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to clarify whether discrepancies will only be addressed by follow-up and monitoring. Denison needs to involve MN-S, NR1 and NR3 in determining other means for examining divergences and informing follow-up and monitoring (e.g., collaborative field studies). 	<p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
456	MN-S (March 4, 2023)	Section 4.1.2 Denison's Indigenous Peoples Policy and Investment and	<p>Issue #4-002: The EIS notes that "In 2021, Denison announced the adoption of an Indigenous Peoples Policy (IPP). The IPP reflects Denison's recognition of the important role of Canadian business in the process of reconciliation with Indigenous peoples in Canada and outlines Denison's commitment to</p>	<p>Denison's IPP is a principles-based policy and addresses its vision for reconcile-action in all of Denison's activities. How the policy will be executed will vary on a project to project and community to community basis. The process includes a continually evolving Reconciliation Action Plan, that Denison will seek periodic input on from its</p>

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		Sustainability Philosophy	<p>take action towards advancing reconciliation. The IPP was developed based on Denison's experiences with, as well as feedback and guidance received from, Indigenous communities with whom Denison is actively engaged. This approach was designed to make sure the IPP appropriately captures a mutual vision for reconciliation. The IPP identifies five key areas of action that will support the ongoing development of a continuously evolving Reconciliation Action Plan (RAP): Engagement; Empowerment; Environment; Employment; and Education. Through the RAP, Denison is striving to interweave the principles of reconciliation throughout all areas of the company's operations (Denison 2021a)."</p> <p>Denison does not explain how it will accomplish free, prior, and informed consent (FPIC) as per the IPP and RAP [2].</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to clarify how it intends to consider free, prior, and informed consent (FPIC). <p>[2] Engagement – We are committed to building long-term and mutually respectful relationships through proactive engagement and consultation with Indigenous people. Our aim is to work to achieve the free, prior, and informed consent, where the potential for impacts to rights may occur, before proceeding with economic development projects and during ongoing activities and operations</p>	Indigenous partners to ensure that it remains relevant to in the ongoing evolving landscape of reconciliation.
457	MN-S (March 4, 2023)	Section 4.2 Engagement Approach Section 4.3.1 Engagement	Issue #4-003 and 4-005: MN-S is listed under Indigenous Organizations instead of Indigenous Communities of Interest. Not all potentially impacted Métis communities are listed in this	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the

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		with Identified Indigenous Communities and Organizations, and Supporting Criteria	<p>figure. Métis communities listed under Indigenous Communities of Interest include Kineepik Métis Local #9, Sipishik Métis Local #37, Patuanak Métis Local #82. Métis communities listed under Other Indigenous Communities include Dore/Sled Lake Métis Local #67 and A La Baie Métis Local #21. These Métis communities are all within NR3.</p> <p>Only NR3 communities are listed in Figure 4.3-2: Unidentified Indigenous Communities and Organizations in Relation to the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to revise its understanding of Métis, Métis governance and the differences between MN-S and Métis Locals. Denison needs to include MN-S, NR1 Locals, and NR3 Locals as Communities of Interest, or explain why they limited their selection of Métis communities in their listing. 	purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations.
458	MN-S (March 4, 2023)	Section 4.2 Engagement Approach	<p>Issue #4-003: MN-S appreciates Denison's willingness to evolve engagement activities in response to feedback from MN-S over time.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison to continue engaging and involving MN-S, NR1 Locals, and NR3 Locals during the revisions of the Draft EIS and completion of outstanding plans. 	Noted, throughout the engagement, Denison has consistently affirmed its interest in MN-S participation and the incorporation of Métis knowledge into the EIS, in addition to the information and input that has already been gathered with KML.
459	MN-S (March 4, 2023)	Section 4.3.2.3 Engagement with Sipishik Métis Local #37	<p>Issue #4-009: Denison is taking engagement direction from MN-S to not lump public engagement efforts with Métis engagement is appreciated.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to engage Beauval/Sipishik Métis Local #37 throughout the life of the Project. 	Noted, Denison will continue to engage with MN-S, including Beauval/Sipishik Métis Local #37, at their direction for the life for relevant stages of the Project.

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460	MN-S (March 4, 2023)	Section 4.3.2.3.4 Key Issues and Concerns	<p>Issue #4-010: The safety of all Métis peoples that will be engaged or employed by the Project is of utmost importance. Racism towards Métis peoples will not be tolerated. Denison's policies need to support a safe work culture for all.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to share all policies related to creating a safe workplace with MN-S, NR1 Locals, and NR3 Locals for review and comment (e.g., health and safety policies and the Workplace Violence & Harassment Policy). Denison needs to create a culturally safe workplace for Métis peoples. Denison needs to clarify its policies to prevent incidents of workplace violence and harassment and identify clear actions to address potential incidents of workplace violence and harassment. Denison needs to mandate cultural awareness training for all employees to help with one the Project's established principles: "approaching sustainability and engagement activities with the utmost respect for Indigenous communities, Indigenous Rights, and Indigenous Knowledge". 	Denison has an established Workplace Violence and Harassment Policy and an Indigenous Peoples Policy, both of which are publicly available on Denison's website. These two policies create the conditions for an inclusive and diverse work environment and a safe work culture for all. Policies will be adapted to the conditions of the Project and Denison welcomes specific feedback on Métis interests and concerns. Further, Section 12.2.5 Mitigation Measures for Community Well-being describes the establishment of health and wellness programming on-site, an Employee and Family Assistance Program (EFAP), a no alcohol and drug policy on Project site, the enforcement of Denison's Environment, Health, Safety, and Sustainability Policy, the implementation of culturally sensitive employment policies to support the Indigenous workforce (for example, having an Elder representative at the Project site to provide cultural programming), among others.
461	MN-S (March 4, 2023)	Section 4.3.2.4.3 Key Issues and Concerns	<p>Issue #4-011: Denison created "Key Issues and Concerns" tables in their EIS to document responses to issues and concerns identified by Indigenous Groups.</p> <p>Denison marked issues and concerns that they believe have been addressed as "Complete" in "Key Issues and Concerns" tables throughout the Draft EIS. Directing MN-S and Métis Locals to chapters within the EIS is not a sufficient response to an issue or concern identified by MN-S and Métis</p>	<p>Since being advised by the MN-S in October 2019 that a number of Métis Locals had delegated to the MN-S the Duty to Consult for the Project, Denison has been engaged in extensive ongoing discussions with the MN-S with the goal of reaching agreement regarding the EA process and MN-S' participation in it. Denison continues to engage with the MN-S, inclusive of engagement in NR1 and NR3, at their direction and there is no formal engagement plan, as such Denison does not feel there is a need for MN-S review as continued engagement is informed by and at the direction of the MN-S in an ongoing manner.</p> <p>For example, in recognition of the MN-S potential interests in the Project, Denison and MN-S have negotiated a capacity funding agreement. This agreement outlines a</p>

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			<p>peoples. One- way information sharing is not an effective means for addressing or mitigating issues and concerns identified by MN-S and Métis people. Responses to issues regarding effects should discuss the presence or absence of effects, rather than responding that effects were studied.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to respond to issues and concerns identified through engagement during meetings with and communications to MN-S, MN-S, NR1 Locals, and NR3 Locals. Denison needs to implement a collaborative engagement approach that allows MN-S, NR1 Locals, and NR3 Locals to provide feedback and inform Project decision-making, plans, and outcomes versus one-way information sharing engagement approach. 	<p>mutually agreeable framework and applicable funding arrangements to facilitate the MN-S' participation and engagement in the EA process for the Project.</p> <p>The parties have specifically agreed to a process between each other that will be funded by Denison and undertaken on behalf of the MN-S in connection with the EA of the Project: a Métis Knowledge Study, meetings to focus on VCs and preliminary effects, and regular meetings and associated costs for hosting such meetings.</p>
462	MN-S (March 4, 2023)	Section 4.3.4.1.2 Agreements Relative to the Environmental Assessment Process	<p>Issue #4-014: Denison's Draft EIS notes that Denison and MN-S were in the process of developing a capacity funding agreement. Since the Draft EIS was published, Denison and MN-S reached an agreement.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to revise the Final EIS to note that a capacity funding agreement was reached with MN-S. 	The EIS will be updated to reflect the capacity funding agreement reached with the MN-S.
463	MN-S (March 4, 2023)	Section 5.3.1 Valued Components Selection	<p>Issue #5-001: Métis input to VC selection was limited to NR3 communities.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to confirm the selected valued components with Métis Locals in NR1 and NR3 and revise the Final EIS as required to reflect their input. 	At the direction of the MN-S, Denison participated in meetings on February 12, 2023, with NR1 and on February 13, 2023, with NR3. The participants at these sessions were identified and invited by the MN-S. During these meetings, Denison shared information about the Project and the associated VCs assessed as part of the environmental assessment. No new VCs were identified as part of that discussion.

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464	MN-S (March 4, 2023)	Section 5.4 Influence of Indigenous Knowledge, Local Knowledge, and Engagement	<p>Issue #5-002: The use of “complimentary and influential” does not reflect current best practices that acknowledge Indigenous Knowledge as an equal but different way of knowing (than western science). This terminology implies that Indigenous Knowledge can be absorbed into a scientific approach.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to confirm use of the wording “complimentary and influential” and how the use of Indigenous Knowledge is treated as equal to western science in the Final EIS. Denison needs to confirm if it intends the use of “complimentary” or “complementary”. Best practices will differ depending on intention. 	<p>Section 5.1 of the EIS explains that the project is assessment under the Canadian Environmental Assessment Act, 2012, along with the Saskatchewan Environmental Assessment Act. As such, the Canadian Environmental Assessment Agency's reference guidance (CEAA 2015) on considering Aboriginal traditional knowledge for EAs under the Canadian Environmental Assessment Act 2012 is considered as relevant guidance. Further to this (see Section 3.3.1 of the EIS) Denison has committed to working with Indigenous communities in a spirit of mutual respect and cooperation. Denison's Indigenous Peoples Policy reflects the company's belief that reconciliation is advanced through collaboration with Indigenous peoples and communities to build long-lasting, respectful, trusting, and mutually beneficial relationships. Section 3.2.2 of the EIS notes that access to Indigenous Knowledge is a privilege and must be respected. Prior to sharing and collecting IK, local protocols and procedures developed by the Indigenous COIs for the management of IK were requested and applied. For some communities, this meant Indigenous Knowledge was shared with Denison and its consultants for use in the EIS with measures in place to protect the privacy of the IK, and in other communities consented to reports being shared and appended to the EIS itself. Denison will continue to work with the Indigenous COIs to ensure this information is shared and protected in manner consistent with community protocols.</p> <p>Noted, the use of 'complimentary' and 'complementary' will be revisited throughout the EIS.</p>
465	MN-S (March 4, 2023)	Section 5.6.1 Potential Interactions Between the Project and Valued Components/ Key Indicators	<p>Issue #5-003: Interactions with the Human Environment Valued Components should be consistent with interaction table in related technical VC assessment sections. Comments have been made for revision to some of the interaction table in related VCs.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to update Table 5.6-2 be to be consistent with revised interaction tables for related VCs. 	<p>Acknowledged. Table 5.6-2, Summary Interaction Matrix for Valued Components in the Human Environment, will be cross-checked against the VC interactions tables related to the biophysical environment and updated for consistency in the final EIS, and in consideration of the comments provided by the reviewer on the individual biophysical environment VC interaction tables as noted.</p>
466	MN-S (March 4, 2023)	Section 5.3 Scope of the Assessment	<p>Issue #5-004: It's best practice in environmental assessments to acknowledge limitations on data and analysis used for the assessment. This identifies constraints imposed on the assessment due to limitations in data or analysis that can</p>	<p>Data and analysis limitations are described within the relevant VCs existing environment, where applicable. As an example, See Section 12.2.3 Existing Environment for Community Well-Being which describes the limitations of Statistics Canada Census of Population Data, the limitations of Statistics Canada incident-based crime statistics, limitations associated to key person interviews, and others.</p>

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			<p>influence or limit the ability to predict potential effects of the Project. This may be provided as a "technical boundary" or</p> <p>in some other transparent way as a part of the assessment reporting.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide details in the Final EIS on data and analysis limitations. 	
467	MN-S (March 4, 2023)	Section 5.8 Residual Effects Evaluation	<p>Issue #5-005: Details should be provided on what level of residual effects are carried forward for residual effects evaluation. This would help provide a consistent method for bringing measurable effects for a full residual effect assessment. This ensures that measurable (even minor) are not overlooked in residual effects characterization and consideration of significance.</p> <p>From review of the Draft EIS, there are instances where effects that remain after the implementation of all mitigation measures and management plans are characterized as minor and not carried forward for evaluation.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide details on the development and choice of thresholds used to describe residual effects including how LK and IK were considered in threshold development. Denison needs to provide further explanation as to why minor effects will have no or negligible effects and should not be considered further. 	<p>Section 5 of the draft EIS provides an overview of the assessment methodology, including how residual effects were characterized (i.e., those effects that were measurable after consideration of proposed mitigation. Each technical section of the draft EIS where effects are considered (draft EIS Sections 6 through 13) uses this assessment framework in consideration of the specific VCs / KIs that have been defined to represent that environmental component. Effects thresholds that define the presence / or absence of a residual effect have been described for each VC / KI. In some cases, the thresholds are narrative in nature and in some cases, where available, numeric thresholds are used. The former tended to be based on SME knowledge and experience in like assessments and situations and in the latter the thresholds tended to be derived from published environmental quality objectives and guidelines. As an example, the manner by which residual effects were characterized for the Fish and Fish Habitat VC is given. Section 8.3.6.1 of the draft EIS provides the definition for a residual effect as follows, "A residual adverse effect on the Fish and Fish Habitat VC is defined as a measurable change in the concentrations of a surface water quality parameter(s) that exceed relevant water quality assessment benchmarks that represent concentrations that are protective of aquatic biota and water uses in watercourse and waterbodies that receive mine-affected drainage. " In this example a numeric threshold is used (i.e., a relevant water quality assessment benchmark) and rationale is provided for its use (i.e., represent concentrations that are protective of aquatic biota and water uses in watercourse and waterbodies that receive mine-affected drainage). The threshold is both transparent and reasonable with the context of the assessment, though it is acknowledged that some level of change in the VC (or more precisely its measurable parameter) is deemed acceptable on condition that the change is not of a magnitude from which negative effects could accrue.</p>

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				Each technical section of the draft EIS where effects are considered (draft EIS Sections 6 through 13) notes how Indigenous Knowledge (IK), Local Knowledge (LK) and Engagement influenced the assessment. Whether generic or specific in nature the information was considered and woven into the assessment where possible. For example, water and the protection of water was generally noted as a key consideration to Indigenous peoples and LK holders. Accordingly, informs the framework of the assessment to ensure that water quality related VCs are included to provide a comprehensive evaluation related to water quality and affirms the need to assess water quality and sediment quality as they inform assessments for benthic invertebrates, fish and fish habitat, human health, and Indigenous land and resource use components.
468	MN-S (March 4, 2023)	Section 5.9.1 Cumulative Effects Assessment Process Section 12.1.7 Cumulative Effects	<p>Issue #5-006 and 12-005: Denison acknowledges that cumulative effects are important to Indigenous communities in section 5.9.3 (p. 5-42).</p> <p>For many Indigenous communities and governments, cumulative effects analysis requires an assessment this includes pre-development conditions to understand the impacts of past and existing activities that continue to affect the context for environmental and social systems. Considering the fuller context of historic change during an EA is an evolving best practice and is recognized through numerous Canadian cumulative effects assessment initiatives and management frameworks (e.g., Indigenous Centre for Cumulative Effects) and recent Indigenous led environmental assessment (e.g., Squamish Nation Assessment Process).</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide further detail on what projects and activities were considered in the cumulative effects i.e., table listing projects. Denison needs to provide further detail on how it considers cumulative effects important to Indigenous communities and whether it 	<p>With respect to review comment i) the following is noted. Section 5.9.2 of the draft EIS provides an overview of other Projects and activities that were considered present and reasonably foreseeable and could be a source of residual effects that could interact with the Project-specific residual effects. A preliminary list of projects and activities for potential consideration in the VC-specific cumulative effects assessment for the Project was provided in Table 5.9-1 of the draft EIS and their locations were shown relative to the Project site in Figure 5.9-1. Per Section 5.9.2.1 of the draft EIS, the original (or "preliminary") list of Projects and activities was scrutinized relative to various screening criteria to identify those present and reasonably foreseeable Projects and activities that were likely to interact with the Project VC in cumulative manner. It was this subset of Projects and activities that was carried forward into the cumulative effects assessment as described in Section 5.9.2.1.1 of the draft EIS.</p> <p>With respect to comment ii) the following is noted. The Wheeler River Project EIS is subject the Canadian Environmental Assessment Act, 2012. In this assessment framework, the Project-specific cumulative effects assessment (CEA) considers whether residual adverse effects of the Project on a given VC will overlap spatially and/or temporally with residual adverse effects on the VC resulting from other past, present, and reasonably foreseeable projects or activities. The CEA follows standard methodology as per provincial (e.g., Guidelines for an Environmental Assessment [Government of Saskatchewan 2022]) and federal guidance (e.g., Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012 [Government of Canada 2019]). As noted in the IR, Section 5.9.3 of the draft EIS describes how Denison considers the cumulative effects assessment to be important to Indigenous peoples. As noted, the cumulative effects assessment is important to</p>

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			includes an evaluation of changes to pre-development conditions as is being done as practice in other environmental assessments. This would allow Indigenous communities to better understand the ongoing impacts of past and existing activities that continue to affect Indigenous cultural use of lands and resources.	<p>Indigenous communities because incremental effects to the environment can weaken resource economies, affect important resources such as plants, fish, and wildlife, affect rights-based and cultural activities, and affect both the health of wildlife and humans. Denison also noted and acknowledged the important relationship of the Indigenous Communities of Interest to the lands and waters in the Project study areas and sought out information from Indigenous Communities of Interest (ERFN and the Kineepik Métis Local #9 at Pinehouse (KML)) with respect to their Indigenous Knowledge on past, present, and predicted cumulative effects. Denison believes that the cumulative effects assessment does appropriately consider changes to pre-development conditions.</p> <p>References</p> <p>Government of Canada. 2019. Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012. https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/assessing-cumulative-environmental-effects-ceaa2012.html.</p> <p>Government of Saskatchewan. 2022. Guidelines for an Environmental Assessment. https://www.saskatchewan.ca/business/environmental-protection-and-sustainability/environmental-assessment/does-my-project-need-an-environmental-assessment.</p>
469	MN-S (March 4, 2023)	Section 5.9.2 Identification of Present or Reasonably Foreseeable Projects and Activities	<p>Issue #5-007: Clarity is required that this includes existing ongoing activities that may not be certain but are highly likely to occur such as forestry and mine exploration activity. Denison did not include the new powerline that SaskPower is building in Table 5.9-1: Projects and Activities for Consideration in the Cumulative Effects Assessment for the Valued Components. See Section 2.3.1.9 for more details on the powerline to be constructed by SaskPower.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide further detail on the projects and activities that were considered for cumulative effects and why certain projects and activities were not 	<p>Section 5.9.2 of the draft EIS provides an overview of other Projects and activities that were considered present and reasonably foreseeable and could be a source of residual effects that could interact with the Project-specific residual effects. A preliminary list of projects and activities for potential consideration in the VC-specific cumulative effects assessment for the Project was provided in Table 5.9-1 of the draft EIS and their locations were shown relative to the Project site in Figure 5.9-1. Per Section 5.9.2.1 of the draft EIS, the original (or "preliminary") list of Projects and activities was scrutinized relative to various screening criteria to identify those present and reasonably foreseeable Projects and activities that were likely to interact with the Project VC in cumulative manner. Also show in Section 5.9.2.1 are the criteria by which the Present or Reasonably Foreseeable Projects and Activities were assessed. These criteria are consistent with CEAA's interim technical guidance on a future project (or physical activity) and how it could be considered reasonably foreseeable, as follows:</p> <ul style="list-style-type: none"> The intent to proceed is officially announced by a proponent.

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			included. For example, Denison needs to explain how reasonably foreseeable projects and activities that may not be certain but are highly likely in the RSA, such as mining exploration or infrastructure use and maintenance, are not included in Table 5.9-1.	<ul style="list-style-type: none"> • The project or activity is under regulatory review (i.e., the application is in process). • The submission for regulatory review is imminent. • The project or activity is identified in a publicly available development plan that is approved or for which approval is anticipated (e.g., a wastewater treatment plant in a city's long term development plan). • The physical activity supports—or is consistent with—the long-term economic or financial assumptions and engineering assumptions made for the project's planning purposes. • A physical activity is required in order for the project to proceed (e.g., rail or port transportation facilities, or a transmission line). • The economic feasibility of the project is contingent upon the future development. • The completion of the project would facilitate or enable the future development. <p>Further information with respect to present and reasonably foreseeable projects and activities pertaining to exploration and mining activities, infrastructure use and maintenance, lodges/outfitters and tourist/ recreational activities and Indigenous and other land use activities are described in draft EIS Sections 5.9.2.1.1 through 5.9.2.1.4, respectively. Rationale for not carrying forward projects / activities that were part of initial screening is described in Section 5.9.2.2.</p> <p>The review comments have specifically referenced the power line development associated with the implementation of the Project. In response the following is offered. While it is true the power line to service the Project will be constructed by SaskPower the power line has been considered a Project activity for the purpose of the effects assessment and has been assessed in that context. With that there is no rationale nor need for assessing it as a separate project / activity within the CEA.</p>
470	MN-S (March 4, 2023)	Section 7.4.1 Potential Project- Valued Components Interactions	<p>Issue #7-001: There is lack of geotechnical information in the Draft EIS that would expand explanation of Project interactions with geology and groundwater.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> • The Final EIS needs to demonstrate Denison's commitment to developing appropriate mitigations to avoid or limit identified adverse 	<p>Denison recognizes that geology and groundwater are of particular importance within the context of the EIS given the proposed mining method and believes that the assessment presented in the EIS and its supporting documentation is comprehensive. Denison is committed to developing / implementing appropriate mitigations to avoid or limit identified adverse effects resulting from the Project, whether direct or indirect. Proposed mitigation measures specific to geology and groundwater and presented in the draft EIS, Section 7.5, Mitigation Measures, and Table 7.5-1 therein provides a summary of mitigation measures based on Project phases for the geology and groundwater VC.</p>

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			effects resulting from the Project, whether direct or indirect.	
471	MN-S (March 4, 2023)	Section 7.5 Mitigation Measures	<p>Issue #7-002: There is lack of information, details and modelling related to potential subsidence.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide additional detail in the Final EIS about mitigation measures related to operations affecting subsidence at ground surface including managing for different subsidence areas, different subsidence sizes, and whether subsidence will propagate further ground surface disturbances that will require further and continuous action. Denison needs to prepare a management and monitoring plan for subsidence. 	<p>To clarify with respect to the potential for subsidence, it is noted that the portion of the deposit being mined is never truly a void and what remains after mining will be a honeycomb texture with water-filled interstices. The mined area is filled with a fluid at all times, whether it be a mining solution, groundwater, or the neutralizing solution. This is different from a more traditional underground operation such as Cigar Lake, where there is physical excavation of the orebody, leaving a temporary air-filled space. Although the uranium ore is high-grade by global standards it is not entirely massive in nature. As such, the uranium will be leached in a 'honeycomb' texture leaving behind a structure of partial intact rock mass with the remaining area being filled by fluid. This retains the pressure balance of the mining zone with the adjacent water-saturated rock masses.</p> <p>Although the above provides context on the absence of true, air-filled voids remaining post-mining, the risk of subsidence has been assessed appropriately in the draft EIS and its supporting documents (see draft EIS as Appendix K to Appendix 7-C; see also draft EIS Section 7 Geology Valued Component - Terrain Morphology and Stability Key Indicator and draft EIS Section 9 Terrain Valued Component - Terrain Morphology Key Indicator and Terrain Stability Key Indicator). The analysis presented in the draft EIS shows there is negligible risk of subsidence and the magnitude of subsidence, if it were to occur, is the range of 7.5 cm at surface.</p> <p>Subsequent to the filing of the draft EIS, Denison has undertaken additional modelling with refined, more granular inputs including consideration of subunits within the altered zone. With this more refined analysis, the potential surface subsidence has been reduced from 7.5 cm to 2.4 to 2.8 mm. Further, this potential subsidence, if it were to occur, would be limited to the footprint directly above the deposit. Given the low levels of risk that has been determined, Denison believes the monitoring and contingency plans as envisioned in the draft EIS are commensurate with this low level of risk and appropriate.</p>
472	MN-S (March 4, 2023)	Section 8.0 Aquatic Environment	<p>Issue #8-001: Key waterbodies are inconsistently named on the maps/figures throughout section. Section 8.0 Aquatic Environment. Key waterbodies include those considered as reference or exposure waterbodies, and any others of importance to NR2 and NR3 Locals.</p>	<p>Acknowledged. Denison will update all maps/figures throughout Section 8 in the final EIS to more consistently include lake names.</p>

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			<p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to revise maps/figures to include labels for key waterbodies referenced in the EIS, particularly for figures included in section 8. Denison needs to ensure waterbodies are named consistently throughout section 8.0 Aquatic Environment. 	
473	MN-S (March 4, 2023)	Section 8.3.6.1 Residual Effects Characterization	<p>Issue #8-002: Not all fishing and hunting activities are documented. Currently, the MKS has not been completed and therefore this assumption may be incorrect.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to revise the fish and fish habitat section as part of the inclusion and consideration of the MKS in the Final EIS. Denison needs to include additional information in the Final EIS that describes data limitations. A conservative approach would consider all waterbodies in the area to be potential fishing waterbodies for current and future use purposes. 	<p>The draft EIS was prepared in consideration of the information available to Denison at that time. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations. A study agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. Denison is now in receipt of this study and is in the process of reviewing the information contained therein to identify how the information will be incorporated into the final EIS. It is important to note that Denison has incorporated Métis land use information and perspectives into the draft EIS, through the funding of the Kineepik Métis Land and Occupancy information along with the KML VEC statement, of which relevant information has been incorporated directly into the draft EIS to determine effects to the human environment.</p> <p>While Denison acknowledges the comment regarding what it perceives as a desire to include more regional data regarding fishing waterbodies of interest to MN-S within the context of cumulative effects, it believes the draft EIS and supporting documentation (including the aquatic environment baseline report, Appendix 8-D) provide a spatially extensive and appropriate description of fish habitat and fish resources in water bodies and water courses to assess potential cumulative effects given the spatial extent of Project interactions with the environment. For the purpose of a Project-specific CEA a cumulative effect can only exist when a residual Project effect overlaps in time and space with other current or reasonably foreseeable projects / activities. Where no such overlap exists, it is beyond the scope of a Project-specific CEA.</p>

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474	MN-S (March 4, 2023)	Section 8.3.8 Monitoring and Follow-up	<p>Issue #8-003: Russell Lake is not identified as a location to monitor fish health.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include Russell Lake in the aquatic monitoring program as cumulative effects from the Key Lake operation will be detected in this waterbody and this is an important local fisheries resource waterbody. Denison should commit to involving MN-S, NR1 and NR3 in the development of management and monitoring plans for the aquatic environment in the Final EIS. 	<p>As indicated in the review comment, Russell Lake was not specifically referenced as a location to monitor fish health. This would be based on the draft EIS conclusion that environmental change that might affect fish health (e.g., water quality) would not extend beyond the LSA and into Russell Lake. This however does not preclude incorporating Russell Lake into follow up monitoring based on alternative rationale. Specific details for follow up monitoring program design have yet to be developed and the appropriateness / suitability of sampling areas (including Russell Lake) will be evaluated through that process. Such determinations as to the appropriateness of sampling areas to be utilized for follow up monitoring for the aquatic environment will be made when that monitoring program / plan documentation is developed and would be subject to discussion with Interested Parties. As noted in the draft EIS, Section 8.2.9 "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." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.</p> <p>For further reference the following provides an overview of the information presented in the draft EIS and its supporting documentation regarding Russell Lake. Aquatic baseline surveys were conducted at two stations (LAB-1 and LAB-2) in Russell Lake and were considered 'far-field' stations in relation to the proposed mining plan for the Wheeler River Project. Data collection methods and results are presented in the draft EIS throughout the applicable subsections of Section 8.</p> <ul style="list-style-type: none"> Section 8.2 details the Surface Water Quality methods and results, Sections 8.3 and 8.5 detail fish habitat, community, and health methods and results; and Section 8.4 details sediment quality and benthic invertebrate community and chemistry methods and results. <p>A breakdown of where specific processes and results are located for each of these components is presented below:</p>

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				<p>Surface Water Quality/Chemistry: Surface Water Quality was sampled in Russell Lake. Methods and metrics are presented in Section 8.2.3.1. Water was sampled in Russell Lake and presented in Table 8.2-2 (Pages 8-60 to 8-62) of Section 8.2.3.3 of the EIS report and summarized in Table 8.2-4. Surface Water predicted maximum Constituents of Potential Concern for the Russell Lake Inlet (LAB-1) are presented in Table 8.2-13 of Section 8.2.4.2.4. Cumulative effects are also assessed in Section 8.2.7. Detailed baseline summary data is presented in Appendix 8-D of the report in Table 3-3.</p> <p>Sediment Quality/Chemistry: Sediment was sampled in Russell Lake, and the sample methodology is presented in Section 8.4.3.1. Sediment grain size results are summarized in Table 8.4-2 in Section 8.4.3.2.1, and full data is presented in Appendix 8-D, Table 3-4. Sediment chemistry was summarized in Table 8.4-3, and full data is in Appendix 8-D, Table 3-5.</p> <p>Fish Habitat, Tissue Chemistry, and Community: Russell Lake is not clearly indicated in the initial list of sample areas presented in Section 8.3.3 or Section 8.5.3; however, habitat information is presented in the Fish Habitat table (Table 8.3-4) of Section 8.3.3.2, and both Russell Lake sample locations (LAB-1 and LAB-2) and their associated fish community data are presented in the fish community map (Figure 8.3-6). Fish community and information is also presented in Table 8.3-4. Baseline fish community information is presented in Appendix 8-D of the report in Table 3-9. Fish chemistry summary data (Mean, Max, Min) for Northern Pike and White Sucker bone and tissue samples is presented in Table 8.5-2 of Section 8.5.3 of the Draft EIS. Detailed fish tissue data summary is presented in Appendix 8-D of the report in Table 3-10.</p> <p>Benthic Invertebrate Chemistry and Community: Benthic invertebrates were sampled in Russell Lake, and the sample methodology is presented in Section 8.4.3.1. Benthic invertebrate endpoints are summarized in Table 8.4-4 of Section 8.4.3.2.4, and benthic invertebrate chemistry is summarized in Table 8.4-5. Detailed baseline benthic invertebrate community and chemistry data is presented in Appendix 8-D of the report in Table 3-8, and community data in Tables 3-7A to 3-7D.</p> <p>Also, refer to Cumulative Effects sections (Section 8.X.7) within each part of the Aquatic Environment assessment in the draft EIS for a discussion of potential cumulative effects in Russell Lake. (i.e., Section 8.2.7 for surface water quality; Section 8.3.7 for fish and fish habitat, 8.4.7 for sediment quality and benthic invertebrates, and 8.5.7 for fish health).</p>

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475	MN-S (March 4, 2023)	Section 8.5.7.1 Potential Cumulative Effects	Issue #8-004: "Fish Health VC are primarily related to c the controlled" – there is a typo in the report. Recommendations: <ul style="list-style-type: none"> Denison needs to address the typo and replace "c" with the complete word. 	Acknowledged. The typo will be corrected in the final version of the EIS as follows, "Potential Project residual effects on the Fish Health VC are primarily related to controlled discharge of site water into local receiving environments during all Project phases."
476	MN-S (March 4, 2023)	Section 8.5.8 Monitoring and Follow-up	Issue #8-005: It is unclear whether there is a physical barrier between Whitefish Lake North and Whitefish Lake South that would allow Whitefish Lake North to be considered as an appropriate reference area for monitoring fish health. Recommendations: <ul style="list-style-type: none"> Denison needs to clarify in the Final EIS on an appropriate reference area for monitoring fish health. Denison needs to confirm fish movements between Whitefish Lake North and Whitefish Lake South and that Whitefish Lake North will be an appropriate reference lake. If it is not appropriate, then another reference lake such as Kochichowsky Lake may need to be considered for monitoring fish health. 	To clarify, there is no physical barrier between the north and south portions of Whitefish Lake. As indicated in the review comment the north basin of Whitefish Lake was suggested in the EIS as a potential upstream or reference monitoring for aquatic environment endpoints, including those related to fish health. Specific details for follow up monitoring program design have yet to be developed and the appropriateness / suitability of sampling areas will be evaluated through that process. The north basin of Whitefish Lake is the most proximal aquatic feature upstream of where treated effluent would be discharged and in that regard is a good candidate as a reference or non-influenced area. It is understood that proximity is not the only consideration as to the suitability of an area to be utilized as a reference area - as indicated in the review comment fish movement and mobility between sampling areas is also an important consideration since it is necessary to make comparisons, in the case of fish health, between / among independent fish populations. Such determinations as to the appropriateness of sampling areas to be utilized for follow up monitoring for the aquatic environment will be made when that monitoring program / plan documentation is developed and would be subject to discussion with Interested Parties.
477	MN-S (March 4, 2023)	Section 9.1.1.3 Spatial Boundaries	Issue #9-001: The terrestrial RSA seems small in consideration of woodland caribou and determining the impacts of the Project in association with the SK1 caribou population. Recommendations: <ul style="list-style-type: none"> Denison needs to evaluate the terrestrial RSA as it relates to the SK1 caribou population and Environment Canada's woodland caribou management plan. Provide a detailed explanation in the Final EIS as to how the terrestrial RSA was determined. 	The Project Area was delineated to capture all direct, and most indirect, likely adverse effects on caribou; as this is the zone of influence most likely to affect caribou in the vicinity of the Project (i.e., in the vicinity of human activity, equipment uses and vehicle use). The Project Area (169.6 ha) is the direct footprint of proposed Project infrastructure (74.8 ha) with a buffer applied, thereby representing the area of maximum physical disturbance. The Project Area is not VC-specific, but consistent throughout the EIS. The Wildlife LSA was designed to capture the majority of the Project effects. The LSA extends beyond Project Area of the site to include a reasonable estimation of where sensory disturbance from Project-related activities would extend and where effects on wildlife including caribou are most likely to occur. That is the primary rationale for selection of the spatial extent of the LSA – Denison believes this is an appropriate

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				<p>spatial scale that applies broadly to the wildlife VCs as a whole given the perceived mechanism of VC-Project interaction.</p> <p>Importantly, as noted in draft EIS Section 9.3.6.4, in the caribou assessment, the Project Area had a 500 m buffer applied to account for indirect effects/habitat alteration; this area is within the wildlife LSA (refer to Figure 9.3-14 for a map showing the spatial areas). The 500 m buffer for habitat alteration for caribou was selected in accordance with ECCC's (2020) 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.</p> <p>Boreal caribou occur as one continuous population across the SK1 range, including within the Terrestrial RSA. It was decided to not use the entire SK1 range as an assessment area (e.g., due to the dilution factor) and instead use the Terrestrial RSA to appropriately and adequately assess residual and cumulative effects in proportion to the Project. It was deemed to be not feasible to use a large area like the SK1 range to assess residual Project effects because this would provide inappropriate context or "dilute" the adverse effects of the Project on the caribou that have a home range that overlaps with the RSA.</p> <p>The reviewer is also referred to the response provided to Information Requirement (IR) No. 137 from the Federal Indigenous Review Team (FIRT) (see attached).</p>
478	MN-S (March 4, 2023)	Section 9.2.3.3 Wetlands Valued Components	<p>Issue #9-002: Figure 9.2-8 identifies lakes and waterbodies separately. There is a lack of clarity between a lake and a waterbody and its treatment in the EIS.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to clarify and distinguish in the Final EIS if and why lakes and waterbodies are treated differently. 	<p>Footnote 4 of Table 9.2-5 of the draft EIS describes "lakes" and "waterbodies" the difference within the context of the assessment as follows: "Lakes have been defined as either named lakes or waterbodies observed to exhibit an average depth of ≥ 2 m (Ecometrix Incorporated 2020). Waterbodies are defined as areas of open water observed to exhibit an average depth of < 2 m (Ecometrix Incorporated 2020), or unnamed areas of open water without any existing bathymetric information."</p> <p>For further reference it is noted that lakes were not considered wetlands and not carried forward in our assessment, but waterbodies (identified as either < 2 m deep or without bathymetric information) were conservatively considered to be shallow open water wetlands and assessed in the wetland assessment.</p>
479	MN-S (March 4, 2023)	Section 9.2.7.3 Cumulative Effects	Issue #9-003: There is inadequate evaluation of the combined impact of all of these changes in vegetation on the terrestrial ecosystem. It is	The assessment of potential Project related effects on the vegetation VCs followed standard assessment methodology using specific KIs and associated MPs. There is no practical, reliable way to combine all of the various KIs and associated MPs into a

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		Characterization and Determination of Significance	<p>unclear whether there will be any short-term or long-term impacts on the overall health of the terrestrial ecosystem due to the individual changes to the terrestrial components.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide in the Final EIS an assessment of the cumulative impacts of all of the individual changes to the vegetation (e.g., change in vegetation types, a change in the COPC levels in vegetation and a change in wetland composition) on the entire terrestrial ecosystem. 	<p>single, combined expression of potential effects as suggested by the review comment. The standard approach and practice are that each VC is evaluated independently using the KIs and associated MPs, setting appropriately conservative effects thresholds.</p> <p>As outlined in draft EIS Section 9.2.7.4, 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.</p>
480	MN-S (March 4, 2023)	Section 9.3.3.1.1 Scientific Literature Review	<p>Issue #9-004: The EA assumptions for moose harvest numbers and success are based on the SK database information which includes information for hunters in the southern portion of the province and for non-Indigenous peoples. Reliance on draw licences to support Project models does not capture Métis harvesting and traditional use activities in the Northern Administrative District of Saskatchewan. Métis do not participate in the draw system as they are recognized rights holders.</p> <p>Indigenous and non-Indigenous hunters have different hunting patterns. Although the data used in the EA is accurate for non- Indigenous hunters, this data should be used cautiously when assessing a project that is in an area where there is mostly (if not all) Indigenous hunters for moose and other ungulates.</p> <p>Recommendations:</p>	<p>With respect to bullet #1 the following is noted. Denison can confirm that the information provided in Section 9.3 (as well as 11.1) of the Draft EIS related to moose harvest data is based on the information that was publicly available from the Saskatchewan Ministry of Environment to contextualize moose harvest in the province and did not include specific harvest information from Indigenous sources as this was not available at the time. The final version of the EIS will provide further clarification as to the source of the moose harvest data, and that specifically it was obtained via the publicly available data regarding draw licenses.</p> <p>With respect to bullet #2 the following is noted. The draft EIS was prepared in consideration of the information available to Denison at that time. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations. A study agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. Denison is now in receipt of this study and is in the process of reviewing the information contained therein to identify how the information will be incorporated into the final EIS. It is important to note that Denison has incorporated Métis land use information and perspectives into the draft EIS, through the funding of</p>

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			<ul style="list-style-type: none"> Denison needs to provide confirmation that the assumption that moose harvest information used in the Draft EIS is based on the SK database which includes information for hunters in the southern portion of the province and for non- Indigenous peoples. If yes: Denison to acknowledge in the Final EIS that the Terrestrial Ecosystem Effects Assessment relied on draw licences to support assessment conclusions and these conclusions do not capture Métis harvesting and traditional use activities in the Northern Administrative District of Saskatchewan. In addition, Denison to note Métis do not participate in the draw system as they are recognized rights holders in the Final EIS. Denison needs to incorporate Métis Knowledge from the MKS to the Project's Terrestrial Ecosystems Effects Assessment. Denison to co-develop and implement a moose-specific monitoring and management plan with the Métis. Denison needs to include Métis harvesting patterns in the Final EIS (e.g., rabbit, moose, caribou, fox etc.). 	<p>the Kineepik Métis Land and Occupancy information along with the KML VEC statement, of which relevant information has been incorporated directly into the draft EIS to determine effects to the human environment.</p> <p>With respect to bullet #3 the following is noted. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3, is committed to such engagement with respect to monitoring. As noted in the draft EIS, Section 8.2.9 "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." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: programs will meet regulatory requirements, programs will confirm the effectiveness of mitigation measures and predictions made in the assessment, programs will be implemented in an adaptive management framework (if/where applicable) to reduce effects during the lifetime of the Project, and programs will have spatial boundaries that are sufficiently extensive to measure EIS predictions.</p> <p>With respect to bullet #4 the following is noted. The draft EIS was prepared in consideration of the information available to Denison at that time. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. For the purposes of the organization of the EIS, such organizations as the MN-S and YNLR are understood as organizations. A study agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. Denison is now in receipt of this study and is in the process of reviewing the information contained therein to identify how the information will be incorporated into the final EIS. It is important to note that Denison has incorporated Métis land use information and perspectives (including harvesting) into the draft EIS, through the funding of the Kineepik Métis Land and Occupancy information along with the KML VEC statement, of which relevant information has been incorporated directly into the draft EIS to determine effects to the human environment.</p>
481	MN-S (March 4, 2023)	Section 9.3.4.2.1 Alteration	Issue #9-005: The nature of vegetation regeneration on an altered landscape can have continuing effects on woodland caribou. This	With respect to bullet #1 the following is noted. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS and are presented at a relatively high level commensurate with the stage of Project development, including consideration of site restoration. The details of decommissioning and restoration will

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		and/or Loss of Habitat	<p>conclusion is sufficiently vague and assume regeneration will be suitable for woodland caribou.</p> <p>Denison does not provide information on the removal and decommissioning of the roads built for the Project or the extension of the transmission line in the Draft EIS. Linear disturbances like these are incredibly impactful to Métis traditional land use in and around the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> • Denison needs to identify how it will be determined that post-decommissioning revegetated habitat will be suitable for woodland caribou including any risk assessments completed to confirm the predictions. • Denison needs to involve MN-S as well as NR1 and NR3 Locals in decommissioning planning, mitigation, and monitoring. • Denison to provide further information on the removal and decommissioning of roads built for the Project and the extension of the transmission line built by SaskPower in the Final EIS. 	<p>be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP. As the decommissioning plan becomes more specific and granular it is expected that the design basis will become more detailed. Consistent with this approach / process, the expectation is that restoration goals will be defined, the activities to be implemented to meet these goals will be defined and performance criteria to confirm that the goals are being / have been reached will also be defined. It is also noted that Denison has developed a Conceptual Caribou Mitigation Plan (the Plan) during discussions between Denison and Saskatchewan Ministry of Environment (ENV) in May and June 2023. As noted at this time the Plan is conceptual in nature but will go hand in hand with and evolve with the decommissioning plan over time. Since the boreal caribou range plan for SK-1 is under development, it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan at this time is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with ENV to meet the management objectives and management strategies for the SK1 range.</p> <p>With respect to bullet #2 the following is noted. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3 and is committed to such engagement with respect to decommissioning planning, mitigation, and monitoring.</p> <p>With respect to bullet #3 the following is noted. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS and are presented at a relatively high level commensurate with the stage of Project development, including consideration of site restoration. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP. As the decommissioning plan becomes more specific and granular it is expected that the design basis will become more detailed. With the context of the evolution of the decommissioning plan for the site, the plans for removal and decommissioning of roads built for the Project and the transmission line will be developed as part of that process.</p>

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482	MN-S (March 4, 2023)	Section 9.3.4.2.2 Change in Mortality	<p>Issue #9-006: Changes in the numbers of prey and/or predators during the post-decommissioning period could impact what animals are available for harvesting by the MN-S in the long-term.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to clarify and confirm the duration of the habitat changes that may interfere with predator/prey densities including any risk assessments completed to confirm the predictions. Denison needs to involve MN-S, as well as NR1 and NR3 Locals in decommissioning planning, mitigation, and monitoring. 	<p>With respect to bullet #1 the following is noted. Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. Plans for the post-decommissioning phase, including land restoration are at the conceptual stage and will evolve over time. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS and are presented at a relatively high level commensurate with the stage of Project development, including consideration of site restoration. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP. As the decommissioning plan becomes more specific and granular it is expected that the design basis will become more detailed and specifics as to what the post-decommissioning landscape will entail and the wildlife it would support as referenced in the review question will be developed. It is also noted that Denison has developed a Conceptual Caribou Mitigation Plan (the Plan) based on discussions between Denison and Saskatchewan Ministry of Environment (ENV) in May and June 2023. The Plan is conceptual in nature but will go hand in hand with and evolve with the decommissioning plan over time. Since the boreal caribou range plan for SK-1 is under development, it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan at this time is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with ENV to meet the management objectives and management strategies for the SK1 range.</p> <p>With respect to bullet #2 the following is noted. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3 and is committed to such engagement with respect to decommissioning planning, mitigation, and monitoring.</p>
483	MN-S (March 4, 2023)	Section 9.3.5.2 Additional wildlife specific mitigation measures	<p>Issue #9-007: A wildlife monitoring plan and a Woodland Caribou Management Plan are important tools for managing caribou in the short and long-term.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to involve MN-S as well as NR1 and NR3 Locals in the creation of the 	<p>Denison has developed a Conceptual Caribou Mitigation Plan (the Plan) based on discussions between Denison and Saskatchewan Ministry of Environment (ENV) in May and June 2023. As noted, the Plan is conceptual in nature at this time, largely because of the absence of range plan priorities. Denison is committed to continue to work with ENV to meet the management objectives and management strategies for the SK1 range as the boreal caribou range plan for SK-1 is developed. The Plan is a living document and will evolve over time as more information becomes available. In this regard, Denison continues to engage with the MN-S at their direction, inclusive of</p>

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			Woodland Caribou Management Plan, and include the plan in the Final EIS	engagement in NR1 and NR3 and is committed to such engagement with respect to decommissioning planning, mitigation, and monitoring.
484	MN-S (March 4, 2023)	Section 9.3.6.4.1 Alteration and/or Loss of Habitat	<p>Issue #9-008: The woodland caribou may not return to the Project area for up to 20 years following post-decommissioning due to available food resources. This may have an impact on long-term harvesting of woodland caribou by the MN-S.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to clarify and confirm the duration of the habitat changes that may interfere with predator/prey densities including any risk assessments completed to confirm the predictions. Denison needs to clarify and confirm the duration of the habitat changes that may interfere with predator/prey densities including any risk assessments completed to confirm the predictions. 	<p>Denison acknowledges the comment and notes the following. Following submission of the draft EIS in October 2022, Denison has met with Saskatchewan Ministry of Environment (SK ENV) staff to develop a framework for future woodland caribou offset. This information has been presented to the provincial and federal review teams as part of the response to federal information requirements in August 2023 as the Conceptual Caribou Mitigation Plan.</p> <p>The Conceptual Caribou Mitigation Plan (the Plan), developed proactively by Denison, has a different objective than the draft EIS. The Plan builds on the assessment of potential Project effects and commitments to consider additional mitigation (offset) to account for non-significant residual effects highlighted in the draft EIS. The Plan is expected to be advanced with ongoing consultation with the SK ENV, as SK ENV finalize the caribou range plan for SK1. The EIS is a conservative planning tool, whereas the Plan is a practical, living document designed to define management works associated with caribou. The Plan is not a requirement for EA determination per se but is provided as a guidance document to help Denison proactively describe and inform the development and implementation of appropriate mitigation measures related to caribou and their habitat.</p> <p>The Plan is an evergreen document. It will be consistent with the management goals of SK ENV for the SK-1 caribou conservation unit and will be developed/refined in consultation with local communities including English River First Nation and Kineepik Métis Local in Pinehouse and regulators. As noted above, the boreal caribou range plan for SK-1 is under development and it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with the province to meet the management objectives and management strategies for the SK1 range.</p> <p>Denison is continuing to work with SK ENV to estimate habitat offset scenarios based on the current Project design which will be refined as the Project advances. A boreal caribou habitat offset calculator is under development by SK ENV and Denison is collaborating with SK ENV to define key scenario attributes. SK ENV will engage with Indigenous communities and nations as the province develops and refines the range management plan for SK1.</p>

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				Please see the attachment to IR 149 (Conceptual Caribou Monitoring Plan) for further details.
485	MN-S (March 4, 2023)	Section 9.3.7.3.3 Woodland Caribou	<p>Issue #9-009: The 5% threshold disturbance is for a viable population which is the SK1 population.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide confirmation that the Final EIS appropriately used the Environment Canada threshold values on the woodland caribou population as they relate to the SK1 population. Denison needs to confirm that the RSA and threshold is suitable in areal extent. See comment 9-001. Denison needs to commit to re-evaluating their woodland caribou information in the Final EIS. Specifically, to ensure the woodland caribou information used by Denison is in alignment with the SK1 Range Plan being developed by the province. 	<p>In terms of the woodland caribou population in SK1, the likelihood of self-sustainability for the Boreal Shield range (SK1) has been updated from “unknown” (EC 2012) to “likely” in the amended recovery strategy (ECCC 2020). The SK1 range comprises more than 18,000,000 ha and is characterized by high fire disturbance and low anthropogenic disturbance (ECCC 2020). For SK1, the amended recovery strategy (ECCC 2020) identifies 40% undisturbed habitat in the range as the disturbance management threshold, which provides a measurable probability (71%) for the local population to be self-sustaining. This threshold is considered a minimum threshold because at 40% undisturbed habitat there remains a risk (29%) that the SK1 local population cannot be self-sustaining. According to ECCC (2020) disturbed habitat is habitat showing: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). In contrast, according to ECCC (2020) undisturbed habitat is habitat not showing any: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). The cumulative effects assessment in the draft EIS showed that the Project is expected to add 0.001% of anthropogenic disturbance at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit (Section 9.3.7.3.3 of the EIS).</p> <p>Specific to woodland caribou, the draft EIS evaluated and assessed potential Project-related effects on the boreal population of woodland caribou following standard environmental assessment (EA) methodology. The assessment of potential effects considered both direct (i.e., habitat loss) and indirect effects (i.e., habitat alteration) on caribou and their habitat, while assuming that caribou were present year-round and during all of their life stages (i.e., calving, rearing, mating, over wintering). The rationale for the definition of study areas for the purpose of the assessment of the Terrestrial Environment valued components (VCs) is described in Section 9.1.1 of the draft EIS. The Project Area (169 ha or 1.69 km²) and LSA were delineated based on the expected extent of potential direct (footprint) and indirect (sensory disturbance) Project effects; whereas the RSA considered an 8 km buffer around the Project Area to provide an appropriate spatial scale upon which potential Project effects could be evaluated at the landscape scale where key Terrestrial Environment VCs reside and</p>

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				<p>move within and upon which cumulative effects could be assessed. Boreal caribou occur as one continuous population across the SK1 range (18,034,870 ha), including within the Terrestrial RSA. After consideration, it was decided by Denison and its Subject Matter Experts at EDI Environmental Dynamics Inc. to use the Terrestrial RSA for the cumulative effects assessment for caribou rather than the entire SK1 range. This decision was made largely on the basis that it would not be feasible / appropriate to use a such large area like the SK1 range to assess cumulative effects since consideration of such a large spatial extent would likely "dilute" the contribution of the Project to potential effects at that scale. In support of this decision, comparison of the Project-specific habitat effects (i.e., the Project Area plus a 500 m buffer to account for sensory disturbance) relative to the scale of the SK1 range (as the applicable management unit for portion of the woodland caribou population that uses the Terrestrial RSA) was made. The comparison indicated that the Project is expected to add 0.001% of anthropogenic disturbance at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit (Section 9.3.7.3.3 of the EIS). As can be seen, the default conclusion at the range scale could only be that the Project does not contribute to cumulative effects at a practical measurable level.</p> <p>Denison and its SMEs believe the EIS took a precautionary or conservative approach to understanding/addressing the likely residual effects (i.e., effects remaining after mitigation measures were considered) of the Project on caribou and their habitat. This approach provides is appropriate as a planning tool to inform/support future Project-related regulatory approvals processes and to guide the scope and nature of follow-up monitoring. After consideration of measures to avoid and mitigate the potential for effects on caribou and their habitat it was concluded that the likely residual effects of the Project on caribou and their habitat were not significant.</p> <p>While the EIS did not consider specific additional opportunities to offset the non-significant effects, Denison has been working to develop a Conceptual Caribou Mitigation Plan. The plan was submitted to the provincial and federal review teams as part of the response to federal information requirements in August 2023 as the Conceptual Caribou Mitigation Plan and Denison has been in close contact with the Saskatchewan Ministry of Environment (SK ENV), as stewards of woodland caribou from a regulatory perspective.</p> <p>References:</p> <p>Environment and Climate Change Canada (ECCC). 2020. Amended Recovery Strategy for the Woodland Caribou (<i>Rangifer tarandus caribou</i>), Boreal Population, in Canada.</p>

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				Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. xiii + 143pp.
486	MN-S (March 4, 2023)	Section 9.3.8 Monitoring and Follow-up	<p>Issue #9-010: Previous sections of the Draft EIS identified the development of the Woodland Caribou Management Plan.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to confirm the preparation and inclusion of a Woodland Caribou Management Plan within this section of the Final EIS. 	<p>Denison acknowledges the comment and notes the following. Following submission of the draft EIS in October 2022, Denison has met with Saskatchewan Ministry of Environment (SK ENV) staff to develop a framework for future woodland caribou offset. This information has been presented to the provincial and federal review teams as part of the response to federal information requirements in August 2023 as the Conceptual Caribou Mitigation Plan.</p> <p>The Conceptual Caribou Mitigation Plan (the Plan), developed proactively by Denison, has a different objective than the draft EIS. The Plan builds on the assessment of potential Project effects and commitments to consider additional mitigation (offset) to account for non-significant residual effects highlighted in the draft EIS. The Plan is expected to be advanced with ongoing consultation with the SK ENV, as SK ENV finalize the caribou range plan for SK1. The EIS is a conservative planning tool, whereas the Plan is a practical, living document designed to define management works associated with caribou. The Plan is not a requirement for EA determination per se but is provided as a guidance document to help Denison proactively describe and inform the development and implementation of appropriate mitigation measures related to caribou and their habitat.</p> <p>The Plan is an evergreen document. It will be consistent with the management goals of SK ENV for the SK-1 caribou conservation unit and will be developed/refined in consultation with local communities including English River First Nation and Kineepik Métis Local in Pinehouse and regulators. As noted above, the boreal caribou range plan for SK-1 is under development and it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with the province to meet the management objectives and management strategies for the SK1 range.</p> <p>Denison is continuing to work with SK ENV to estimate habitat offset scenarios based on the current Project design which will be refined as the Project advances. A boreal caribou habitat offset calculator is under development by SK ENV and Denison is collaborating with SK ENV to define key scenario attributes. SK ENV will engage with Indigenous communities and nations as the province develops and refines the range management plan for SK1.</p>

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487	MN-S (March 4, 2023)	Section 11.1.1.1 Values Component Selection	<p>Issue #11-001: Arrangements and applicable funding to facilitate MN-S' participation and engagement in the EA process are underway. It is expected that MN-S will be given the opportunity to validate VC selection and have this information reflected in the Final EIS.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison, in the Final EIS, needs to demonstrate that it confirmed the selected valued components with Métis Locals in NR1 and NR3. Denison needs to include in the Final EIS input from the Métis Knowledge Study and any changes in the selection of VCs and their characterization. 	<p>At the direction of the MN-S, Denison participated in meetings on February 12, 2023, with NR1 and on February 13, 2023, with NR3. The participants at these sessions were identified and invited by the MN-S. During these meetings, Denison shared information about the Project and the associated VCs assessed as part of the environmental assessment. No new VCs were identified as part of that discussion, and should new ones emerge through process, we would consider them at that time.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>
488	MN-S (March 4, 2023)	Section 11.1.2.3 The Métis Nation-Saskatchewan	<p>Issue #11-002: The EIS states: "The parties have specifically agreed to a process between each other that will be funded by Denison and undertaken on behalf of the MN-S in connection with the EA of the Project: a Métis Knowledge Study, meetings to focus on VCs and preliminary effects, and regular meetings and associated costs for hosting such meetings."</p> <p>The correct name is "Métis Nation-Saskatchewan" (no "of").</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to correctly reference Métis Nation- Saskatchewan throughout the Final EIS. Denison needs to include in the Final EIS input from the Métis Knowledge Study and any changes in the selection of VCs and their characterization. 	<p>The EIS will be updated throughout to the correct name "Métis Nation-Saskatchewan" (no "of").</p> <p>At the direction of the MN-S, Denison participated in meetings on February 12, 2023, with NR1 and on February 13, 2023, with NR3. The participants at these sessions were identified and invited by the MN-S. During these meetings, Denison shared information about the Project and the associated VCs assessed as part of the environmental assessment. No new VCs were identified as part of that discussion, and should new ones emerge through process, we would consider them at that time.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>

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489	MN-S (March 4, 2023)	Section 11.1.4.1 Potential Interactions Between the Project and Valued Component/Key Indicators	<p>Issue #11-003: Many of the Project Phase/Activities listed would contribute to a change in the environmental setting for Indigenous land and resource users within the LSA. Interactions should be considered for temporary or longer-lasting aesthetics impact related to Project-related dust, lighting, noise, and visual disturbance.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to revise Table 11.1-7 in the Final EIS to include the addition of interactions and effects analysis for "Perceived suitability of lands and resources therein" that considers Project-related construction and decommission impacts to Indigenous Land and Resource Use. For example, the development of access roads and site preparation during construction, and demolition and disposal of surface infrastructure during decommission, would likely result in some interaction with ILRU related to noise, dust, or traffic. 	Table 11.1-7 will be revisited to include to the development of access roads and site preparation during construction, and demolition and disposal of surface infrastructure during decommission.
490	MN-S (March 4, 2023)	Section 11.1.4.3.1 Terrestrial Resource Availability	<p>Issue #11-004: Missing information to support the claim that other large terrestrial mammals, such as elk and white-tailed deer species, are not found in sufficient abundance in the LSA to be assessed as part the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include additional information in the Final EIS on why large terrestrial mammals that are harvested in the LSA (such as elk and white-tailed deer) are not found in sufficient abundance in the LSA to support this conclusion. 	Section 11.2.3.1.2 describes how other big game species, such as white-tailed deer or elk, are not hunted in WMZ 75 due to the absence or low abundance of these species.
491	MN-S (March 4, 2023)	Section 11.1.5 Mitigation Measures	Issue #11-005: In the Draft EIS, Denison has proposed to develop mitigation measures and management planning but has not begun engaging with Métis Community of Interest and MN-S on	A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final

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			<p>contents of mitigation measures or management plans.</p> <p>It is good practice for Communities of Interest, including Métis, to have the opportunity to contribute to the scoping, development, and implementation of mitigation measures and management plans (and monitoring programs), including effectiveness reviews and the application of an adaptive management approach.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include in the Final EIS, effects mitigation, and management and monitoring plans that were prepared with MN-S and NR1 and NR3 Locals involvement and agreement. 	<p>EIS to include relevant information in the assessment from the Métis Knowledge Study.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
492	MN-S (March 4, 2023)	Section 11.1.8 Monitoring and Follow-up	<p>Issue #11-06: In the Draft EIS, Denison has proposed to develop monitoring programs, but as not begun engaging with MN-S or NR1 and NR3 Locals on contents of these programs.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include in the Final EIS, management and monitoring plans that were prepared with MN-S and NR1 and NR3 Locals involvement and agreement. 	<p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
493	MN-S (March 4, 2023)	Section 11.1.7 Cumulative Effects Section 11.2.7 Cumulative Effects	<p>Issue #11-07 and 11-12: For many Indigenous communities and governments, cumulative effects analysis requires an assessment that includes pre-development conditions to understand the impacts of past and existing activities that continue to affect the context for environmental and social systems.</p> <p>An evolving best practice during an EA is to consider the fuller context of historic change. This practice is recognized through numerous Canadian</p>	Noted.

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			cumulative effects assessment initiatives and management frameworks (e.g., Indigenous Centre for Cumulative Effects) and recent Indigenous led environmental assessment (e.g., Squamish Nation Assessment Process).	
494	MN-S (March 4, 2023)	Section 11.2.3.1.2 Big Game Hunting	<p>Issue #11-08: The EA assumptions for big game numbers and success are based on the SK database information which includes information for hunters in the southern portion of the province and for non-Indigenous peoples. Reliance on draw licences to support Project models does not capture Métis harvesting and traditional use activities in the Northern Administrative District of Saskatchewan. Métis do not participate in the draw system as they are recognized rights holders.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison to acknowledge in the Final EIS that the Terrestrial Ecosystem Effects Assessment relied on draw licences to support assessment conclusions and these conclusions do not capture Métis harvesting and traditional use activities in the Northern Administrative District of Saskatchewan. In addition, Denison to note Métis do not participate in the draw system as they are recognized rights holders in the Final EIS. Denison needs to incorporate Métis Knowledge from the MKS to the Project's Terrestrial Ecosystems Effects Assessment. 	<p>Section 9.3.3.1.1 describes how the Project is located in WMZ 75, while WMZ 73, 74, and 76 are adjoining WMZ 75 (Figure 9.3 6). Between 2014 and 2020 (the years for which data are available), no draw licences were sold for any of these WMZ and, therefore, no associated harvest was reported to have occurred in the area based on draw licenses. While this breakdown to WMZ harvest numbers is not available for resident regular licences, it is assumed that most of the annual harvest through resident regular licences occurred in the southern part of the province.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>
495	MN-S (March 4, 2023)	Section 11.2.3.1.4 Upland Game Bird Hunting	<p>Issue #11-09: To characterize trends in wildlife harvesting it would be more appropriate to show a period longer than 1 year; at least 5 years where available.</p> <p>Recommendations:</p>	Temporal boundaries for characterizing components of the OLRU existing environment varied by topic. Commercial trapping and fishing data were presented based on the data available from the Province of Saskatchewan, and with multiple years of data presented where available. Other topics such as recreational fishing and hunting considered data where available, but in some instances is based on licensing quotas which do not always vary from year to year or are based on self-reported

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			<ul style="list-style-type: none"> Following best practices, Denison should include at least 5 years of data in the Final EIS for upland game bird harvest and harvest effort in Game Bird Management. 	outcomes. Specific to game bird harvesting, over 5 years of data is provided on annual grouse harvest (2014 to 2020) in Section 9.4.3, Table 9.4-3.
496	MN-S (March 4, 2023)	Section 11.2.3.9 Indigenous Perspectives on Other Land and Resource Use	<p>Issue #11-10: The characterization of Indigenous perspectives on other land and resource use does not yet reflect MN-S and NR1 and NR3 Locals values or interests as this has not yet been provided. It is expected that when made available, this information will be reflected in the Final EIS.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include in the Final EIS, information provided by Métis Locals in NR1 and NR3 on their perspectives on other land and resource use. 	A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.
497	MN-S (March 4, 2023)	Section 11.2.4.5.1 Aesthetic Experience	<p>Issue #11-011: This conclusion is not consistent with the methods detailed on page 5-30 in section 5.8 as the Draft EIS identifies noticeable residual effects related to traffic (increased traffic volume) and noise (low to moderate impact). These effects should be taken to residual effects assessment.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> To be consistent with the methods detailed in section 5.8, Denison should include all noticeable Project-related effects for residual effects assessment. For example, effects were identified related to traffic (increased traffic volume) and noise (low to moderate impact) but were not taken to residual effects assessment for Other Land and Resource Use in the Final EIS. 	Potential Project disturbances considered under this pathway included increases in traffic, noise, air quality, modification of the wilderness experience, and increases in competition for resources. These disturbances will be most detectible in locations proximal to the Project site. Effects have the most potential to affect cabin leaseholders due to their use of ground travel, hunting and fishing activities, and general proximity to the Project. With the exception of dust which has proven mitigation strategies, the overall disturbances are negligible and there are a limited number of resource users who will experience them to any detectible degree. Therefore, this pathway is not carried forward for residual effects assessment. Section 11.2.5 describes the mitigation measures to reduce the impacts of traffic, noise, and others. Further mitigations for traffic are described in Section 12.3.5 in Section 12 and for noise are described in Section 6.2.5 in Section 6.
498	MN-S (March 4, 2023)	Section 12.1.2.3 Other Sources of Information	Issue #12-001: Arrangements and applicable funding to facilitate the MN-S' participation and engagement in the EA process are underway. It's expected that MN-S will be given the opportunity	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of

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		and Local Knowledge	to provide information related to cultural expression and this information will be reflected in the Final EIS. Recommendations: <ul style="list-style-type: none"> Denison needs to include in the Final EIS, information provided by Métis Locals in NR1 and NR3 on their input related to cultural expression. 	the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.
499	MN-S (March 4, 2023)	Section 12.1.4.2.1 Potential Effect 1: Change in Knowledge Transmission	Issue #12-002: Need some clarification on this statement as it's reasonable to assume that both parents (mother and father), aunts' and uncles, and other relatives who are members of the community/family would potentially be employed and be away from home. Transmission of knowledge has the potential to be disturbed if multiple family and community members are away on working rotation. Recommendations: <ul style="list-style-type: none"> Denison needs to provide clarity in the Final EIS on the statement that "knowledge transmission is likely to continue because the entire family and community are involved" considering the potential that with local hiring practices in place, multiple family and community members may be away on working rotation and not able to adequately facilitate knowledge transfer. 	Denison acknowledges that both parents (mother and father), aunts' and uncles, and other relatives who are members of the community/family could potentially be employed by the Project. Mitigation measures associated with potential effects to cultural continuity and the commuter-rotation system are described in Section 12.1.5 and include: <ul style="list-style-type: none"> Working with Indigenous COIs to understand culturally important periods relative to harvest times and cultural camps to facilitate Indigenous employees taking time off to participate in such activities, where practicable; Implementation of Denison's Indigenous Peoples Policy and advancement of reconciliation Using a commuter rotation system has also shown to be effective in allowing Indigenous employees continued opportunities to spend time on the land, and important factor in the transmission of knowledge and language (see Section 11 for a description of potential effects to land use). Denison remains committed to maintain positive working relationships with all Indigenous COIs and will be open to discussion on any issues or concerns that arise. As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.

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500	MN-S (March 4, 2023)	Section 12.1.4.2.1 Potential Effect 1: Change in Knowledge Transmission	<p>Issue #12-003: The Draft EIS points to follow-up programs as a way to address any uncertainties identified during the EA process. Insufficient detail is provided to reflect how avoidance of areas near the Project may occur; monitoring (and adaptive management) is needed. More clarity on how monitoring will be developed (in section 12.1.8, p. 12-34) to address this uncertainty.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more detail in the Final EIS on monitoring (and adaptive management) for areas of uncertainty such as displacement of cultural activities. This includes management and monitoring plans that were prepared with MN-S involvement and agreement. 	<p>Changes to knowledge transmission as described in Section 12.1.4.2.1 stem from two factors: changes to Indigenous Land and Resource Use, and individual participation in the commuter rotation system - both of which have the potential to affect the ways in which individuals spend time participating in cultural activities. Although there is some uncertainty as to the extent to which individuals will continue to participate in activities that support knowledge transmission, experience from other uranium operations in northern Saskatchewan, the shared and communal nature of cultural expression (i.e., occurs within entire extended families and communities) combined with the Project's minimal effects to land and resource use are not expected to alter the ways in which cultural expression currently occurs (or might vary under regular circumstances). As such, no specific monitoring related to changes to cultural expression are planned.</p> <p>Denison acknowledges the concern raised regarding cultural activities related to working at an industrial operation. Mitigation measures associated with potential effects to cultural continuity (including knowledge transfer and language) are described in Section 12.1.5 and include:</p> <ul style="list-style-type: none"> working with Indigenous COIs to understand culturally important periods relative to harvest times and cultural camps to facilitate Indigenous employees taking time off to participate in such activities; and implementation of Denison's Indigenous Peoples Policy and advancement of reconciliation; <p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3 and is committed to such engagement with respect to decommissioning planning, mitigation, and monitoring. Denison remains committed to maintaining positive relationships with Indigenous communities and will be open to discussion on any issues or concerns that arise over the course of the Project.</p>
501	MN-S (March 4, 2023)	Section 12.1.4.2.2 Potential Effect 2: Change in Traditional Diet	<p>Issue #12-004: The EIS states: "Experience from other uranium operations in northern Saskatchewan suggests that resource use will continue despite the potential selenium exceedance. . . members had developed their own culturally appropriate practice of risk assessment and management based on their relationship with the land.</p>	<p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where</p>

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			<p>"....The ERFN Trapper had a positive relationship with other uranium operations in the ILRU LSA."</p> <p>The claims made in this section sound like the potential Project effects being identified are to be mitigated by ILRU users' behavior, based on past behavior patterns, rather than Project mitigation.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include in the Final EIS, health risk assessment management and monitoring plans that are prepared with MN-S involvement and agreement to address suitability of land and resources for Indigenous land users. Denison should confirm this assertion through a monitoring program that will focus on providing data to verify the predictions and include communication planning to convey health risk assessment results. This may also address assumptions about perceived suitability of lands and resources. 	applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.
502	MN-S (March 4, 2023)	Section 12.1.8 Monitoring and Follow-up	<p>Issue #12-006: Areas of uncertainty were identified in the analysis of Cultural Expression (e.g., displacement of cultural activities). Adaptive management is an appropriate strategy for helping to reduce uncertainty about environmental effects and the effectiveness of mitigation. It provides flexibility to identify new mitigation measures or to modify existing ones during the life of the Project.</p> <p>In the Draft EIS, Denison has proposed to develop monitoring programs, but has not begun engaging with MN-S on contents of these programs. As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of monitoring programs, including</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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			<p>effectiveness reviews and the application of an adaptive management approach.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Considering areas of uncertainty were identified in the analysis of Cultural Expression (e.g., displacement of cultural activities) in the Draft EIS, MN-S request more details in the Final EIS on monitoring (and adaptive management) for areas of uncertainty related to Indigenous cultural expression. This includes a monitoring program that will focus on providing data to verify the predictions and include communication planning to convey health risk assessment results. This may also address assumptions about perceived suitability of lands and resources. 	
503	MN-S (March 4, 2023)	Section 12.2.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment	<p>Issue #12-007: Arrangements and applicable funding for a Métis Knowledge study is underway but not yet incorporated in the assessment.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison, in the Final EIS, needs to incorporate the outcome of the Métis Knowledge Study. 	A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.
504	MN-S (March 4, 2023)	Section 12.2.4.1 Potential Interactions Between the Project and Valued Component / Key Indicators	<p>Issue #12-08: The interaction table (12.2-5) identifies "Employment and Expenditures" as the only project component that would influence community well-being. This is inconsistent with previous interactions tables and information in the Draft EIS that identified potential interactions with the physical components and activities of the project that could affect aspects of community identity and cohesion (e.g., section 12.1 Cultural Expression). Comments were raised in the Draft EIS that community health and well-being is related to the relationship with the environment including</p>	Denison acknowledges that there is an interrelationship between the two and for the purposes of the EIS has been organized into separate sections. Section 11.1 provides an assessment on perceived suitability of lands and resources therein, along with human health. See Section 11.1.4, 11.1.5, and 11.1.6 for further information.

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			<p>issues such as changes in water quality or quantity, and mental health being affected by industrial development.</p> <p>Furthermore, section 12.2.3.3 (p. 12-66 to 12-73) identifies the natural environment as a component of community cohesion. This should be better reflected in the analysis of Community Well-being.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> In the Final EIS, Table 12.2-5: Potential Project Interactions for Community Well-being (p. 12-74 to 12-77) should include the addition of interactions and effects analysis for "Change in Community Cohesion" that considers Project- related construction, operations, and decommission impacts to mental, physical, and cultural health that stem from a relationship with the environment. 	
505	MN-S (March 4, 2023)	Section 12.2.4.2.1 Potential Effect 1 – Change in Population and Demographics	<p>Issue #12-009: In the Draft EIS, Denison has proposed to develop mitigation measures and management planning, but as not begun engaging with MN-S on contents of mitigation measures or management plans. As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of mitigations, such as input into the location of pick-up points and commuter transportation options.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> The Final EIS should include detail on how the input provided by Métis Locals in NR1 and NR3 and MN-S will influence the development of the location of pick-up points and commuter transportation options and address concerns related to in-migration and out-migration pressures. 	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>

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506	MN-S (March 4, 2023)	Section 12.2.4.2.2 Potential Effect 2 – Change in Income	<p>Issue #12-010: The EIS states: "Best efforts will be made to make sure employment is maximized, including within the LSA communities and to encourage business participation within the LSA." (p. 12-80)</p> <p>"Best efforts will be made . . ." is a vague statement about project-related plans to maximize local training, employment, and procurement opportunities that would beneficially impact income levels for residents. More detail is needed to understand Denison's approach and commitment to increased personal income for residents of the LSA.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more certainty and detail within the Final EIS related to local employment and procurement mitigation as well as supports for employee retention. More information is needed to understand Denison's approach and commitment to increased personal income for residents of the LSA. Denison to expand the LSA communities to include all potentially impacted NR1 and NR3 Locals. 	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable. These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI. The LSA for the assessment of the economy includes ERFN (including Indian Reserve Wapachewunak 192D and Indian Reserve La Plonge 192) and Patuanak, Pinehouse Lake, and Beauval. The RSA for the Economy VC is the Northern Saskatchewan Administrative District (Census Division 18), which is defined in The Northern Municipalities Act, 2010 (Government of Saskatchewan 2010). This area shares many economic and demographic characteristics with the LSA and is a relevant reference point.</p> <p>Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as on-the-job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions (such as Northlands College) to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.</p> <p>Denison will establish a procurement approach throughout all phases of the Project, prioritizing the procurement of goods and services for the Project toward businesses based within the LSA communities prior to looking elsewhere in northern Saskatchewan, southern Saskatchewan, and/or outside of Saskatchewan. This procurement approach may consider advance sharing of purchasing requirements of goods and services throughout all phases of the Project, efforts to increase the capacity and capabilities of businesses to increase successful bidding outcomes, and the development of a business registry.</p>
507	MN-S (March 4, 2023)	Section 12.2.4.2.2	Issue #12-011: "Community concerns" are identified related to broader spatial (having to	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of

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		Potential Effect 2 – Change in Income	<p>move away to work) and temporal (“crash” after project) uncertainty for increased income. More detail is needed to understand Denison's approach and commitment to addressing community concerns related to income for residents of the LSA.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more certainty and detail within the Final EIS related to local employment and procurement mitigation as well as supports for employee retention. More information is needed to understand Denison's approach and commitment to addressing community concerns related to increased personal income for residents of the LSA. Decommissioning planning needs to consider employment transition in addition to site clean-up to avoid boom and bust scenarios. 	<p>the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as on-the-job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.</p> <p>Denison will establish a procurement approach throughout all phases of the Project, prioritizing the procurement of goods and services for the Project toward businesses based within the LSA communities prior to looking elsewhere in northern Saskatchewan, southern Saskatchewan, and/or outside of Saskatchewan. This procurement approach may consider advance sharing of purchasing requirements of goods and services throughout all phases of the Project, efforts to increase the capacity and capabilities of businesses to increase successful bidding outcomes, and the development of a business registry.</p>
508	MN-S (March 4, 2023)	Section 12.2.4.2.3 Potential Effect 3 – Change in Community Cohesion	<p>Issue #12-012: “Community concerns” are identified related to impact to family and community cohesion due to working away from home for long periods. More detail is needed to understand Denison's approach and commitment to addressing community concerns related to community and family cohesion effects for residents of the LSA.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more detail within the Final EIS related to worker rotation system mitigation. Particularly considering the identification of reported difficulty in balancing the demands of a worker rotation 	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>Denison recognizes that both parents and members of the community/family could potentially be employed by the Project. Mitigation measures associated with potential effects to community cohesion and the commuter-rotation system are described in Section 12.1.5 and include:</p> <ul style="list-style-type: none"> Working with Indigenous COIs to understand culturally important periods relative to harvest times and cultural camps to facilitate Indigenous employees taking time off to participate in such activities, where practicable; Implementation of Denison's Indigenous Peoples Policy and advancement of reconciliation

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			system with domestic commitments, and many local community members concern of being unable to achieve a work-life balance.	<ul style="list-style-type: none"> Using a commuter rotation system has also shown to be effective in allowing Indigenous employees continued opportunities to spend time on the land, and important factor in the transmission of knowledge and language (see Section 11 for a description of potential effects to land use). <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
509	MN-S (March 4, 2023)	Section 12.2.4.2.3 Potential Effect 3 – Change in Community Cohesion	<p>Issue #12-013: Terminology like "could" is a vague indicator of commitment to developing strategies to address training and support systems for workers. More detail is needed to understand Denison's approach and commitment to addressing community concerns related to providing appropriate local resources for training and support as access to education and supports systems effects for residents of the LSA.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more detail within the Final EIS related to their role in developing and providing culturally appropriate resources for training, education and supports systems as access has already been identified as a barrier to local communities. Denison needs to support Métis training opportunities through Northlands College. 	Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as on-the-job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions (such as Northlands College) to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.
510	MN-S (March 4, 2023)	Section 12.2.5 Mitigation Measures	Issue #12-014: More detail is needed to understand the types and scope of health and wellness programs. Many of the services listed	As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the

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			<p>below this statement are standard health and safety measures for industrial sites and only accessible to on-site staff. They do not address community issues of health and well-being.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more detail within the Final EIS related to the health and wellness programs and their role in developing and providing resources of this type. This should include the provision of services more broadly within communities, not just to individuals on-site. Denison to confirm how Métis input is considered in mitigation development. 	<p>development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
511	MN-S (March 4, 2023)	Section 12.2.5 Mitigation Measures	<p>Issue #12-015: Terminology like "may" is a vague indicator of commitment to development of life skills programming. More detail is needed to understand Denison's approach and commitment to addressing community concerns related to providing appropriate local resources for supporting the well-being of residents of the LSA.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more detail within the Final EIS related to a commitment to developing and key components of life skills programs. It is appropriate to address the issues as they are identified as an effect of the project in the proceeding section regardless of the certainty of these effects. Denison to confirm how Métis input is considered in mitigation development. 	<p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
512	MN-S (March 4, 2023)	Section 12.2.5 Mitigation Measures	<p>Issue #12-016: In the Draft EIS, Denison has proposed to develop mitigation measures and management planning but has not begun engaging with MN-S on contents of mitigation measures or</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p>

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			<p>management plans. As a rights holder, MN-S should have the opportunity to contribute to the scoping, development, and implementation of mitigations, such as input into the location of pick-up points and commuter transportation options.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide additional detail within the Final EIS, on how the input provided by MN-S, NR1 Locals, and NR3 Locals will influence the development of the location of pick-up points and commuter transportation options. <p>See also MN-S Issue #12-010</p>	<p>Section 12.2.4.2.1 describes that multiple pick-up points for workers will be determined as part of Project design, including additional locations to be determined relative to eligible labour force supply.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
513	MN-S (March 4, 2023)	Section 12.2.5 Mitigation Measures	<p>Issue #12-017: More clarity and commitment are required from Denison on social management mitigations and programming.</p> <p>For example, Denison could implement established mitigations to address effects that are identified in the Draft EIS related to community well-being, such as:</p> <ol style="list-style-type: none"> maintain a Community Liaison Coordinator position to work with communities throughout the Project and provide a grievance mechanism through which individuals can confidentially and independently raise issues should they arise. develop a Community Readiness program to support communities and businesses in assessing local capacity, identify critical gaps that would prevent community members from successfully gaining employment, and capture business and economic opportunities related to the Project. involving local communities in the development and implementation of monitoring programs could provide opportunities for 	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>

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			<p>employment during Construction to beyond the Decommissioning stage.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide additional detail within the Final EIS related to Denison's commitment to developing mitigations that address potential effects to community well-being such as support for community accessible health and wellness programs, community liaisons, community readiness programs, and long-term monitoring opportunities. This includes mitigations that are prepared with MN-S, and NR1 and NR3 Locals involvement and agreement. 	
514	MN-S (March 4, 2023)	Section 12.2.6.2.2 Community Cohesion	<p>Issue #12-018: This analysis does not address the concerns expressed in the existing conditions reporting (section 12.2.3, p. 12-47 to 12-50) related to mental and physical health being affected by quality of water and land is being affected by industrial developments. This should be better reflected in the analysis of Community Cohesion.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide additional effects analysis of "Change in Community Cohesion" that considers Project- related construction, operations, and decommission impacts to mental, physical, and cultural health that stem from a relationship with the environment. For example, concerns were expressed in the Draft EIS reporting (section 12.2.3) related to mental and physical health being affected by quality of water and land is being affected by industrial developments. 	Denison acknowledges that there is an interrelationship between the two and for the purposes of the EIS has been organized into separate sections. Section 11.1 provides an assessment on perceived suitability of lands and resources therein, along with human health. See Section 11.1.4, 11.1.5, and 11.1.6 for further information.
515	MN-S (March 4, 2023)	Section 12.2.6.2.2	Issue #12-019: This statement, and the existing conditions reporting, presents evidence that stress	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of

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		Community Cohesion	<p>and related responses are a potential indirect effect of changes to employment and income that could be related to the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Considering the uncertainty identified in the Draft EIS about social effects of the Project on community cohesion, Denison needs to provide additional detail within the Final EIS related to Denison's commitment to developing monitoring and management programs to understand and respond adaptively to potential effects of the Project on community cohesion. This includes monitoring and management programs prepared with MN-S, and NR1 and NR3 Locals involvement and agreement that could support community members dealing with use of alcohol/substances and/or related violence and crime. 	<p>the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p>
516	MN-S (March 4, 2023)	Section 12.2.8 Monitoring and Follow-up	<p>Issue #12-020: This statement is vague about who will monitor community cohesion and whether Government departments and private- sector companies are committed to provide those services for the life of the Project. It also ignores previous statements in the Draft EIS that identify direct and indirect effects of uncertainty related to changes to community well-being that would be related to the Project.</p> <p>Denison's earlier statements indicate that monitoring and follow-up will be an aspect of mitigation. The statements seem contradictory.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison, in the Final EIS, needs to demonstrate that whether Government departments and private-sector companies 	<p>Denison is committed to implementing measures within its control and responsibilities (for example the EFAP and other measures). As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatial boundaries are sufficiently extensive to measure EIS predictions.</p> <p>Monitoring of community cohesion at the community level is something Denison understands is for the Government to consider.</p>

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			<p>are committed to provide community cohesion- related services for the life of the Project.</p> <ul style="list-style-type: none"> Denison needs to distinguish and clarify earlier statements of monitoring and follow-up with the assertion here. 	
517	MN-S (March 4, 2023)	Section 12.3.1.3.1 Spatial Boundaries	<p>Issue #12-021: Contrary to the text describing the Traffic Study Area, Highway 914 and Highway 165 are not labelled on Figure 12.3-3.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> MN-S request the revision of Figure 12.3-3 to include labelling of Highway 914 and Highway 165 in the Final EIS. 	Please refer to Figure 12.3-4 which describes the location of the Project in relation to Highway 914 and 165.
518	MN-S (March 4, 2023)	Section 12.3.4.2.1 Potential Effect 1 – Change in Traffic	<p>Issue #12-022: The 31% or 51% increase in truck traffic on Highway 914 seems to represent a more than slight increase in traffic volume. It is acknowledged that this is related to 18 additional trucks per day. Clarification is required to determine if there would be a similar % increase in potential collisions.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to clarify and provide analysis of the impact of traffic volume and what is a suitable threshold. 	Denison believes it has fulfilled its information requirements for the EIS and supporting documentation as outlined in the EA guidance provided by the province and federal government. Notwithstanding that, Denison recognizes that further information will be required as the project moves through the EA and licensing / permitting processes. Denison will work with the province to identify and scope additional information requirements. For further details, please see response to comment 591 (MN-S issue #12-023).
519	MN-S (March 4, 2023)	Section 12.3.4.2.1 Potential Effect 1 – Change in Traffic	<p>Issue #12-023: Clarity is required to explain why collisions can not be predicted with accuracy given the availability of existing predictive modelling for traffic management planning.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison should provide further clarification in the Final EIS of why collisions can not be predicted with accuracy given the availability of existing predictive modelling for traffic management planning. 	To clarify, the text in Section 12.3.4.2.1. should have more specifically referenced accident rates as part the discussion of an increase in the number of collisions due to the Project. Overall, it is expected that accident rates will not be affected by the incremental increase in traffic associated with the Project. Traffic volume is a poor predictor of accident rates on relatively well traveled roads - that is, the accident rate does not show a direct relationship with traffic volume and is relatively consistent in this case. Extrapolating existing accident rates and specifically applying them to the Projects related traffic can provide some insight but it is understood that such extrapolation would be very conservative and overestimate the actual level of risk. Accident statistics are inclusive of all manner of accidents, the majority of which are single vehicle accidents that do not result in significant harm to people or property.

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				<p>Moreover, it would be expected that the likelihood of Project-related traffic accidents would occur at lower rates than those attributed to the general public based on the mitigations described in the draft EIS (Section 12.3.5) including: all drivers serving the Project will receive appropriate training related to the nature of materials being transported, including driver training to the highest standards based on the transportation of nuclear substances; vehicles transporting dangerous goods and/or hazardous products will display required placards and labels in accordance with provincial legislation and will follow designated highway corridors; an Emergency Response Plan will be developed in case there is a spill during the transportation of dangerous goods and/or hazardous products; and all, materials transported by truck will be compliant with any weight restrictions or permits, spring road restrictions, or geometric constraints set out by the Saskatchewan MOHI.</p> <p>The above notwithstanding, Denison recognizes the level of concern regarding Project related transportation it has received through engagement activities to date and will continue to solicit input on transportation concerns as the Project moves forward and as the Program / Plan / Procedure documentation is developed during licensing since elements of this documentation directly align with management of the aforementioned concerns (e.g., emergency response planning, transportation management planning).</p>
520	MN-S (March 4, 2023)	Section 12.3.4.2.2 Potential Effect 2 – Change in Community Infrastructure and Services	<p>Issue #12-024: Clarification is required to explain how Denison intends to provide employee maintenance support services that address the indirect effect to the community members (e.g., childcare, etc.) identified in this statement.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison to provide in the Final EIS additional detail on commitments to support employee families while on rotation. 	<p>Section 12.3.5 describes the mitigation measures applicable to community infrastructure and services within the LSA communities, the following mitigation measures will be implemented to reduce adverse effects:</p> <p>(1) Services and programs will be provided on-site and will be accessible to workers. These services and programs may alleviate pressures on social and health services within LSA communities.</p> <p>(2) An EFAP will be part of each worker's benefits package and will provide supports to individuals and their families that may not be readily available in the communities. Employee and family assistance programs typically provide free assessments, short-term counselling, referrals, and follow-ups to employees and their family members who are having personal or work-related problems. Generally, EFAPs can be accessed remotely by workers and their immediate family. Denison will aim to educate their staff on the offerings of their EFAPs, as well as making that information shareable with individuals' families.</p>
521	MN-S (March 4, 2023)	Section 12.3.4.2.2 Potential Effect	Issue #12-025: The services listed in Table 12.3-14 are predominately crisis management services and	As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other

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		2 – Change in Community Infrastructure and Services	<p>general health care services which are provided by existing organizations in the community/region. Clarification is required to identify the community services that Denison will make available to the families of local employees to address shift rotation issues (e.g., childcare services) and how Denison will help families with access these services.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison should clarify their commitment to providing provide community social services to the families of local employees to address issue identified in relation to the shift rotation (e.g., childcare services) 	<p>interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatially boundaries are sufficiently extensive to measure EIS predictions.</p> <p>As the Project site will be self-sufficient in terms of meeting the needs of the Project and its workforce, the effects related to local communities are associated with the effects of participation in employment and the associated commuter rotation system. With the application of mitigation measures described in Section 12.3.5 and given the distance between communities in the LSA and the Project site, the residual adverse effects are expected to be low in magnitude The overall conclusion relative to changes to Infrastructure and Services is not significant.</p>
522	MN-S (March 4, 2023)	Section 12.3.2 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment (p. 12- 108)	<p>Issue #12-026: Arrangements and applicable funding for a Métis Knowledge study is underway but not yet incorporated in the assessment.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to include in the Final EIS, Métis Knowledge study findings on their perspectives on infrastructure and services. 	<p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>
523	MN-S (March 4, 2023)	Section 12.3.4.2.2 Potential Effect 2 – Change in Community Infrastructure and Services	<p>Issue #12-027 and 12-028: Clarification is required to indicate how the on-site programs would support community-based health services.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison to provide additional information of on-site health services that will alleviate community-based health services in NR1 and NR3. Denison needs to confirm how social responsibility guidelines will support community infrastructure and services in NR1 and NR3 to help offset some of the 	<p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatially boundaries are sufficiently extensive to measure EIS predictions.</p> <p>As the Project site will be self-sufficient in terms of meeting the needs of the Project and its workforce, the effects related to local communities are associated with the effects of participation in employment and the associated commuter rotation system.</p>

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			interactions and effects to local communities and timelines for the action.	With the application of mitigation measures described in Section 12.3.5 and given the distance between communities in the LSA and the Project site, the residual adverse effects are expected to be low in magnitude. The overall conclusion relative to changes to Infrastructure and Services is not significant.
524	MN-S (March 4, 2023)	Section 12.3.5 Mitigation Measures	<p>Issue #12-029: Most of the mitigations provided are standard worker health and safety and materials handling measures required for worker and environmental safety and don't address potential effects to traffic within the LSA. Detail is required to demonstrate how measures will address potential hazards from increased traffic volumes, and potential risk for conflict between road users and mining traffic.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide additional information in the Final EIS on how the mitigation will alleviate traffic related impacts. 	Denison believes the mitigations it has outlined for transportation management (and associated risks thereof) as detailed in the draft EIS (Section 12.3.5, Section 14, Appendix 14-A) are reasonable and practical measures it can take to manage its Project activities. It is acknowledged that the information provided in the EIS and its supporting documentation is presented at a planning level; however, this level of detail is appropriate at this stage of Project development. Further details as to how these mitigations will be implemented will be developed during the licensing / permitting phase and will be available for review at that time, rather than as part of the final EIS. Further to this, and as noted elsewhere, Denison recognizes the level of concern regarding Project related transportation it has received through engagement activities to date and will continue to solicit input on transportation concerns as the Project moves forward and as the Program / Plan / Procedure documentation is developed during licensing since elements of this documentation directly align with management of the aforementioned concerns (e.g., emergency response planning, transportation management planning). Mitigations in Section 12.3.5 also require Denison truck traffic to slow to 40 km/hr for a minimum of 2.5 km on either side of the culture camp(s) in which are understood to occur in September and October (dates may be adjusted at the communities' direction). Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3 and is committed to such engagement with respect to mitigation measures and monitoring plans.
525	MN-S (March 4, 2023)	Section 13.1.1 Valued Component Selection	<p>Issue #13-001: This section of the draft EIS states: "Residents in the LSA and Regional Study Area (RSA) have expressed interest and concern about the Project's effect on the local economy, through income, training and employment opportunities, and business opportunities.</p> <p>Initial direction and input into VC selection was obtained from:</p> <ul style="list-style-type: none"> discussions with Indigenous and non-Indigenous Communities of Interest (COI); discussions with LK holders; 	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. At the direction of the MN-S, Denison participated in meetings on February 12, 2023, with NR1 and on February 13, 2023, with NR3. The participants at these sessions were identified and invited by the MN-S. During these meetings, Denison shared information about the Project and the associated VCs assessed as part of the environmental assessment. No new VCs were identified as part of that discussion, and should new ones emerge through process, we would consider them at that time.

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			<ul style="list-style-type: none"> discussions with government agencies and the public; results of Denison's baseline studies; regional data from other EAs; results from engagement and consultation activity; and similar or recent projects in the region." (p. 13-5 to 13-6) <p>Recommendations:</p> <ul style="list-style-type: none"> In the Final EIS, Denison needs to include the input from MN-S, NR1 Locals, NR3 Locals and indicate if VCs were altered. 	
526	MN-S (March 4, 2023)	Section 13.1.3.1 Spatial Boundaries	<p>Issue #13-002: Denison has not included MN-S or NR1 and NR3 Métis communities in the LSA for the assessment of the economy.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs justify its selection of LSA communities and why no Indigenous Communities of Interest nearest to the site are not in the LSA. The omission calls into question any economic interests of Métis in close proximity to the Project could have. In the Final EIS, Denison to expand its evaluation to Métis communities. 	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.
527	MN-S (March 4, 2023)	Section 13.1.3.2 Temporal Boundaries	<p>Issue #13-003: MN-S is interested in understanding all potential Project-related effects during post-decommissioning including economic impacts.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> MN-S requests that in the Final EIS, Denison include the addition of interactions and effects analysis for post-decommissioning impacts to economics that may stem from Employment Income within the LSA communities related to monitoring and the 	As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatially boundaries are sufficiently extensive to measure EIS predictions.

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			implementation of management programs to respond adaptively to potential effects of the Project. This includes monitoring and management programs prepared with MN-S, NR1 Locals, and NR3 Locals involvement and agreement.	
528	MN-S (March 4, 2023)	Section 13.1.4 Influence of Indigenous Knowledge, Local Knowledge, and Engagement on the Assessment	<p>Issue #13-004: Denison has not sufficiently engaged MN-S, NR1 communities, and NR3 communities on the assessment of the Economics VC.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to meet with MN-S, NR1 Locals, and NR3 Locals to discuss Project-related economic issues and interests. MN-S request additional detail is included within the Final EIS, on how the input provided by MN-S, NR1 Locals, and NR3 Locals will influence the assessment of the Economics VC. 	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. At the direction of the MN-S, Denison participated in meetings on February 12, 2023, with NR1 and on February 13, 2023, with NR3. The participants at these sessions were identified and invited by the MN-S. During these meetings, Denison shared information about the Project and the associated VCs assessed as part of the environmental assessment. No new VCs were identified as part of that discussion, and should new ones emerge through process, we would consider them at that time.
529	MN-S (March 4, 2023)	Section 13.2.1.2 Participation Rate	<p>Issue #13-005: Denison has not assessed the participation rate, employment rate, or unemployment rate of MN-S or NR1 and NR3 communities.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> In the Final EIS, Denison needs to expand the description of the existing environment to include NR1 communities and NR3 communities. 	Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable. These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI.
530	MN-S (March 4, 2023)	Section 13.2.1.3 Employment Rate	<p>Issue #13-006: Denison acknowledges that several barriers to employment in northern Saskatchewan exist without providing solutions to address and/or mitigate such barriers.</p> <p>Recommendations:</p>	Section 13.4 Mitigation and Enhancement Measures provides details on Denison's Human Resource Development Plan, which will initially prioritize Indigenous and non-Indigenous communities in the Local Study Area in terms of employment and training opportunities and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project - such as on the job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying

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			<ul style="list-style-type: none"> Denison needs to provide more detail within the Final EIS related to their role in developing and providing resources for training and employment as access has already been identified as a barrier to local communities. 	training requirements and working with various training institutions to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the Regional Study Area and then beyond the Regional Study Area.
531	MN-S (March 4, 2023)	Section 13.2.3 Key Indicator: Traditional Economy	<p>Issue #13-007: The Métis Knowledge study by MN-S has not been completed and included in the Draft EIS.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to engage all potentially impacted Métis communities. Specifically, Denison should equally engage all NR1 and NR3 Locals in addition to Kineepik Métis Local #9 on potential Project-related effects to Métis traditional economy throughout the life of the Project. The Final EIS needs to include the Métis Knowledge Study once completed. 	A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.
532	MN-S (March 4, 2023)	Section 13.2.4.1 Local Businesses	<p>Issue #13-008: The EIS states: "Economic leakage (i.e., money leaving the local economy) is a relevant concern, particularly for small, concentrated economies. Economic leakage can occur at various points through the cascade of spending in an economy, but the closer that leakage occurs to the point source of investment, the more potential economic benefit that is lost." (p. 13-51)</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more certainty and detail within the Final EIS related to local employment and procurement mitigation to manage for and reduce 'economic leakage'. 	Denison's Indigenous Peoples Policy sets out priority for Indigenous employment and procurement (among other items). With respect to employment, as noted in Section 13.3.2.1 of the EIS, Residents of Saskatchewan's North (i.e., those resident in the northern administration district of Saskatchewan) are prioritized for employment as an expected condition of the Surface Lease Agreement, similarly for goods and services to service the Project. With respect to procurement, Denison has established an internal procurement policy approach. The approach requires that Denison consider businesses within the Local Study Area first and the Northern Administrative District second, prior to looking elsewhere (southern Saskatchewan and/or outside of Saskatchewan) throughout all phases of the Project.
533	MN-S (March 4, 2023)	Section 13.3.1 Potential Interactions	Issue #13-009: Denison does not include MN-S or NR1 communities within the LSA in the assessment on the economy and therefore employment,	Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable.

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		Between the Project and Valued Component / Key Indicators	training, and business opportunities will not be prioritized for all potentially impacted Métis. Recommendations: <ul style="list-style-type: none"> Denison to include MN-S and all NR1 communities in the LSA for the economy VC in the Final EIS. 	These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI. Further, Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.
534	MN-S (March 4, 2023)	Section 13.3.1 Potential Interactions Between the Project and Valued Component / Key Indicators	Issue #13-010: Potential Project interactions for the Economy VC do not reflect feedback shared by MN-S/NR1 and NR3 Locals. Recommendations: <ul style="list-style-type: none"> Denison needs to discuss potential Project interactions for economy to Métis peoples and update Table 13.3-1 to reflect feedback shared by MN-S/NR1 and NR3 Locals. 	Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable. These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI.
535	MN-S (March 4, 2023)	Section 13.3.2.1 Potential Effect 1 - Employment and Training	Issue #13-011: Denison has not included MN-S or NR1 and NR3 Métis communities in the LSA for the assessment of the economy. Denison also has not engaged MN-S or all potentially impacted NR1 and NR3 communities to understand Métis concerns and/or interests related to employment and training opportunities. Recommendations: <ul style="list-style-type: none"> Denison needs to engage all potentially impacted Métis communities. Specifically, Denison should equally engage all NR1 and NR3 Locals in addition to Kineepik Métis Local #9 on interests and concerns related to employment and training opportunities throughout the life of the Project. Denison needs to provide more detail within the Final EIS related to their role in developing and providing resources for training and employment as access has already been identified as a barrier to local communities. 	Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be detectable and measurable. These impacts are expected to be driven primarily by the relationship and interactions between the Project and the COI. Further, Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. Section 13.4 Mitigation and Enhancement Measures provides details on Denison's Human Resource Development Plan, which will initially prioritize Indigenous and non-Indigenous communities in the Local Study Area in terms of employment and training opportunities and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project - such as on the job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions (such as Northlands College) to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the Regional Study Area and then beyond the Regional Study Area.

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			This includes training programs prepared with MN-S/NR1 and NR3 Locals involvement and agreement.	
536	MN-S (March 4, 2023)	Section 13.3.2.1 Potential Effect 1 - Employment and Training	<p>Issue #13-012 and 13-013: Denison has not identified Métis-specific considerations to their employment and training program.</p> <p>Denison has indicated that there will in-house training, as well. It is not clear how this will be delivered.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more certainty and detail within the Final EIS related to local training and employment. More detail within the Final EIS related to Denison's role in developing and providing resources for training and employment as access has already been identified as a barrier to local communities. This includes training programs prepared with MN-S/NR1 and NR3 Locals involvement and agreement. More information is needed to understand Denison's approach and commitment to addressing effects to local employment especially as it relates to Foundational positions and why a Grade 12 education is required. Denison needs to update the Economics Section to reflect the latest census and the effects that Covid has had on employment in the LSA and RSA. Denison needs to engage MN-S, NR1 Locals, and NR3 Locals to discuss employment and training opportunities for Métis (e.g., discussing Métis-specific recruitment strategies). Opportunities to discuss include 	<p>Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as on-the-job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions (such as Northlands College) to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.</p> <p>All positions at the Project will require a Grade 12 education or equivalent. Section 13.3.2.1 describes how foundational positions (i.e., entry level) require Grade 12 education and in-house training programs, although a combination of skills and experience may be considered. These positions would include process plant operators, site services, drillers, and catering/janitorial staff.</p> <p>Denison will update the Economics Section to reflect the latest census and the effects that Covid has had on employment in the LSA and RSA.</p> <p>Further, Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p>

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			(but are not limited to): hiring and training practices during all phases of the Project, on-the-job training, and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions to make sure such appropriate training is available, and creation of scholarship and support programs.	
537	MN-S (March 4, 2023)	Section 13.3.2.2 Potential Effect 2 – Income	<p>Issue #13-014: Initiating efforts with LSA communities excludes most of the Métis communities and keeps them from benefiting.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> The Final EIS needs to include additional evaluation of non- LSA communities' potential for income benefits. 	Denison's Indigenous Peoples Policy sets out priority for Indigenous employment and procurement (among other items). With respect to employment, as noted in Section 13.3.2.1 of the EIS, Residents of Saskatchewan's North (i.e., those resident in the northern administration district of Saskatchewan) are prioritized for employment as an expected condition of the Surface Lease Agreement, similarly for goods and services to service the Project. With respect to procurement, Denison has established an internal procurement policy approach. The approach requires that Denison consider businesses within the local study area first and the Northern Administrative District second, prior to looking elsewhere (southern Saskatchewan and/or outside of Saskatchewan) throughout all phases of the Project. Section 13.4 Mitigation and Enhancement Measures also provides details on Denison's Human Resource Development Plan, which will initially prioritize Indigenous and non-Indigenous communities in the Local Study Area in terms of employment and training opportunities and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, priority for employment and training will then focus on Indigenous and non-Indigenous residents of the Regional Study Area and then beyond the Regional Study Area.
538	MN-S (March 4, 2023)	Section 13.3.2.3 Potential Effect 3 - Traditional Economy	<p>Issue #13-015: Denison has not incorporated Métis Knowledge from MN-S, NR1, or NR3 (except Métis Knowledge from Kineepik).</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison will need to revise the potential effects evaluation after completion of the MKS. 	A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.

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539	MN-S (March 4, 2023)	Section 13.3.2.3 Potential Effect 3 - Traditional Economy	<p>Issue #13-016: Denison has not included details on closure planning including traditional economic activities that can be expected upon decommissioning.</p> <p>Recommendations: In the Final EIS, Denison needs to provide additional information on closure planning and what traditional economic activities can be expected upon decommissioning.</p>	<p>The draft EIS includes the Project's Conceptual Decommissioning Plan (CDP) (see Section 2.2.3). As the name implies the decommissioning plan for the site is presented at a relatively high level commensurate with the stage of Project development, including consideration of physical decommissioning activities and reclamation (or restoration) activities. With specific reference to reclamation / restoration the draft EIS notes that disturbed areas would be returned to become a self-sustaining and viable wildlife habitat, but little further detail is provided at this early stage. That detail will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP. As the decommissioning plan becomes more specific and granular it is expected that the design basis will become more detailed. Denison noted the MN-S interest in how traditional economic activities can be integrated into the decommissioning plan and such considerations can be made as the plan evolves. Denison is committed to continued engagement with the MN-S at their direction, inclusive of engagement in NR1 and NR3, and within that context expects that integration of traditional economic activities within the context of site decommissioning will be part of those discussions.</p>
540	MN-S (March 4, 2023)	Section 13.3.2.3 Potential Effect 3 - Traditional Economy	<p>Issue #13-017: Denison has not engaged MN-S, NR1, and NR3 to understand Métis-specific effects of the Project's proposed commuter-rotation schedule.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> In the Final EIS, Denison needs to provide more detail related to worker rotation system mitigation. Particularly considering the identification of reported difficulty in balancing the demands of a worker rotation system with traditional economy activities. 	<p>Denison acknowledges the concern raised regarding participation in the traditional economy related to working at an industrial operation. Participation in the worker rotation system would present similar challenges as those described in the Métis Knowledge Study Report which describes how people's ability to go out on the land is challenged by work schedules generally and the busyness of the modern world. Mitigation offered for other VCs would equally apply to an individual's ability to continue to participate in culturally important activities, such as:</p> <ul style="list-style-type: none"> working with Indigenous COIs to understand culturally important periods relative to harvest times and cultural camps to facilitate Indigenous employees taking time off to participate in such activities; and implementation of Denison's Indigenous Peoples Policy and advancement of reconciliation; <p>Other uranium operations in northern Saskatchewan have shown that using a commuter rotation system has been effective in allowing Indigenous employees continued opportunities to spend time on the land, which similarly supports the traditional economy.</p>

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				Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3, and within that context expects that the concerns raised by the review comment will be part of those discussions.
541	MN-S (March 4, 2023)	Section 13.3.2.3 Potential Effect 3 - Traditional Economy	<p>Issue #13-018: As identified in section 11.1.6 (p. 11-66 to 11-68), Indigenous land use may be affected by the Project despite mitigations. It is reported that Project-related effects such as noise and dust can cause avoidance of the area by some resource harvesters while others may be undeterred.</p> <p>Recommendations:</p> <p>(1) Denison needs to include in the Final EIS, information provided by Métis in NR1 and NR3 once the MKS is completed.</p> <p>(2) Denison needs to support Métis training opportunities through Northlands College.</p>	<p>Section 13.4 Mitigation and Enhancement Measures provides details on Denison's Human Resource Development Plan, which will initially prioritize Indigenous and non-Indigenous communities in the Local Study Area in terms of employment and training opportunities and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project - such as on the job training and career counselling to help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions, including Northlands College, to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the Regional Study Area and then beyond the Regional Study Area.</p> <p>A Capacity Funding Agreement was signed with the MN-S to complete a Métis Knowledge Study by the end of October 2023. As part of this study agreement, Denison agreed to fully fund the Métis Knowledge Study. Denison received the Métis Knowledge Study from the MN-S on October 24, 2023. Denison will update the final EIS to include relevant information in the assessment from the Métis Knowledge Study.</p>
542	MN-S (March 4, 2023)	Section 13.4 Mitigation and Enhancement Measures	<p>Issue #13-019: Limited listing of potential measures for consideration.</p> <p>Recommendations:</p> <p>(1) It is unclear from the description of Mitigation and Enhancement Measures whether Impact and Benefit Agreements (IBAs) will be included. Impact and Benefit Agreements are a normal vehicle for extending economic benefits to Indigenous communities.</p> <p>(2) In the Final EIS, confirm whether IBAs are also a mitigation and enhancement measure.</p>	<p>Denison's Indigenous Peoples Policy sets out priority for Indigenous employment and procurement (among other items). With respect to employment, as noted in Section 13.3.2.1 of the EIS, Residents of Saskatchewan's North (i.e., those resident in the northern administration district of Saskatchewan) are prioritized for employment as an expected condition of the Surface Lease Agreement, similarly for goods and services to service the Project. With respect to procurement, Denison has established an internal procurement policy approach. The approach requires that Denison consider businesses within the local study area first and the Northern Administrative District second, prior to looking elsewhere (southern Saskatchewan and/or outside of Saskatchewan) throughout all phases of the Project. Section 13.4 Mitigation and Enhancement Measures also provides details on Denison's Human Resource Development Plan, which will initially prioritize Indigenous and non-Indigenous communities in the Local Study Area in terms of employment and training opportunities and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, priority for</p>

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				employment and training will then focus on Indigenous and non-Indigenous residents of the Regional Study Area and then beyond the Regional Study Area.
543	MN-S (March 4, 2023)	Section 13.4 Mitigation and Enhancement Measures	<p>Issue #13-20: Denison has not engaged MN-S or all NR1 Locals and NR3 Locals to understand employment and training needs to support Métis involvement in the Project.</p> <p>Recommendations: Denison indicated multiple pick-up points but a minimum of 3 points (2 in the LSA and 1 in Saskatoon). In the Final EIS, Denison needs to clarify if pick-up points will be extended to the RSA communities so that they can take advantage of employment opportunities.</p>	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS. Section 12.2.4.2.1 describes that multiple pick-up points for workers will be determined as part of Project design, including additional locations to be determined relative to eligible labour force supply.
544	MN-S (March 4, 2023)	Section 13.5.1.1 Employment and Training	<p>Issue #13-021: Denison has not identified mitigation and enhancement measures to support their conclusion that employment and training residual effects are expected to be low to moderate in magnitude.</p> <p>Recommendations:</p> <p>(1) Denison needs to expand its description of mitigation and enhancement measures to better support their conclusion that employment and training residual effects that are low to moderate in magnitude in Section 13.5.</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>Denison recognizes that there is a need for and will be an annual evaluation of outcomes. The residual effect on employment and training during Construction, Operation, and Decommissioning is expected to be positive. Positive effects are expected to occur primarily in the LSA and RSA but are also expected to extend beyond the RSA as the labour demands of the Project are unlikely to be met with local resources only. Effects associated with employment are expected to occur continuously through each Project phase, while it is anticipated that training efforts will be focused largely during the operational phase (although some initiatives may be in place prior to the onset of Operation to maximize opportunities). Effects will be reversed after Decommissioning is completed; however, individuals who benefits from employment and training will have skills to carry forward to future opportunities.</p> <p>Section 13.4 describes the mitigation and enhancement measures for economy, including those specific to education and training:</p> <ul style="list-style-type: none"> Denison, through a Human Resource Development Plan, will initially prioritize Indigenous and non-Indigenous communities in the LSA in terms of employment and training opportunities (anticipated to be in institutions in northern Saskatchewan) and will work with the leadership of these communities to assist in determining hiring and training practices during all phases of the Project, which could include such items as on-the-job training and career counselling to

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				<p>help with advancement from foundational positions, advance sharing of job qualification requirements, clearly identifying training requirements and working with various training institutions (such as Northlands College) to make sure such appropriate training is available, and creation of scholarship and support programs. Priority for employment and training will then focus on Indigenous and non-Indigenous residents of the RSA and then beyond the RSA.</p> <ul style="list-style-type: none"> • Denison will plan a workforce transition plan prior to Decommissioning of the mine. • Denison will negotiate with the Province of Saskatchewan to develop the Project's SLA and the Human Resource Development Agreement, which will outline measures in relation to socio-economic parameters related to the Project.
545	MN-S (March 4, 2023)	Section 13.6.1 Climate Change Considerations	<p>Issue #13-022: Denison did not identify how the Métis would be involved in the development, review, and/or implementation of the Project's detailed plans and procedures.</p> <p>Recommendations:</p> <p>(1) The Final EIS needs to include the detailed plans and procedures for review.</p> <p>(2) The plans and procedures need to include input from MN-S, and NR1 and NR3 Locals.</p>	<p>Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.</p> <p>As noted in the draft EIS, Section 8.2.9 "Specific follow-up and monitoring plans will be prepared to refine and finalize approach in consultation with Indigenous groups, other interested parties, and relevant federal and provincial agencies with interest in the development and implementation of this VC specific program." MN-S will be informed throughout the monitoring program design and implementation process. Monitoring program design and implementation will be guided by the following principles: meet regulatory requirements, confirm the effectiveness of mitigation measures and predictions made in the assessment, implementing adaptive management (if/where applicable) to reduce effects during the lifetime of the Project, and will ensure that spatially boundaries are sufficiently extensive to measure EIS predictions.</p>
546	MN-S (March 4, 2023)	Section 15.5.3 Effects on the Project	<p>Issue #15-001: Meeting current regulations and building codes may not be sufficient for short-term or long-term environmental effects as they are characterized in the Draft EIS (e.g., forest fires, flooding). Please provide detail on how the Project will be designed to exceed current regulations in anticipation of changing to environmental conditions.</p> <p>Recommendations:</p>	<p>From an operations perspective the current mine design is sufficiently robust such that changes in environmental conditions that may be expected, such as increased precipitation event intensity, over the operational life of the mine can be accommodated. For example, the design basis for water management infrastructure far exceeds standard design basis. The following is noted regarding the design basis for water management infrastructure for reference. The probable maximum precipitation (PMP) value of 493 mm selected for design of water management infrastructure, such as ponds, is similar to total annual precipitation (456 mm from Key Lake station, and 483 mm from 1981-2020 climate normal). The selected PMP is well above (>5 times higher): 1) current/measured 24-hour maximum precipitation, 2)</p>

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			<ul style="list-style-type: none"> Denison needs to provide additional detail in the Final EIS describing how the Project will be designed beyond current regulations and building codes in anticipation of changes to environmental conditions. 	<p>modelled 1 in 100 year 24-hour return for current conditions, 3) modelled 1:100-year 24 hour return for a future (2020-2050) period, 4) the predicted maximum 1-day precipitation under different emissions scenarios for the future (including RCP8.5 in the 2021-2050 period).</p> <p>Design basis to accommodate environmental change over the longer term is a factor that will be considered as it pertains to decommissioning. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS and are presented at a relatively high level commensurate with the stage of Project development. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP. As the decommissioning plan becomes more specific and granular it is expected that the design basis will become more detailed. Denison is committed to and will factor in longer term considerations of environment and climate within the evolution of the decommissioning plan, and in particular as it concerns how changes in environment and climate could affect decommissioning and restoration goals.</p>
547	MN-S (March 4, 2023)	Section 15.5.3 Effects on the Project	<p>Issue #15-002: Further details are required on how emergency preparedness and response plans will adaptively respond to changing climatic conditions and potential unforeseen effects to the Project.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide additional detail in the Final EIS about their commitment to developed adaptive emergency preparedness and response plans to address unforeseen effects to the Project resulting from climate change. 	<p>Section 2.9.1.3.5 of the draft EIS provides the commitment to develop an Emergency Preparedness and Response Program (EPRP). The EPRP would be established to identify how the Project will prepare for and addresses emergencies that may affect the health and safety of persons, the environment, and the protection of property. The EPRP would be developed in a manner that aligns with guidance provided by CNSC in REGDOC-2.10.1. As noted on the draft EIS, Denison has opted to execute the overall Project approvals process - that is, the environmental assessment and licensing / permitting processes - in series and not simultaneously. As such, the documentation will be developed during the licensing / permitting phase and will be available for review at that time rather than as part of the final EIS. The level of information provided in the draft EIS is appropriate for the stage at which the overall Project approvals process currently sits, and as noted, MN-S and others, will have an opportunity to review documentation that is developed at later stages of the overall approvals process as appropriate. It is confirmed that the EPRP will include provision for change management and an explanation as to how change management will occur. The EPRP will be a living document that will be reviewed regularly and updated as needed - such updates may be required for a myriad of reasons including those related to climate change as noted by the review comment.</p>

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548	MN-S (March 4, 2023)	Appendix 2-A 19-EN-CNSC-1.23, Workshop, 2018-01-16	<p>Issue #2A-001: The site tour on January 16, 2018, only included the following Métis representation: A La Baie Métis Local #21, Kineepik Métis Local #9, MN-S, and Patuanak Métis Local #82. In addition, other Indigenous Nations were present. It is unclear from Denison's table format who asked how long to freeze and would the freeze wall be kept intact for the life of the operation. Denison shared responses to these questions in their Draft EIS.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Engagement on the proposed Project needs to extend to NR1 communities. The Final EIS should include proof of this engagement and responses to concerns raised. 	Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.
549	MN-S (March 4, 2023)	Appendix 2-A 22-EN-EQC-648.1, Presentation, 2022-03-03	<p>Issue #2A-002: These meetings had representation from Métis Local #39 (La Loche) and no other Métis. It is unclear who asked, "What are the concerns with groundwater monitoring...". MN-S does not consider Denison's engagement with the EQC as engagement with MN-S or Métis communities. MN-S prefers Denison specify feedback shared at joint workshops by Indigenous Nation.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison engagement with Métis communities has been limited. In the Final EIS, MN-S expects to see more informed engagement and responses to concerns raised. 	Thanks, and noted. Denison continues to engage with the MN-S at their direction, inclusive of engagement in NR1 and NR3. Denison understands the MN-S is a governing body of the Métis Citizens in Saskatchewan and recognizes that communities the MN-S governs may be included as a COI and are recognized as such in the EIS.
550	MN-S (March 4, 2023)	Appendix 7-C, Numerical Modelling: Post-decom Evaluation, Executive Summary	Issue #7C-001: Page ii of this document states: "By accounting for these reactions, the simulated dissolved constituent plumes emanating from the ore zone reach their maximum extents within the deeper units (i.e., Lower Sandstone Aquifer and deeper parts of the Desilicified Zone) after	It is acknowledged that additional details could have been added to the Appendix 7-C Executive Summary to provide more fulsome context for the comment that the "base case scenario" is conservative. The basis for this statement was the robust data set of subsurface geochemistry that supported the assumptions in the model with respect to concentrations of sorbing mineral phases and the uncertainty analysis that was performed. The uncertainty analysis evaluated the potential that conditions at the

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			<p>approximately 10,000 years. Consequently, concentrations at Whitefish Lake throughout the future centuries are simulated to be similar to background concentrations. Under the base case scenario, which represents a conservative estimate of the conditions present, there are no exceedances of the groundwater quality screening criteria protective of freshwater aquatic life in the receiving environment." Whether conditions are "conservative" or not, is dependent on perspective.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide further rationale detailing how the "base case scenario" represents a conservative estimate of the conditions present. 	<p>base case were not adequately conservative. The uncertainty analysis is detailed in Section 4.7 of the report. This included increasing the mass of chemical constituents of potential concern (COPCs) within the source (mining area), increasing the hydraulic conductivity of key zone and/or hydrostratigraphic units, decreasing the number of reactive sites for sorption of COPCs, removing some sorbent phases altogether from key hydrostratigraphic units, and other scenarios focused on geochemical and hydrologic uncertainties. Altogether, there were 15 uncertainty scenarios tested in addition to the base case.</p> <p>For the base case, and all uncertainty scenarios, no exceedances of ground water quality screening criteria were generated at Whitefish Lake into the future (i.e., over the "future centuries" period), apart from those that reflect natural conditions. The results are provided in detail in Sections 4.6.6 and 4.7.1 of Appendix 7-C and the consistency of the uncertainty results with the base case affirms that the base case simulation is appropriate for decision-making.</p>
551	MN-S (March 4, 2023)	Appendix 7-C, Numerical Modelling: Post-decom Evaluation, Executive Summary	<p>Issue #7C-001: Denison provides no rationale for "conservative dispersivity values" in the Draft EIS.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide site-specific research to confirm literature dispersivity values are conservative in the Final EIS. 	<p>Site-specific research, as understood from the comment, would require a natural gradient tracer test over the distances of interest (> 1 km). Such testing would take centuries, and therefore is not practical. For this reason, use of literature dispersivities is standard practice.</p>
552	MN-S (March 4, 2023)	Appendix 7-C, Numerical Modelling: Post-decom Evaluation, Executive Summary	<p>Issue #7C-001: Additional modelling will be needed to confirm at the time of decommissioning the assumption that there is "large assimilative capacity" of the groundwater system, in order to manage risk in Whitefish Lake.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison to complete simulations that increase focus on maintaining containment of the contaminant source for a greater period of time (i.e., a higher level of focus on source term control and flushing), and less reliance on management of contaminant along the 	<p>The comment is noted, and it is Denison's intent to continue to evaluate what is reasonably achievable with respect to remediation of the mining zone water quality prior to discontinuation of containment measures. After 30+ years of monitoring we will be in a better position to update predictions and have enhanced confidence in the assimilative capacity. Flushing of the source zone is part of the planned remedy and would only be stopped once the target level of remediation has been achieved. Beyond that flushing period (which may take years), if conditions indicate additional long-term source control is required, then Denison may have to do that, but our current understanding suggests long-term source control is not needed so long as the flushing is able to reduce source concentrations to the target amounts. Lab testing suggests the proposed flushing will be effective at reducing concentrations to the target values.</p>

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			<p>pathway, prior to the contaminant reaching the receptor.</p> <p>In other words, simulations that focus, to a greater extent, on evaluating the benefit of additional effort and time on source term control (the first step in the risk hierarchy of source, pathway, receptor).</p>	<p>Additionally, we note that refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which as shown are protective of aquatic biota in Whitefish Lake. The final acceptable mining area decommissioning objectives will be developed prior to initiation of groundwater remediation, as part of the Detailed Decommissioning Plan (DDP). Prior to executing decommissioning activities, Denison shall prepare and submit the DDP to regulators for acceptance. In this case the DDP would reflect input that will be solicited from Indigenous Nations and communities and others prior to its submission and would also be informed by conditions on the ground at the site at that time, operational experience that has been gained and the regulatory landscape at that time. As is highlighted above, the decommissioning plan will evolve over time and the plan will become more refined as the Project advances.</p>
553	MN-S (March 4, 2023)	Appendix 7-C, Numerical Modelling: Post-decom Evaluation, 2.4 Scope of Work	<p>Issue #7C-001: Denison assumes non-surface reaching groundwater will not be extracted or accessed by future generations.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison to study and provide further understanding of deep groundwater characteristics with MN-S, NR1 Locals, and NR3 Locals prior to commencement of mining operations. This information may affect final closure options. Denison to consider modelling for surface receptors of deep groundwater beyond the boundaries identified in Section 1.1. 	<p>Denison did complete engagement with Interested Parties, including Indigenous Communities of Interest and it is based on that engagement that it is understood deep groundwater use does not presently occur, nor is expected to in the future. Further, impacted groundwater is 100's of meters below ground surface, which is far below what would be needed for a future water supply as the flow through the shallower aquifer is far greater than through the deep aquifer. During operations, Denison will continue and expand groundwater monitoring to ensure that current study findings are realistic. Modelling simulations report the highest levels of predicted discharge to surface water - any discharge to more distant surface water bodies would be at even further reduced concentrations. Prior to executing decommissioning activities, Denison shall prepare and submit the DDP to regulators for acceptance. In this case the DDP would reflect input that will be solicited from Indigenous Nations and communities and others prior to its submission and would also be informed by conditions on the ground at the site at that time, operational experience that has been gained and the regulatory landscape at that time.</p>
554	MN-S (March 4, 2023)	Appendix 7-C, Numerical Modelling: Post-decom Evaluation 2.4.1 Groundwater Recharge	<p>Issue #7C-001: Denison's Draft EIS does not confirm if the groundwater recharge rates were adjusted for potential changes to recharge as a result of climate change.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison should develop a Project-specific climate change model database, which clearly 	<p>A qualitative and quantitative assessment of climate change and groundwater and surface water is provided:</p> <p>The experience of the Project team regarding studies of climate change and the impacts on groundwater at other sites generally shows a range of potential positive and offsetting negative impacts. While warmer temperatures will lead to extended periods of summer drought conditions extending into early fall, warmer winters are predicted as well, resulting in less snowpack accumulation, more frequent snowmelt</p>

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			articulates the shared socioeconomic pathway (SSP) the Project is choosing from IPCC AR6 and show how that scenario has been down-scaled for use within Project modelling predictions and present the results in the Final EIS.	<p>events, and more frequent rainfall during periods when evapotranspiration is negligible. These warmer winter conditions are often simulated to produce enhanced groundwater recharge during late fall, winter, and early spring conditions. In particular, the lack of enhanced snowpack is simulated to result in less severe spring run-off conditions, indicating that more of the winter precipitation that falls will infiltrate. Overall, this is anticipated to result in enhanced groundwater recharge in the mid- to late-century periods.</p> <p>If, however, lower groundwater recharge was to result from climate change, it would reduce the groundwater driving force for mass transport of mining related fluids and reduce mass loading to receiving water bodies such as Whitefish Lake. In other words, lower groundwater recharge resulting from higher evapotranspiration would result in slower mass transport to the receiving water bodies, reducing the risk of exposure.</p> <p>Section 8.1.3.4 (and Appendix 8-C) provides a quantitative assessment of the potential changes in surface water quantity due to climate change. The 1:100 year, 24-hour return period rainfall events for the baseline and climate change influenced IDF curves are 79.9 mm and 88.6 mm, respectively. The PMP for the Project is estimated to be 493 mm, which is well above both 24-hour maximum precipitation and 1:100, 24 hour return precipitation events. The PMP is very conservative (e.g., effectively assumes a full year of precipitation in one event) under both existing and future conditions (climate change). The potential impacts of climate change to precipitation and therefore flows were summarized in Appendix 6-C, Table 10 with the total annual precipitation and the maximum 1-day events being variable over the next four decades (Table 1). Regardless, the climate change scenario indicates a potential increase in event based assimilative capacity in the receiving environment.</p> <p>TABLE 1- Existing and Predicted Precipitation Data for Key Lake (provided in EIS, Appendix 6- C, Table 10).</p> <p>To mitigate the potential for unplanned release of deleterious substances into the surface water environment even during the next 40 years of climate change, the PMP of 493 mm was used for water management engineering designs. During a PMP, water requiring management will report to the wellfield runoff pond which will be sized to accommodate a PMP event at the site. This pond has been sized to 38,200 m³ (excluding a freeboard of 1 meter). From the wellfield runoff pond, water will then be sent to the process water pond for treatment if required. In Section 2.8 Project Design Features, Denison notes that "Ponds will be designed to maintain a minimum freeboard of at least 1.0 m to allow for continued functioning during a probable maximum precipitation (PMP) event." As such, the project has been designed to</p>

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				manage water during PMP and greater, and therefore mitigation of potential impacts to water quality due to climate change has been initially included as part of the EIS. As a result, it is Denison's opinion that a quantitative assessment of potential impacts to surface water quality is not warranted as it is likely to indicate improved results from the conservative assessment of potential water quality changes during operation and decommissioning phases. Continued monitoring of background, effluent and receiver water quality will be undertaken and provide the ability for adaptive management throughout the life of the mine in association with potential climatic changes to the local and regional area.
555	MN-S (March 4, 2023)	Appendix 7-C 2.4.2 Surface Water Features	<p>Issue #7C-001: Water levels in surface water features are not static; they change in response to regional climate and flow conditions. This would influence the interaction between groundwater and surface water, as the assumption by the model developer is that water levels are input as static head boundary conditions.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to explain in the Final EIS why static head boundary conditions are used for the modelling beyond a need to simplify the modelling. 	Water levels within surface water bodies were monitored over several years. The range of observed water levels at Whitefish Lake (SA-6) during 2016-2018 was 499.5 to 500.2 m ASL, with an average of 500.1 m ASL; as such the value assigned in the model (500.0) is an accurate (and slightly conservative) reflection of the average water level observed. What is important is the hydraulic head difference over the 300-year (or more) transport travel time. Recognizing that future conditions could be different by as much as 2 m (i.e., the depth of Whitefish Lake), this range of water level could be tested.
556	MN-S (March 4, 2023)	Appendix 7-C 2.5.2.1 Water Level Elevations – Quantitative Calibration	<p>Issue #7C-001: Denison does not provide the basis, explanation, or literature to state that a calibrated model to observe water levels is sufficient with a deviation of +/- 2m.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide an explanation, basis, and/or literature to state that a calibrated model to observe water levels is sufficient with a deviation of +/- 2m in the Final EIS. 	The mean residual is 0.23 m, not 2 m as inferred. The 2 m guidelines are merely presented for reference. The literature is quoted regarding the goodness of fit parameter NRMS, which is normalized so that it can be applied to any model. The NRMS achieved within the Denison model is 4.1%, whereas the literature (Spitz and Moreno) recommends 10% or less. As such the model is considered calibrated by literature standards.
557	MN-S (March 4, 2023)	Appendix 7-C 2.5.2.3 Statistical Measures of	Issue #7C-001: Denison provides no rationale/basis for considering a mean error of 0.23.	See the response to comment 556, MN-S Issue #7C-001. above . The qualitative term "excellent match" is based on 30-years of experience in developing 100's of similar numerical groundwater flow models.

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		Calibration to Water Levels	considered to be an "excellent match" to the observed water levels. Recommendations: <ul style="list-style-type: none"> Denison should provide an explanation, basis, and/or literature for why a mean error of 0.23 is considered to be an "excellent match" to the observed water levels in the Final EIS. 	
558	MN-S (March 4, 2023)	Appendix 7-C 2.6.3 Groundwater Flow Quantity	Issue #7C-001: Ecological receptors could potentially be exposed to groundwater flows. Recommendations: <ul style="list-style-type: none"> Denison should provide an understanding of deep groundwater as a contaminant pathway to ecological receptors within immediate vicinity in the Final EIS. 	Denison and its SMEs believe that this (i.e., what is referenced in the review comments) is what has been done (and presented in the report) by evaluating groundwater flow to a small portion of Whitefish Lake. At other locations (e.g., the edges of the Lake), shallow groundwater will be discharging, which has not come into contact with the deeper groundwater.
559	MN-S (March 4, 2023)	Appendix 7-C 2.7.1 Groundwater Demand	Issue #7C-001: The Project has assumed that it is "conservative" to supply all water for the Project from outside the ore zone and assume minimal influent from re-cycled / treated water. This statement supports that position. Recommendations: <ul style="list-style-type: none"> Denison should provide simulations that maximize recycling treated water, rather than minimize using recycled water for the Project. Denison to confirm how groundwater quality predictions differ when recycled and treated water is used to supply water to the Project, as compared to assuming conditions as noted in this statement. 	With respect to the first bullet: It is believed that the analysis completed is appropriate given that it represents a conservative (i.e., protective) means by which to assess the activities potential effects. The scenarios / simulations referenced in the review comment therefore are bounded by the conservative water supply assessment as it concerns potential Project effects to groundwater quantity. Denison concurs with the idea that it would be beneficial to maximize recycling of water and will strive to do so; however, this is more of an operational consideration. As outlined in draft EIS Section 2.2.3, Denison intends to recycle process water to the greatest extent possible, thereby reducing the demand for fresh water supply and volume of treated effluent. In an effort to develop a conservative assessment basis for the EA, the water recycles flows from the industrial wastewater treatment plant back into the processing plant and wellfield have not been incorporated into the estimates for freshwater withdrawal and treated effluent discharge. An overview of the site water balance during Construction, Operation, and Decommissioning are provided in draft EIS Figure 2.2-14, Figure 2.2-15, and Figure 2.2-16, respectively. These figures provide a summary of the water needs for certain Project activities, plans for water treatment (both potable and wastewater), and the general flow of managed water at the site. The estimated flows in the site water balances do not account for water recycle back into the processing plant and wellfield.

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				<p>This results in a conservative estimate of both freshwater withdrawal needs and treated effluent discharge rates.</p> <p>With respect to the second bullet point: Under the modelled scenarios, in which water is withdrawn from three water supply wells, the shallow groundwater system is simulated to recover very quickly following the cessation of decommissioning. Thus, the taking of shallow groundwater during Operations and Decommissioning will not influence the overall transport of potential contaminants in post-decommissioning after the containment (including the freeze wall) is removed. In addition, it should be recognized that if less water is withdrawn from the shallow bedrock for Operation, that additional groundwater left in the flow system will naturally act to further dilute any concentrations reaching the shallow aquifer and surface water receptors. That is why we feel the simulations presented are conservative.</p>
560	MN-S (March 4, 2023)	Appendix 7-C 2.7.3 Hydrogeological Change Due to Mine Operations	<p>Issue #7C-001: The interaction of increase drought or increased precipitation (i.e., climate change) could potentially affect the length of time for full recovery of groundwater recharge due to potential changes in climate conditions.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> MN-S requests that interaction between climate change scenarios and groundwater modelling should be included in the Final EIS. 	<p>The experience of the Project team regarding studies of climate change and the impacts on groundwater at other sites generally shows a range of potential positive and offsetting negative impacts. While warmer temperatures will lead to extended periods of summer drought conditions extending into early all, warmer winters are predicted as well, resulting in less snowpack accumulation, more frequent snowmelt events, and more frequent rainfall during periods when evapotranspiration is negligible. These warmer winter conditions are often simulated to produce enhanced groundwater recharge during late all, winter, and early spring conditions. In particular, the lack of enhanced snowpack is simulated to result in less severe spring run-off conditions, indicating that more of the winter precipitation that falls will infiltrate. Overall, this is anticipated to result in enhanced groundwater recharge in the mid- to late- century periods. If, however, lower groundwater recharge was to result from climate change, it would reduce the groundwater driving force for mass transport of mining related fluids and reduce mass loading to receiving water bodies such as Whitefish Lake. In other words, lower groundwater recharge resulting from higher evapotranspiration would result in slower mass transport to the receiving water bodies, reducing the risk of exposure.</p> <p>The groundwater model will be updated over the course of mine life to among other things support the decommissioning plan that will consider recovery in the mining zone. Such model scenarios would incorporate up to date information with respect to climate change and the potential effects of climate change on the groundwater environment.</p>
561	MN-S (March 4, 2023)	Appendix 7-C	Issue #7C-001: It is unclear if the statements made about full recovery and 90% recovery are	The calibrated hydraulic conductivity values are consistent with observed data. The calibrated K value for the intermediate aquitard was 1×10^{-8} m/s, which is in the

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		2.7.3 Hydrogeological Change Due to Mine Operations	<p>defendable given that calibrated hydraulic conductivity values, as shown in Table 2-2 (p. 2.7), for the lower sandstone aquifer ranges over 2 orders of magnitude, and the ore zone calibrated hydraulic conductivity over nearly 5 orders of magnitude, and that no range in hydraulic conductivity is reported for the desilicified sandstone aquifer (i.e., a single calibration value is reported).</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison should provide simulations that consider the full range of calibrated hydraulic conductivity values in the Final EIS. 	<p>middle of the range of values reported from point testing within this unit (Range: 10-10 to 3.8x10-6 m/s), and similar to the geomean value (8.4 x10-9 m/s). Thus, the calibrated K value is within a factor of 1.2 of, and higher than, the geomean value. The hydraulic conductivity value for the Intermediate Aquitard is similar to that applied by AECL at Cigar Lake (5x10-8 m/s). Similarly, the K values applied for the Upper and Lower Sandstone Aquifer units are consistent with the field measured values, particularly for this fractured rock environment. The high end of the packer tested range of K values varied by 2 orders of magnitude between the aquifer and aquitard units, which is consistent with the definition of aquifer / aquitard differentiation. The interpretation of an aquifer-aquitard-aquifer sequence is consistent with the AECL interpretation of the Athabasca Sandstone at the Cigar Lake mine.</p> <p>When packer testing in fractured rock, the hydraulic conductivity associated with any test depends on whether the packed zone contains a continuous fracture set. However, for the unit as a whole, it is important that the model represent the hydraulic conductivity (or transmissivity) representative of the interconnected fracture network. Thus, it is appropriate that the applied hydraulic conductivity values within the aquifers are consistent with the higher end of tested conductivity values within those units. Within aquitard units, having singular higher conductivity fracture values from packer tests that test local fractures only, does not necessarily indicate large-scale transmissivity.</p> <p>A fault feature is suspected along the western perimeter of the Lower Sandstone Aquifer near Kratchkowsky and Williams Lake, located 1.5 km west of the mine site (also as depicted on the Hydrogeological Conceptual Site Model). This feature was interpreted to exist based on the similarity in groundwater levels between deep and shallow aquifers in that particular area (c.f., water levels along the creek south of Williams Lake and within GWR-029, as well as water levels recorded in open boreholes near Kratchkowsky Lake), as well as geochemistry in GWR-029. The geochemistry and water levels show in the vicinity of GWR-029 are different, however, than conditions within the Lower Sandstone aquifer further east of this area, above and east of the Phoenix deposit.</p> <p>The effect of the fault feature along the western edge of the Lower Sandstone aquifer was incorporated within the numerical model both through enhanced hydraulic conductivity parameters, as required to match observed water levels, and boundary conditions applied to introduce as much inflowing water to the Lower Sandstone Aquifer as the water level data suggest is reasonable.</p>

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562	MN-S (March 4, 2023)	Appendix 7-C 3.1.1 Groundwater Remediation	<p>Issue #7C-001: No time period is provided to reach acceptable levels of remaining contaminants or effective remediation accomplished in order to leave the area in a pre- mining condition.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more clarity on what the expected time period to reach acceptable levels of remaining contaminants or effective remediation in order to leave the area in a pre-mining condition. This unknown time frame may play into the viability of remediation and final closure costing. 	<p>Groundwater remediation targets provided in the draft EIS were from derived from metallurgical test results completed from 2017 to 2021 with over 125 kg of material recovered from Phoenix deposit that underwent leaching and neutralization test work (see attachment to IR-67). In 2022 and 2023, metallurgical test work continued to further optimize remediation and strategies and confirm test work results presented in the draft EIS. It is expected that metallurgical test work will continue in the future to further optimize remediation targets, and this will be advanced through updates to the Decommissioning Plan. The Feasibility Field Test (FFT) provided additional confirmation that pH target and remediation targets could be met. Data gathered during the neutralization phase of the FFT provide confidence that groundwater targets proposed in the draft EIS can be met technically and economically. Based on laboratory testing and the results of the 2022 field testing, subsurface remediation is planned to consist of rinsing the ore zone with 35 pore volumes of fresh water, slowly raising the pH, and then pumping about 75 pore volumes of basic solution through the same portion of the ore zone. This basic solution will in effect further raise the pH to a level that impedes further leaching of the deposit and reduces aqueous concentrations of contaminants of concern to below their environmental target levels.</p> <p>Refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which as shown are protective of aquatic biota in Whitefish Lake. The final acceptable mining area decommissioning objectives will be developed prior to initiation of groundwater remediation, as part of the Detailed Decommissioning Plan (DDP). Prior to executing decommissioning activities, Denison shall prepare and submit the DDP to regulators for acceptance. In this case the DDP would reflect input that will be solicited from Indigenous Nations and communities and others prior to its submission and would also be informed by conditions on the ground at the site at that time, operational experience that has been gained and the regulatory landscape at that time. As is highlighted above, the decommissioning plan will evolve over time and the plan will become more refined as the Project advances.</p> <p>As the Indigenous Communities of Interest with reserves and residential communities most proximal to the Project, Denison has committed to collaborating with English River First Nation and Kineepik Métis Local on a monitoring regime, suited to each of their interests and needs. As part of these programs, Denison, and the Indigenous communities of ERFN and KML will be sharing information in an agreed-upon fashion. It is expected that the data collected through such monitoring regimes as described</p>

Denison's Responses to Comments from MN-S on the Wheeler River Project draft EIS

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				above would also be relevant to other Indigenous nations who may have interest in the Project.
563	MN-S (March 4, 2023)	Appendix 7-C 5.2.2 Assumptions	<p>Issue #7C-001: Climate change as a variable does not appear to have been incorporated into the modelling.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> Denison needs to provide more clarity in the Final EIS on how climate change as a variable has been incorporated into the ground water modelling as climate changes scenarios and effects on the groundwater could affect the closure pathway. 	<p>As noted above, the experience of the Project team regarding studies of climate change and the impacts on groundwater at other sites generally shows a range of potential positive and offsetting negative impacts. While warmer temperatures will lead to extended periods of summer drought conditions extending into early all, warmer winters are predicted as well, resulting in less snowpack accumulation, more frequent snowmelt events, and more frequent rainfall during periods when evapotranspiration is negligible. These warmer winter conditions are often simulated to produce enhanced groundwater recharge during late all, winter, and early spring conditions. In particular, the lack of enhanced snowpack is simulated to result in less severe spring run-off conditions, indicating that more of the winter precipitation that falls will infiltrate. Overall, this is anticipated to result in enhanced groundwater recharge in the mid- to late- century periods. If, however, lower groundwater recharge was to result from climate change, it would reduce the groundwater driving force for mass transport of mining related fluids and reduce mass loading to receiving water bodies such as Whitefish Lake. In other words, lower groundwater recharge resulting from higher evapotranspiration would result in slower mass transport to the receiving water bodies, reducing the risk of exposure.</p> <p>The groundwater model will be updated over the course of mine life to among other things support the decommissioning plan that will consider recovery in the mining zone. Such model scenarios would incorporate up to date information with respect to climate change and the potential effects of climate change on the groundwater environment.</p>

Attachment: IR-10

Number	IR-10
Dept.	ECCC
Project effects link	Fish and fish habitat
Reference to EIS, appendices, or supporting documentation	Section 2.2.1.4.2.3, Tertiary Containment of Mining Solution - Freeze Wall
Context and Rationale	<p>Context: The Proponent stated that as a tertiary means of containment for the mining area, the uranium deposit is proposed to be surrounded by a freeze wall that extends from the surface to the basement rock, isolating the mining area from regional groundwater. Current plans are for the freeze wall to be a minimum of 10 m thick, be installed 25 m away from the uranium deposit, and extend 30 m into the basement rock (Figure 2.2-6).</p> <p>As explained in Section 2.2.1.4.2.2, mining solution will be injected into the ore zone under pressure and will likely react, not just with the uranium in the ore zone, but also the binding or cementing material in the sandstone. This means that some portion of the sandstone above the uranium layer and perhaps some portions of the freeze wall will dissolve, thereby creating more void than just the thickness of the uranium layer or horizon. The void may affect the integrity of the freeze wall as containment.</p> <p>Rationale: It is not clear how the Proponent will monitor the freeze wall to verify whether portions of the freeze wall are being dissolved in the mining process and how it plans to verify the integrity of the freeze wall as a containment for the mining solution. In addition, if the dissolution reaction of the uranium ore is exothermic, then the heat generated may also affect the integrity of the freeze wall.</p>
Information Requirement	<ol style="list-style-type: none"> 1. Explain how the integrity of the freeze wall will be maintained as a means of containment that prevents migration of the mining solution out of the ore zone into the receiving environment. 2. Demonstrate that the mining solution injected under pressure will not compromise the integrity of the freeze wall as a containment.

	<p>3. Demonstrate how both exothermic and chemical reactions of the mining solution used to dissolve the uranium ore will not compromise the integrity of the freeze wall as a containment.</p> <p>Technical Discussion Required: Yes. ECCC would like to better understand the chemical constituents that compose the mining solution and the chemical reactions that it will cause</p>
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Response:

The general theme of the comments and questions stated above seem to be related to:

- verification of the freeze wall extents;
- response of the freeze wall to potential chemical interaction with the lixiviant;
- response of the freeze wall to induced hydraulic or lithostatic stress; and
- response of the freeze wall to potential exothermic processes related to ISR.

The alignment of the freeze wall is located 25 m offset from the lateral extent of the recoverable ore and the freeze wall will grow in thickness both towards the ore and away from the ore. The freeze wall will solidify all liquid porewater and develop into a contiguous impermeable barrier many metres thick. Ground temperature monitoring will be installed on both the ore and non-ore sides of the freeze wall to confirm the thickness of frozen ground and to validate thermal finite element models of the entire area. Thermal models can very accurately represent real conditions because ground thermal properties used in the analyses only vary by a factor of two to four across all ground types, unlike hydraulic or strength properties, which can vary by many orders of magnitude across relatively short distances.

The figures below are an example of field data validating modelled predictions for a shaft freeze wall at depth.

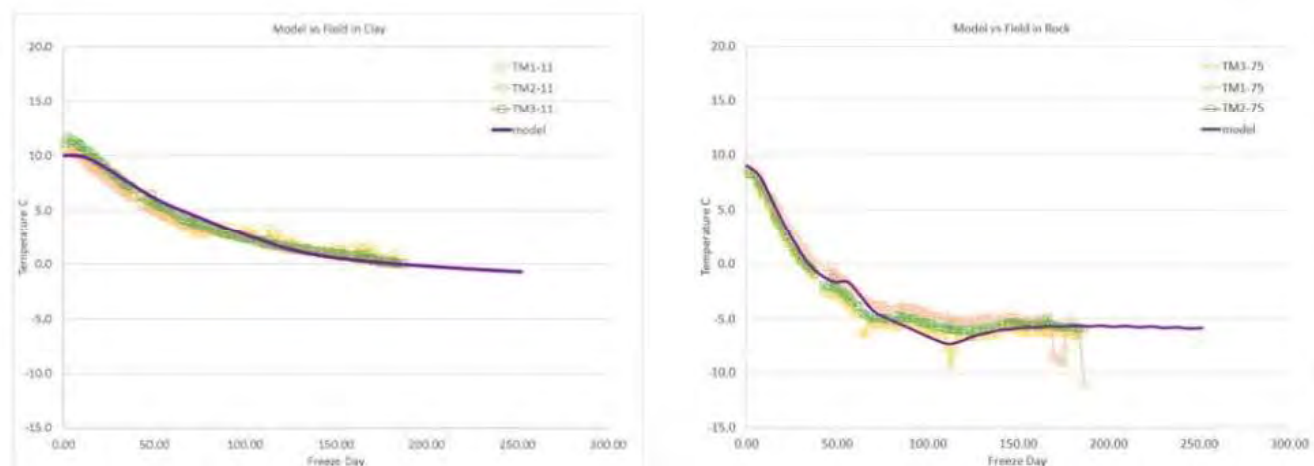


Figure 1: Illustration of a calibrated FEM model for freezing in clay (left) and rock (right). Temperatures were measured offset from the freeze wall pipe locations and compared with model predictions at the same location.

The injection and recovery wells will be set up such that they are within the confines of the ore itself and migration of fluids towards the freeze wall and through non ore ground between the ore and freeze wall should be minimized because hydraulic gradients will induce preferential flow to recovery wells and away from the freeze wall. Having said that, if significant excursion of lixiviant were to occur and it were to contact the freeze wall, it is not expected to chemically dissolve the in situ ice. The freezing point depression of the lixiviant proposed for this project was determined to be -1°C and, as such, it would freeze off and become immobile before significant volume could negatively impact the freeze wall. If the lixiviant were to dissolve some of the host soil / rock binding material at the freeze wall surface, it would occupy the resulting void space, but then freeze off, which would halt further migration within the freeze wall.

Freeze walls, when fully developed, are capable of withstanding significant external pressures because the ice in the pore voids greatly improves the bulk strength of the soil. For example, in the province of Saskatchewan, ground freezing is used to support the sinking of deep potash mine shafts, which must penetrate through the Mannville formation at a depth between 400 and 500 m below surface. The Mannville formation is often described as saturated, unconsolidated beach sand and it would not support shaft excavation in a thawed state. Freezing is used to create a structural and impermeable wall up to 5 m thick, which can resist a stress gradient driven by full hydrostatic and/or lithostatic pressures on the outside of the wall, and an open to atmosphere excavation within the shaft. This loading condition is much more extreme than any condition the freeze walls at the Phoenix deposit will experience because the interior side of the freeze wall where active ISR mining is occurring is not open to atmosphere and is fluid filled in the same way that the regional groundwater system is on the exterior side of the freeze wall, creating a balanced pressure system, where loading is equal on both the interior and exterior sides.. While freeze walls are very strong when fully developed, they are also plastic in nature. This means that they can slowly deform without failing in response to localized ground deformations. As the freeze wall deforms towards a lower stress zone, it maintains its thickness and integrity. While the above example referred to potash shafts, other examples can be drawn from the experience at the McArthur River or Cigar Lake uranium mines. At McArthur River, open stopes are generated directly adjacent to a freeze wall that is a nominal 4 m thick. At Cigar Lake, open mine cavities 10 m high and several metres in diameter commonly exist within the frozen ground. Neither site has had a breach of the freeze wall during mining activity. Given that the freeze wall at Denison will be much thicker than at McArthur River and that it will be located up to 25 m from the ore zone, it is not anticipated that it will be exposed to a stress environment that will put it at risk.

The leaching process has the potential to be exothermic and generate heat, which may flow toward the freeze wall. In this instance, there is low sulphur content in the ore zone and the exothermic reaction will be minimal. Despite this, all thermal modelling in support of the freeze design assumed that the freeze wall had to develop and be sustained in the presence of an ore zone that generated a nominal amount of heat—sufficient enough to sustain a minimum temperature of 10°C even though it would naturally tend to cool below this in response to the freeze system. It is understood that the lixiviant may be heated as part of the pre-injection process, so some accounting for heat in the ore zone was included in the analysis to date. Should the lixiviant generate more exothermic reaction than predicted, there is a very low risk of it degrading the freeze wall in any significant amount. Referring back to the potash mine shaft freezing illustration, it is not uncommon for in shaft excavation activity and concrete work to

generate temperatures between 30 and 60°C that act on a freeze wall only 5 m thick and only a few metres away from the exposed shaft wall. In this extreme case, the freeze wall is more than capable of removing the generated heat. The physics of heat flow are such that heat generated by the ISR process would be free to flow towards the freeze wall; however, most of it would flow to the coldest location (e.g., the actual freeze pipes at the mid-point of the wall thickness) before it is manifested as an observable significant rise in ground temperature. Even if the heat were to warm the ore side of the freeze wall, it would not impact the non-ore side of the wall (which is where half of the total wall thickness resides). This heat may penetrate to the center of the wall but if the refrigeration plant is operating, that heat can not then flow “up gradient” on the non-ore side of the wall and thaw that side.

The concentration of the lixiviant (max ~8% sulfuric acid conc.) has a freezing point of ~-4°C. The lixiviant itself will not react chemically with the freeze wall, other than having a slightly different freezing point than formation water. The main reaction expected is dissolution of uraninite with the combination of sulfuric acid, hydrogen peroxide, and ferric iron. This reaction is exothermic, but there are several natural mitigating factors of the wellfield that aid in minimizing heat transport to the freeze wall:

- The wellfield will have flexibility in terms of reagent concentrations being added. With the bulk of the uranium being contained within a higher-grade core (interior to the deposit), the exterior of the deposit will see either lower injection/recovery flows or lower concentrations of lixiviant to be efficient with reagent consumption. Whether the concentration or flow is reduced, this limits the reaction rate and therefore total heat generation at the extremities of the deposit.
- There is no refortification of reagents underground compared to typical uranium tank leaching. This prevents additional heat generation from dilution of sulfuric acid or hydrogen peroxide.
- The heat capacity of lixiviant/UBS should be higher than the ore in the deposit, which means the UBS solution will carry the majority of the heat to surface rather than keeping the heat of reaction at depth.
- In the event the freeze wall thickness monitoring network detected an actionable thinning to the freeze wall, the concentration of lixiviant could be decreased which would reduce the heat generated per m³ of lixiviant and re-establish the desired freeze wall thickness.

To summarize the risk of the degradation of the freeze wall due to exothermic reaction, it is almost impossible—with the freeze plant operating—to practically add sufficient sustained heat to thaw the proposed freeze wall to the point hydraulic containment is compromised. Sufficient operational controls will be in place to verify the freeze plant is operating, to measure the temperature in the ore zone, and to measure the temperature on adjacent sides of the freeze wall so that early detection of any upset conditions can be identified and addressed. Options for addressing issues are to lower the temperature of the freeze system to draw more heat out, to increase the freeze coolant flow rates in freeze wells nearer to active ISR cells, or to adaptively manage the lixiviant injection and recovery rates in cells located nearer the freeze wall.

Attachment: IR-20, IR-67, IR-69

Number	IR-20
Dept.	NRCan
Project effects link	Fish and fish habitat
Reference to EIS, appendices, or supporting documentation	Section 2.3.3.1.1 Appendix 7-C
Context and Rationale	<p>Context: The proponent's objective for mining area remediation is to restore the groundwater within the confines of the freeze wall to an acceptable remediation target (EIS, sec. 2.3.3.1.1). The proponent's acceptable decommissioning objectives for groundwater quality are provided in EIS Table 2.3-3 and in Table 3-5 of Appendix 7-C. These objectives were based on laboratory core flood tests performed by flushing samples of ore with groundwater and groundwater amended with sodium hydroxide or sodium bicarbonate. The composition of the remediated groundwater observed in the core flood tests serves as the source term for the post-decommissioning reactive transport modeling presented in section 4 of Appendix 7-C.</p> <p>Rationale: In NRCan's opinion, it is important for reviewers to be able to assess the level of remediation achieved in order to reach the proponent's decommissioning groundwater quality objectives. Therefore, the proponent should provide complete water quality data for the pregnant lixiviant that remains in the ore zone after the end of mining and prior to any remediation.</p>
Information Requirement	NRCan requests that the proponent revise Table 3-5 of Appendix 7-C to show the water quality in lixiviant remaining in the ore zone at the end of mining, prior to remediation activities.

Number	IR-67
Dept.	CNSC
Project effects link	Geology and groundwater
Reference to EIS, appendices, or supporting documentation	Section 7.6.2.1 (Remediation Objectives)
Context and Rationale	<p>Context: Metallurgical testing, including batch reaction, coreflood testing and column tests are mentioned frequently throughout Sections 2 and 7 of the EIS. Outside of the composition of restored solutions from coreflood tests #2B and 3C, results from these various tests are not reported in the EIS or any associated Appendices. Rationale: The results from metallurgical testing are important to a number of items discussed in the EIS, including (but not limited to): evolution of hydrochemistry during remediation, source of salts in Lower Sandstone Aquifer porewaters, process plans, industrial wastewater treatment, estimating composition and volume of process precipitates, and composition of mining fluids and leachate. In particular, the EIS posits that mining area decommissioning objectives are achievable based on metallurgical testing and provides these objectives in Table 2.3-3. CNSC staff need to understand the specifics of this metallurgical testing, given</p>

	its importance for the development and justification for mining and remediation activities. Denison must also provide information demonstrating that the proposed restoration actions and remediation targets are As Low As Reasonably Achievable (ALARA).
Information Requirement	1. Please provide a summary of the results and the analysis of results of the metallurgical tests within the EIS, or provide the technical supporting document with this information, and ensure the documentation is appropriately referenced in the EIS. This should include sample information for cores (e.g., mineralogy, location, U content, depth), test conditions (e.g., duration, # of iterations, column length, flow rate, temperature, pressure, sample frequency, influent/effluent composition), as well as results and how they are pertinent to the development of ISR activities. 2. Please provide further clarification/justification on how results from two singular coreflood tests (i.e., Coreflood #2B and Coreflood #3C) can justify large-scale remediation activities and targets following solution mining. 3. Please provide material demonstrating that the proposed restoration actions and remediation targets are ALARA.

Number	IR-69
Dept.	NRCAN
Project effects link	Fish and fish habitat
Reference to EIS, appendices, or supporting documentation	Section 7.6.2.2.3 Appendix 7-C, sections 3.1 and 3.2
Context and Rationale	<p>Context: For hydrogeological and geochemical assessments in support of ISR projects, the proponent identifies two aspects of primary importance (Appendix 7-C, sec. 3.1). These are a) groundwater remediation (Appendix 7-C, sec. 3.1.1); and b) the assimilative capacity of host rocks downgradient from the ore zone (Appendix 7-C, sec. 3.1.2). According to the proponent, the objective of groundwater remediation at decommissioning is to achieve water quality in the mined zone that does not pose a risk to receptors at the point of exposure. Assimilative capacity refers to the ability of groundwater-rock reactions to naturally sequester or attenuate COPCs migrating from the ore zone during the post-decommissioning period.</p> <p>Rationale: However, in NRCAN's opinion, the proponent has neglected to mention the most fundamental aspect for hydrogeological and geochemical assessments in support of ISR projects. That aspect is the choice of ISR lixiviant and its effects on the mineralogy and hydrogeochemistry of the ore zone during mining operations. The proponent provides information on the pre-mining mineralogy (Appendix 7-C, sec. 3.2.1) and hydrogeochemistry (Appendix 7-C, sec. 3.2.2) but no information on their expected changes as a result of ISR mining. This information is important when considering source terms in reactive transport modeling.</p>
Information Requirement	NRCAN requests that the proponent provide a detailed description of the expected mineralogical and hydrogeochemical changes occurring within the ore and barrier zones as a result of the injection of acidic lixiviant.

Response:

It is also important to note that Denison is completing a sequential EA and licensing process for the Project (see draft EIS Section 1). Detailed ISR mining-related information needed to support licensing

and permitting has not been included in the EIS; it will be provided to regulators as part of permitting and licensing.

For the EIS, an initial understanding of the mining area remediation was needed to initiate the assessment of migration of constituents of potential concern in groundwater out of this area in the post-decommissioning period. The findings and conclusions of the EIS were also used, in turn, to inform and bound the engineering and feasibility work. The coreflood 2b and 3c, plus the Pre-Feasibility work (Denison, 2018) on mining area remediation (Section 2 (decommissioning section), Section 7, Appendix 7-C) was used in the draft EIS. This IR response provides additional information to support the selection of these studies.

Response to #1

1.0 Summary of Test Work

This response is focused on the metallurgical test work done to support an understanding of the:

- a) mineralogy and hydrogeochemical changes in the ore and barrier zones as a result of the lixiviant (mining solution) injections (see IR-69);
- b) the composition of the uranium bearing solution (UBS) at the end of mining and prior to any remediation (see IR-20); and
- c) water quality and secondary mineral phases formed during remediation of the ore zone (IR67; this IR).

Metallurgical testing completed, the objectives and results of the work, and the information carried forward for discussion in this response are summarized in Table 1.

Further details on the metallurgical testing, including the sample information for cores (e.g., mineralogy, location, U content, depth), test conditions (e.g., duration, # of iterations, column length, flow rate, temperature, pressure, sample frequency, influent/effluent composition) are provided in the sections below. All data presented herein are from the metallurgical test programs used to support the 2018 Prefeasibility Study (Denison 2018) and the Feasibility Study (Denison 2023).

Table 1: Summary of Metallurgical Testing

Years	Description	Objective	Results	Information informing IR-20, IR-67 and IR-69
2017-2018	Batch leach tests and bottle roll/agitation leach tests	Early testing of leaching with alkaline and acidic based lixivants	Supported decision for Acid Leaching	No discussion herein; very preliminary testing.
	A column leach test conducted using sulfuric acid followed, which also included simulated groundwater restoration tests.	Initial column test with acid leaching and evaluation of groundwater remediation	Early indication of groundwater remediation needs	Water Quality of UBS at the end of mining and Restoration Phase/flushing solution (groundwater remediation)
2021	Column leach tests on blended crushed ore	Test leach recoveries on a range of feed grades. Determine potential recovery and generate a representative sample for process plant testing.	Operationally, the feed sample for Column 1 is was verified as a reasonable blend to represent ISR wellfield production of UBS. Groundwater remediation with groundwater and alkaline solutions	Water Quality of UBS at the end of mining and Restoration Phase/flushing solution (groundwater remediation). Mineralogy.
2022	Column leach and remediation tests on crushed and screened core from individual hydrogeologic units	<ul style="list-style-type: none">•Develop information to support geochemical modelling of the deposit, including leaching and neutralization phases.•Generate a detailed chemical and mineralogical characterization of the dominant hydrogeological units(HGUs) within the ore zone•Evaluate behaviour of different HGUs during ISR and neutralization, in particular those hosting the majority of the resource.•Compare the efficacy of neutralization of different HGUs, with the use of dilute sodium hydroxide	Uranium leachability was found to vary amongst the HGUs. Also, there were some indications of an HGU ("2A") to be avoided during operations to prevent clay mobilization.	Water Quality of UBS at the end of mining.
2018	Static uranium ore dissolution (jar) test on intact core	Room temperature, 1,138 hours (48 days) exposure of drill core to concentrated sulphuric acid (35 g/L) in a very slow-motion shaker.	Provided visual indication that with sufficient soak time, lixiviant will penetrate into intact high grade uranium pieces. The incomplete recoveries at the end of the tests can be attributed largely to requiring longer residence time	No discussion herein; testing limited to visual information.
2018-2022	Coreflood tests on intact core in 2018 to 2022	Simulate the in situ field conditions, to understand and develop the lixiviant conditions necessary for successful full-scale ISR. Objectives were to: evaluate the rate of uraninite dissolution and changes in permeability of the core with leaching; generate laboratory scale test results applicable to planning the 2022 field test; and delineate a life-of-well-pattern production profile.	<p>Results were inconsistent in the early work (Coreflood 1 to 3C) due to highly variable reagent dosages in this pioneering work. Coreflood 4 and 5 (2021-ongoing).</p> <p>In Coreflood 4, as uranium mass gradually leached away, there was a mild trend of increasing flow rate at the same pressure, indicating permeability increase. Lessons learned from past testing, particularly with respect to reagent adjustments, were put into practice with this testing to enable completion of the longest test run to support the feasibility work. In total, 51.8% of the initial dry mass of the sample was removed by leaching; 50% of this was the result of uranium leaching. Feed grade was 26.66% U3O8.</p> <p>In Coreflood 5 is ongoing and is focused on HGU 2B, which has the majority of contained uranium, highest grade and highest natural permeability. The methodology was different from the other coreflood tests in that the flow was directed through a pencil hole in core. Cumulative recovery at end of February 2023 was 33%.</p>	Water Quality of UBS at the end of mining and Restoration Phase/flushing solution (groundwater remediation). Mineralogy.
2022	Feasibility field test (FFT) leaching and remediation in 2022	The FFT was a full-scale proof of concept in an ISR method; to demonstrate injection of lixiviant and recovery of UBS from the CSW test pattern. Injection was into 1 well (GWR-041).	After pH below 3 was achieved in GWR-041, active leaching of uranium began. UBS grade from GWR-041 rose while pH declined. Uranium grade trended upwards to 25 g/L over four days, while injection pressure decreased. This suggests that leaching played a role in reducing resistance to flow. A peak sample grade of 43 g/L U was collected from GWR-041 after a further three days, so the acid injection phase was ended (on October 12). A global leaching recovery curve could be developed using the field testing and coreflood tests.	No discussion included herein.

1.1 2018 Column Leach and Groundwater Restoration Test

In early 2018, a column leach test with acid lixiviant was performed. The core material used for testing came from three drill holes. Select intervals of overlying very low-grade sandstone was blended with very high-grade intervals to create a composite feed grade of 24.2% U. Details on the core material used in the leach tests are provided in Appendix A to this response, in Table A1.

A total of 137 pore volumes (PVs) of uranium bearing solution (UBS) was generated at flow rate ranging between 2 to 4 PV/d. A 90% recovery was achieved with a peak individual sample uranium grade of 27.4 g/L and average UBS grade of 8.4 g/L U. Following the leaching, the column was flushed with simulated groundwater to simulate groundwater restoration. Analytical results from the first pore volume of water removed from the column during the restoration phase are incorporated into the range in UBS composition at the end of mining presented in Table IR-20, IR-67, IR-69-2.

Table 2 addresses IR-20. This table summarizes information from the metallurgical testing with respect to composition of the UBS at the end of mining, prior to remediation. See further discussion below in Section 1.3.

Flushing of the column with simulated groundwater (Phase 1 of restoration) was continued for 84 pore volumes. Phase 2 (RPV 84-108) circulated simulated ore zone water quality fortified with 1 g/L Bicarbonate [from NaHCO_3]. The test simulated the operation of a Reverse Osmosis (RO) water treatment step where solution exiting the column would be treated prior to being re-introduced. Phase 3 (RPV 108-114) re-established injection of simulated groundwater quality. The objective of this phase was to displace the bicarbonate and to ensure ground water stability once the circulation of fluid is halted. Analytical results for groundwater collected during this restoration process are shown in Table 9 and Table 10. Information presented in those tables is discussed further in Section 2.0.

1.2 Column and Coreflood Tests

The following were common to all column and coreflood tests performed:

- The pore volume was determined by pumping water (deionized water, site groundwater) into each column or core until filled.
- Temperature was controlled to 10°C by placing the apparatus in a walk-in cooler.
- An online UBS or Remediation/Flushing Solution sample was taken daily.

Table 2:UBS Chemistry at end of Leaching (Mining)

Test	Units	Coreflood 2B (2021)	Coreflood 3C	Number of Samples	Range of Values of UBS constituent concentrations across Metallurgical tests from 2018-2021 representative of End of mining conditions		Baseline Ore Zone Groundwater Chemistry
Sample Name		D-CF2B-57	D-CF3C-142		Minimum	Maximum	GWR-032 (2021-06-04)
Acidity	mg/L			5	65000	87000	
Bicarbonate	mg/L	-	-	6	0	<1	118
Carbonate	mg/L			5	<1	<1	<1
Chloride	mg/L			1	<10	1220	220
Hydroxide	mg/L			0	<1	<1	<1
P. alkalinity	mg/L			0	<1	<1	<1
pH	pH units	2.1	1.1	13	0.63	2.10	6.83
Specific Conductance	uS/cm			9	52100	303000	860
Eh	mV			10	580	870	
Sum of ions	mg/L			5	52700	70100	504
Total alkalinity	mg/L			5	<1	<1	97
Total hardness	mg/L			5	202	1480	182
Nitrate	mg/L			5	<4	<40	<0.04
Fluoride	mg/L			5	1	34	0.23
Total dissolved solids	mg/L			5	8970	47900	599
Calcium	mg/L	557	723	13	58	723	55
Magnesium	mg/L	47	<63	13	<10	240	11
Potassium	mg/L	148.8	<86	13	6.2	149	4.6
Sodium	mg/L	17.9	<77	13	6.0	12300	81
Aluminum, dissolved	mg/L	1738	71	13	69	4609	0.0006
Antimony, dissolved	mg/L			5	0.040	1	<0.0002
Arsenic, dissolved	mg/L	<0.1	<1	13	<0.1	21	0.2
Barium, dissolved	mg/L	<0.1	<1	13	<0.05	<0.5	0.063
Beryllium, dissolved	mg/L			5	0.07	0.4	<0.0001
Boron, dissolved	mg/L			1	<1	<10	0.43
Cadmium, dissolved	mg/L	<0.1	<1	13	0.018	1.809	<0.00001
Chromium, dissolved	mg/L	9.1403	<1	13	<0.1	9.140	<0.0005
Cobalt, dissolved	mg/L	5.41	<1	12	0.5	15	<0.0001
Copper, dissolved	mg/L	5.16	10.23	13	5.2	964	<0.0002
Iron, dissolved	mg/L	3309	4094	13	820	4094	4.2
Lead, dissolved	mg/L	0.97	19.45	13	0.20	19	<0.0001
Manganese, dissolved	mg/L	16.35	<81	13	2.70	41	0.22
Molybdenum, dissolved	mg/L	1.65	59.57	13	1.65	60	0.0038
Nickel, dissolved	mg/L	15.7	<1	13	<1	27	0.001
Selenium, dissolved	mg/L	18.4	<1	13	<0.025	26	<0.0001
Silver, dissolved	mg/L			5	<0.005	<0.05	<0.00005
Strontium, dissolved	mg/L	5.2	<1	7	0.60	5	1.66
Thallium, dissolved	mg/L	-	-	5	0.05	<0.2	<0.0002
Tin, dissolved	mg/L	-	-	5	0.07	0.30	-
Titanium, dissolved	mg/L			5	2.80	32	<0.0002
Uranium, dissolved	mg/L	7.45E+03	3.88E+04	13	7.70E+02	3.88E+04	1.10E-02
Vanadium, dissolved	mg/L	160.88	62.57	13	6.16	161	<0.0001
Zinc, dissolved	mg/L	134.37	4.03	13	2.30	331	2.62
Sulfur	mg/L	9,263	22,877	13	5211	209411	4.3
Phosphorous	mg/L	-	75.4	13	2	75	<0.01
Silica, soluble, dissolved	mg/L	-	-	6	31	192	13.3
Radium-226*	Bq/L	-	-	4	230	3000	180
Radium-228*	Bq/L	-	-	1	5	5	-
Lead-210*	Bq/L	-	-	4	600	1700	2200
Polonium-210*	Bq/L	-	-	4	290	2000	110
Thorium-230*	Bq/L	-	-	4	21000	220000	7
Thorium-232*	Bq/L	-	-	4	2	12	-
Radium-226*	mg/L	-	-	4	6.29E-06	8.21E-05	4.92E-06
Thorium-230*	mg/L	-	-	4	2.75E-02	2.88E-01	9.17E-06

Notes

* Analytical results for radionuclides are limited. The ranges of radionuclide concentrations (Bq/L) provided are considered conservative because they reflect composite samples collected over the ISR leaching period in the 2021 column samples, not UBS at the end of mining

Analytical results for Coreflood 2B and 3C are provided (in addition to the range of UBS Constituent Concentrations) because results from the remediation portion of these tests was used for development of the Restored Solutions modelled in the draft EIS (Appendix 7-C)

Used to highlight baseline groundwater quality in the ore zone for comparison with UBS Composition at end of mining.

2021 UBS Column Tests

The objective of the 2021 column tests was to test leach recoveries on a range of feed grades. Four samples were generated from nine drill holes, all proximal to the WS Shear where most of the resource lies. The samples contain varying amounts of uraninite, sulphides, clay and iron and represent blends of the various hydrogeologic units within the deposit (HGUs). Samples were crushed to -10 mm. Columns with a diameter of ~100 mm were packed with the samples. Four column tests were conducted, with details for each sample listed in Table 3.

The 2021 column tests used the full-size distribution of crushed core and achieved relatively high mineral liberation in contact with lixiviant. This results in relatively rapid leach kinetics compared to intact core. The initial flow rate was calculated based on a retention time of eight hours (3 column pore volumes per day (PV/d)).

Table 1: Summary of Samples for Column Test 1 to 4

Column No.	Sample ID	Mass (g)	Feed U ₃ O ₈ (wt%) ^a	HGUs in Blend ^b	Hole IDs	Number of PVs - Leaching	Number of PVs - Remediation
1	Sample A	27,338	48.1	2A/B/C/D	GWR-10, 16, 19, 21	116	6.7 (D.I. Water)
2	Sample B	18,619	46.1	2B	GWR-10, 19, 23, 26	120.4	16.5 (Site GW, 10g/L NaOH Solution)
3	Sample D	9,180	1.8	2A/C/D/E	GWR-15, 16, 19, 26	14.7	15.5 (Site GW, 10g/L NaOH Solution)
4	Samples C&E	8,742	26.9	2A/C/D/E	GWR-01, 19, 22	29.7	11.2 (Site Water, 1.5g/L NaHCO ₃)

Notes

^a Back Calculated^b HGUs = Hydrogeological Units in the Ore Zone

A single pass flow of dilute sulfuric acid and hydrogen peroxide lixiviant was run between 22 to 38 days. Lixiviant strength was generally decreased over the course of each run. UBS composition from each of the column leach tests at the end of leaching is shown in Table 2.

On completion of the leaching tests, each column was flushed with water (de-ionized water or groundwater) and for columns #2, #3 and #4, neutralization of groundwater was evaluated using alkaline solutions. Solutions used and porewater volumes flushed are summarized in Table 3. Analytical results for solution composition during the remediation phase are included in Table 9 and Table 10.

Mineralogy of the column samples pre-testing were analyzed by XRD and QEMSCAN; the mineral assemblages aligned with the overall understanding of the ore zone mineralogy, provided as Table IR-20, IR-67, IR-69-A2 (Appendix A to this response). XRD results for the fine particles are provided as Table 4. These results show the formation of secondary sulphate minerals during the uranium ore leaching process. The other mineral phases are associated with the (pre-mining) ore zone mineralogy, provided in the draft EIS as Table 3-1 of Appendix 7-C, and provided herein in Appendix A as Table 2.

Table 4: XRD Results for Fine Particles in UBS, Column Experiments #1 to #4 (2021)

Mineral Phase	Column #1	Column # 2	Column #3	Column #4
Anglesite	18.1	9.8	-	6.6
Anhydrite	7	-	-	-
Biotite	-	38	24.2	8.3
Chlinochlore	62.6	21.2	20.3	20.1
Gypsum	-	4.4	-	-
Kaolinite	-	22	41.1	57
Quartz	-	-	5.4	-
Pyrite	12.3	4.6	8.9	7.1

Notes

Secondary Minerals

2022 Column Leaching and Remediation Tests

A suite of 5 column leaching tests was undertaken to support remediation planning. Whereas core flood testing may more realistically represent the ISR conditions with respect to operational conditions (i.e., using intact core and pressure applied), this phase of column testing used crushed material to accelerate the testing process and, thus, provide key information on the remediation phase and prepare for the (2022) field feasibility study.

The 2022 column testing program consisted of five 100mm diameter columns loaded with samples from different HGUs providing characterization of ore variability. The samples were selected from a blend of assay sample splits of fresh core from GWR-054 through GWR-061, supplemented by preserved core from GWR-016, GWR-022 and GWR-024 stored frozen by Denison. The hole locations are shown Figure 1 ranging along the length of the deposit. Intervals from five to eight different drill holes were composited to meet required sample mass and/or to meet representativeness for each HGU.

The samples were hand crushed to minimize fines generation, to a maximum size of 30 mm. Minimum size fraction was +0.212 mm by wet screening out fines. This was designed to promote flow through the column and minimize exposed mineral surface area. Overall procedures were like 2021 column tests. The lixiviant was a mixture of sulphuric acid and hydrogen peroxide and was prepared using Wheeler River groundwater. Lixiviant was injected upwards in essentially flooded plug flow conditions. The flow rate was calculated based on ~0.67 measured column PV/d. Test parameter variables were minimized, so the differences between HGUs could be distinguished.

Initially, all five columns were fed lixiviant from a common tank. The low-grade columns 2A and 2E were run until fully leached. From that point forward, 2A and 2E were fed from a separate tank to perform groundwater flush and neutralization. A summary of details of the column tests including pore volumes during leaching, during post-leaching flushing with groundwater, and during neutralization are provided in Table 5.

UBS composition at the end of the leaching period is provided in Table 2, and groundwater quality following the groundwater flushing and neutralization is provided in Table 9 and Table 10.

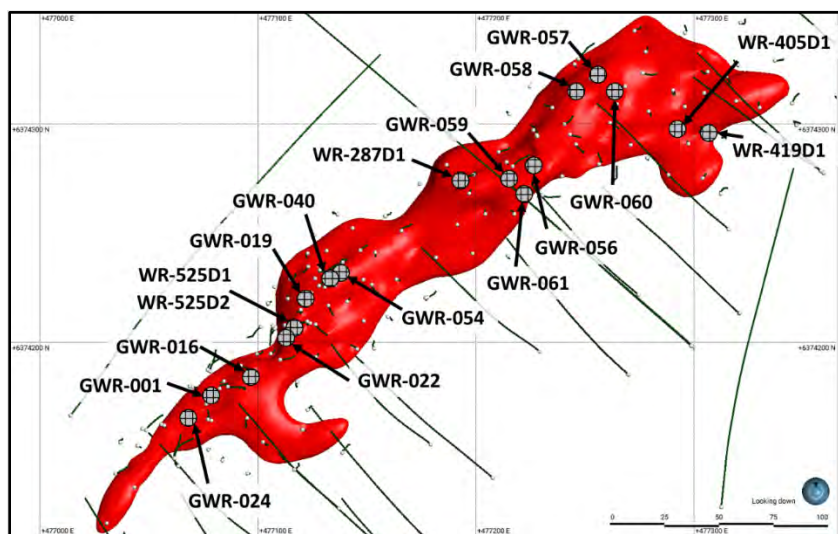


Figure 1: Metallurgical Hole Locations for 2022 Column Leach Testing

Table IR-20, IR-67, IR-69-2: 2022 Column Leach Testing Details

Columns	2a	2b	2c	2d	2e
Estimated Grade (wt % U ₃ O ₈)	5.0%	58.3%	41.3%	46.1%	1.6%
	Numbers of Pore Volumes				
Phase 1: Groundwater equilibration	2.9	3.1	3.0	2.8	3.1
Phase 2: In-Situ Recovery (ISR)	20.8	66.7	64.1	62.4	19.4
Phase 3: Groundwater Flushing	15.0	16.2	15.1	11.6	14.9
Phase 4: Neutralization	4.4	4.2	11.0	2.6	3.7
Total Pore Volumes	43.1	90.3	93.1	79.4	41.1
pH at end of Phase 2	0.93	0.95	0.91	0.91	0.95
pH at end of Phase 4	9.53	7.1	3.8	7.22	7.87

QEMSCAN was done on the column pre-testing and at the end of the flushing period. The results are presented as Table 6. Mineral phases that reflect basement-derived materials in the ore zone residuals include biotite, spodumene, petalite and garnet.

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Table 6: 2022 Column Leach Test QEMSCAN results

QEMSCAN	Column 2a		Column 2b		Column 2c		Column 2d		Column 2e	
	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)	Pre-Test (Feed)	Post-Test (Residuals)
Mineral	2A-BATCH-1	DCL-2a-R	2B-BATCH-1	DCL-2b-R	2C-BATCH-1	DCL-2c-R	2D-BATCH-1	DCL-2d-R	2E-BATCH-1	DCL-2e-R
Anglesite		3.84		3.28		3.99		14.18		1.15
Biotite	4.84	1.38	0.25	0.44	4.26	0.83	1.16	1.41	2.96	1.98
Bornite	0.36	0.07					0.70	1.15	0.43	0.20
Calcite			0.42	0.69		0.14				
Chalcocite (CuS)			1.54		0.28		0.31		1.28	
Chalcopyrite	12.37	13.03	0.71	2.27	0.11	0.16		0.25	8.76	3.48
Chlorite				3.15						
Clinocllore-(Fe)		11.34				0.8		9.39		52.26
Covellite (CuS)	0.35	0.38	0.19	2.61	0.39	1.34	0.06	0.18	0.10	0.20
Fe-oxide		0.03				1.15		0.53		0.03
Galena	0.63	0.40	0.43	1.23	0.25	0.3	0.53	3.06	0.10	0.02
Garnet	0.25				2.52		1.47		0.43	
Goethite-Clay mix	4.31	0.03	0.35	0.10	7.37	16.78	10.95	1.66	1.52	0.41
Illite	0.21	0.52		0.05					0.32	0.67
Ilmenite		0.08				0.09				0.47
Kaolinite	42.04	40.41	1.52	3.28	7.12	11.67	0.75	2.09	62.20	28.63
Muscovite	9.46	6.09	0.79	3.35	0.81	1.2	0.15	2.06	13.69	8.79
Petalite		0.15		0.05				0.03		0.02
Pyrite	8.48	10.44	1.49	3.38	0.98	1.58	0.12	0.09		0.84
Quartz	4.40	9.11		1.05	0.05	0.42		1.74	1.01	0.12
Rutile	0.61	0.58	0.07	0.04	0.04	0.04			0.44	0.32
Sphalerite	0.56	0.41		0.04	0.03			0.02		
Spodumene		0.17		0.05		0.16				0.05
Uraninite	10.70	1.07	92.10	74.89	75.74	58.72	83.73	61.93	6.67	0.29
Zircon	0.36	0.45	0.06	0.02		0.04				
Siderite						0.54				

2018-2022 Coreflood Tests

Core testing machines (CTM) were typically used to study in situ oil recovery processes, for flooding uranium deposit drill core with lixiviant to simulate ISR conditions on a micro scale which are referred to as coreflood tests. All drill cores tested were from vertically oriented drill holes allowing the flow from end to end of the coreholder to simulate flow in the vertical direction of the deposit. This is tangential to the intended predominantly horizontal flow path between wells in situ.

From late 2019 to mid-2021, coreflood tests numbered 1, 2A, 2B, 3A, and 3C were performed. The main objective was to simulate the in situ field conditions, to understand and develop the lixiviant conditions necessary for successful full-scale ISR. Priority was placed on testing a large number of samples over short durations. Tests were ended early, so, uranium recoveries were low relative to later testing (generally < 10%). Results for Coreflood 2B and 3C are discussed further herein.

Coreflood 2B and 3C

Details for the testing of Coreflood 2B and 3C are provided in Table 7.

Table 7: 2021 Coreflood Test Details

Coreflood	2B		3C	
Corehole	GWR-024		GWR-019	
Core Dimensions (average diameter, average length), in mm	60 x100		78*70	
Core Pore volume (mL)	36.9		53.1	
Estimated Grade (wt % U ₃ O ₈)	24		70.7	
	Number of Pore Volume	pH (at end of Leaching or Remediation Phase)	Number of Pore Volume	pH (at end of Leaching or Remediation Phase)
In-Situ Recovery (ISR)	34.4	2.1	82.7	0.98
Groundwater Flushing	22.7	1.91	91.6	2.83
Neutralization with NaOH	55.6	11.92	-	-
Neutralization with NaHCO ₃	-	-	62.4	6.87
Post-Neutralization Groundwater Flush	9.3	11.47	17.2	6.43
Total Pore Volumes	122	-	253.9	-

The UBS composition at the end of leaching for Coreflood 2B and 3C is provided in Table 2. The analytical results for these samples were provided in Table 2 because Corefloods 2B and 3C were the primary basis for the development of the restored solutions. UBS composition during flushing for these coreflood tests is discussed further in Section 2.0 and is summarized in Table 9 and Table 10.

At the end of testing, the core from Coreflood 2B was frozen. The frozen core was cut in the middle into two sides. XRD, QEMSCAN and SEM was done on one half of the sample, on the inside cut. The XRD results indicated:

- 19.5 wt% Kaolinite
- 26.7 wt % Montmorillonite
- 45.3 wt % Dickite
- 2.9 % Fluorite
- 5.6 % Pyrite

The cumulative uranium recovery for core 2B was low, and thus the sample (post-leaching) has a mineralogical composition comparable to that of the unmined ore zone. The portion of the sample that underwent mineralogical analysis was also rich in clay minerals. The QEMSCAN results are shown in Figure 2. The SEM image (not shown) shows the presence of uraninite, pyrite, and sphalerite.

The QEMScan shows a minor amount of mineral phase suggestive of a small amount of jarosite (“Fe-Al-Si-S”) closely associated with pyrite. This suggests formation of oxidation products/secondary minerals in the core with exposure to lixiviant.

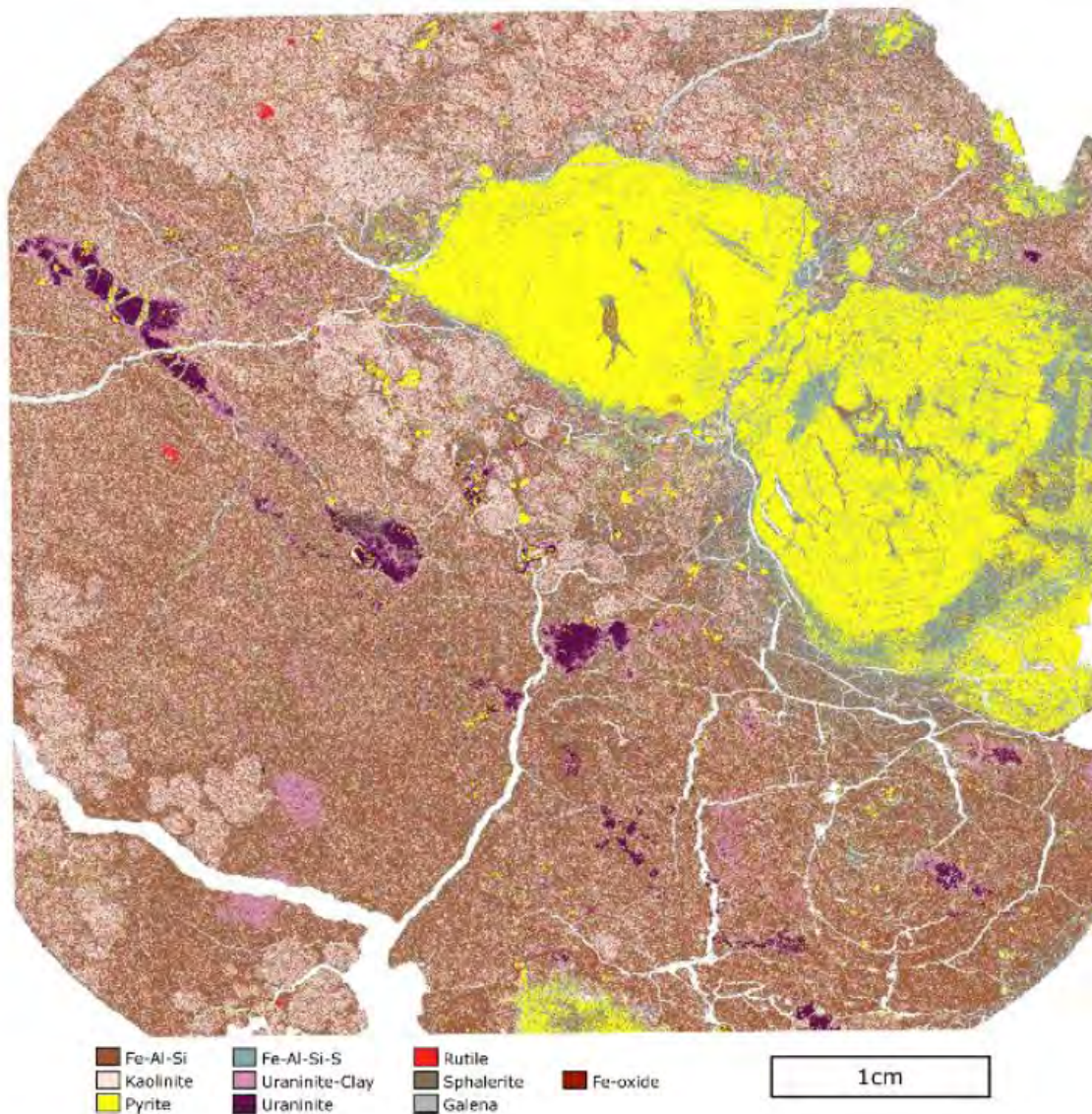


Figure 2: Coreflood 2, QEMSCAN

Coreflood 4

The Coreflood 4 sample was taken from a high-grade segment of HGU 2C from hole GWR-040, which is the middle CSW in the planned field feasibility test (FFT) well pattern. Thus, it was an excellent candidate to correlate with subsequent FFT results.

Coreflood 4 feed sample side view is shown in Figure 3. Near-horizontal mineral banding is evident.



Figure 3: Coreflood 4 Feed Sample Side View, Prior to Placement in Coreflood Machine

Coreflood 4 ran for a total of 113 PVs over 391 days, with life-of-test average UBS grade of 18.7 g/L U and reagent consumptions of 2.78 kg H_2SO_4 and 0.35 kg H_2O_2 per kg U. Part of the difficulty of production ramp-up of Coreflood 4 was due to the flow constraint of low micro scale permeability through the intact core, particularly with generally lower permeability in the vertical flow direction of coreflood samples. As uranium mass gradually leached away, there was a mild trend of increasing flow rate at the same pressure, indicating permeability increase.

In total, 51.8% of the initial dry mass of the sample was removed by leaching. Just over half of the mass loss is accounted for by uranium leaching, and the remainder is accounted for by gangue mineralization leaching. The feed grade was back calculated from measurements of the total uranium in UBS collected throughout the test plus leach residue sections. Feed grade was 26.66% U_3O_8 , and final recovery was 97.1%. Coreflood 4 is the most comprehensive simulation of ISR for the Phoenix FS, with the highest recovery demonstrated from an intact core to date.

Coreflood 4 provides the most information about the mineralogical and hydrogeochemical changes that are occurring in the ore zone during mining. Post-leaching, the core leached in Coreflood 4 was cut into segments, as shown in Figure 4, assayed and visually examined (photographed) for changes to the core due to leaching. The mineralogy of each section was determined.

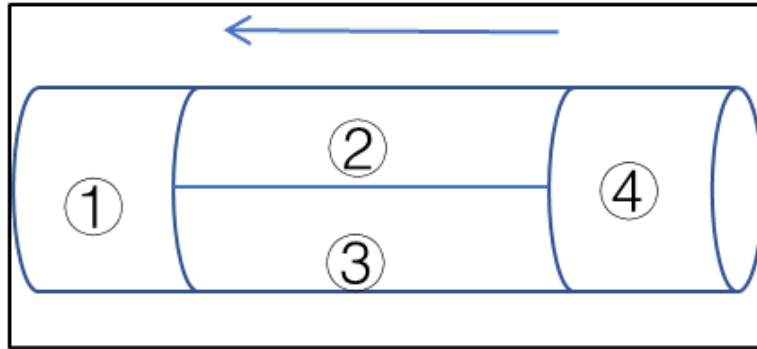


Figure 4: Coreflood 4 Cut Sections and Direction of Flow

Coreflood 4 feed side puck (Section 4), inlet face view is shown in Figure 5. The feed end was deeply eroded, nearly through to the discharge side of the section.



Figure 5: Coreflood 4 Feed Side Puck (Section 4), Inlet Face View

Coreflood 4 middle (Section 2), centre longitudinal cut face view is shown in Figure 6. It was strongly bleached throughout, with cracks that appeared after drying.



Figure 6: Coreflood 4 Middle (Section 2), Centre Longitudinal Cut Face View

Coreflood 4 discharge end puck (Section 1), inlet face view, dried, is shown in Figure 7. It was strongly bleached across the entire cross-section.



Figure 7: Coreflood 4 Discharge End Puck (Section 1), Inlet Face View, Dried

XRD for each of the sections is given in Table 8. Mineral phases that reflect basement-derived materials in the ore zone residuals include anorthite.

Table 8: XRD Results for Coreflood 4 Core Sections

Mineralogical Composition Post-Extraction	D-CF4A-1	D-CF4A-2	D-CF4A-3	D-CF4A-4
Location/section in the coreflood column	Discharge End	Midsection	Midsection	Feed End
Kaolinite (Al ₂ Si ₂ O ₉ H ₄)	74.7	22.1	38.3	43.8
Pyrite (FeS ₂)	17.9	20	12.4	16
Chamosite (Mg _{2.518} Fe _{2.482} Al _{1.25} Si _{3.80} H ₁₀) (Chlorite Group)	7.3	5.8	1.4	--
Gypsum (CaSO ₄ H ₂ O)	--	7.5	4.5	4.8
Barite (BaSO ₄)	--	1.6	0.7	--
Anorthite (CaSi ₂ Al ₂ O ₈)	--	30.7	31.8	--
Goethite (FeO ₂ H)	--	12.4	10.9	4.3
Anglesite (PbSO ₄)	--	--	--	31.1

1.3 Composition of the UBS remaining in the Ore Zone at the end of Mining (IR-20)

The analytical results for the UBS composition in Coreflood 2B and 3C are shown in Table 2 along with a range of UBS composition that was developed from the relevant analytical results for a total of 13 samples from across the column and coreflood tests. The ranges of values for constituents of potential concern (COPCs), as defined in Appendix 7-C of the draft EIS, are provided in Table 2. Uranium and other COPC concentrations generally vary by 2-3 orders of magnitude. There is expected variability in the UBS composition because of the nature of the deposit, which has been captured in the conditions of the metallurgical testing, and the nature of the testing (e.g., core vs. crushed rock, test duration, lixiviant composition, etc.). The analytical results were given explicitly for Coreflood 2B and 3C because of the use of results from these coreflood tests to develop the restored solutions, which is discussed further in Section 2.0.

The range of UBS composition at the end of mining has been included in Table 3-5 of Appendix 7-C as was requested as part of IR-20, such that UBS quality at the end of mining and remediated conditions (represented by the Restored Solutions) can be compared. The updated Table 3-5 has been added to this response as Appendix B.

1.4 Mineralogical and Hydrogeochemical Changes to the Ore Zone with Mining (IR-69)

Understanding of changes in the mineralogy of the ore zone with mining are informed by the XRD results from Coreflood 4, as this test was terminated at the completion of the ISR process, and QEMSCAN results for the 2022 columns, because these tests provide quantitative information on the mineral assemblage following mining and with remediation. The following conclusions are made with respect to changes in the mineralogy in the ore zone with mining:

- The mining process is effective as leaching uraninite from the ore zone and also results in partial dissolution of sulphide minerals (pyrite, sphalerite, galena, etc.);
- Secondary sulphate minerals are formed as a result of the mining process. The associated equations are shown in Appendix A. Jarosite minerals were suggested surrounding pyrite particles in the QEMSCAN of Coreflood 2, but were not detected in any of the other post-mining residuals. Gypsum and barite were detected in XRD but not present at quantifiable levels in association with the 2022 column residuals. Formation of anglesite is shown by XRD and QEMSCAN in post-mining residuals.

- The elevated concentration of aluminum in solution evidences clay mineral dissolution, but overall the relative abundance of clays in the ore zone increases with ISR mining, as would be expected with ore dissolution.

The hydrochemistry of the ore zone post-mining is presented in Table 2. Consistent with the dissolution of parent minerals and the pH of the UBS, most COPCs concentrations in the UBS at the end of mining are elevated with respect to baseline groundwater conditions in the ore zone.

2.0. Composition of the Restored Solutions (Addresses Question #2 of IR-67)

The restored solutions were developed using the metallurgical data that were available when conditions in Post-Decommissioning were being conceptualized in 2020-2021 for numerical modelling and effects assessment (Appendix 7-C of the draft EIS). This included the early results on acid leaching of the core (2018) and Coreflood 2B and 3C results. At that time, the coreflood tests provided the most detailed information from which to develop the chemistry of the Restored Solutions #1 and #2, using the remediation portion of the tests. From the results of that testing, “Restored Solution #1” and “Restored Solution #2” (Table 3-5) were developed to represent the bounding scenarios for groundwater quality considered in the reactive transport model to evaluate the potential for environmental effects following remediation of the mining area. As is discussed further below, these solution compositions were developed to reflect remediation of the ore zone through flushing and neutralization, without over-neutralization – meaning, base addition past circumneutral conditions to alkaline conditions.

Since that time, more information from the column and coreflood tests has become available that supports the composition of the Restored Solutions put forward in the draft EIS as being representative of porewater within the mining zone with remediation.

When developing the restored solutions for the draft EIS, the approach was generally to select concentrations for any given element/parameter that represented a low to mid-range value for the COPC from the metallurgical testing solutions, to be conservative with respect to evaluating potential effect, but also to reflect the goal of the remediation (to align with ALARA, as is discussed below). For dissolved uranium, the concentration in Restored Solutions #1 and #2 were set to upper bounds of 100 mg/L and 30 mg/L, respectively. In some cases, like Co and Ni, the values selected for modelling were identified to be on the high end upon subsequent metallurgical testing. Thus, the concentrations for these elements modelled are conservative with respect to anticipated pore water concentrations of these elements post-remediation.

The basis of the selected concentrations for Restored Solution #1, which was the solution modelled in Appendix 7-C of the draft EIS, is provided below in Table 9. As Restoration Solution #1 contains the higher remaining concentrations, and lower pH (i.e., differs more from baseline conditions in the ore zone), this solution was carried forward for geochemical reactive transport modelling to evaluate environmental effects.

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Table 9: Groundwater Chemistry basis for Restored Solution #1

Metallurgical Test		2018 Pre-Feasibility: Restoration Phase Data	Coreflood 2B	Coreflood 2B	Coreflood 2B	Coreflood 3C	2021 Column, 2	2021 Column, 3	2021 Column, 4	2022 Column, 2a	2022 Column, 2c	2022 Column, 2d	2022 Column, 2e	2022 Column, 2e	Restored Solution #1	Notes on Value Carried Forward in Restored Solution for Model
Sample Name		RPV30-23	D-CF2B-121-143	D-CF2B-134-144,146	D-CF2B-COMBINED-1 (D-CF2B-134-144,146)	D-CF3C-225-237	D-CL2-FW-2	D-CL3-FW-2	D-CL4-FW-2	D-CL2A-68	D-CL2C-114	D-CL2D-111	D-CL2E-63	D-CL2E-68		
Statistic		-	Average Value ^a	Average Value ^a	-	Average Value ^a	-	-	-	-	-	-	-	-	Restored Solution #1	Notes on Value Carried Forward in Restored Solution for Model
Remediation Method		GW Flush	NaOH Neutralization	NaOH Neutralization	NaOH Neutralization	Bicarbonate Neutralization	Groundwater	Groundwater	NaOH Neutralization	NaOH Neutralization	GW Flush	GW Flush	GW Flush	NaOH Neutralization		
pH	pH units	3.87	4.4	4.42	Same as adjacent (D-CF3C-238-256)	2.97	2.6	2.44	2.66	3.80	2.58	2.46	2.48	4.05	4.3	High end of observed
Eh	mV		520	525		598					570	542	426	648	-	Set in model to reflect oxidized conditions
Pore Volumes of remediation		-	30-32	59-74	69-76	109-130				19.4	15.1	11.6	14.9	18.6	-	
Aluminum, dissolved	mg/L	5.6	9.7	10.3	7.0	<5	5.4	26	9.1	9.0	9.9	12	32.8	15.6	7	Low end of observed
Arsenic, dissolved	mg/L	<0.010	0.17	0.22	0.03	0.48	0.15	0.31	0.1	0.02	0.14	0.06	0.4	0.012	0.06	Low end of observed
Barium, dissolved	mg/L	<0.05	0.10	<0.1	<0.05	<0.1	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	0.006	0.018	0.05	Mid range of observed
Total Inorganic Carbon (C(4))		mg/L	-	-	-										58	Assumed to be approximately equivalent to GW values and considers some bicarbonate
Calcium	mg/L	109	228	210	-	81.7	11	43	23	21	22	380	20	35	110	Mid range of observed
Cadmium, dissolved	mg/L	<0.001	<0.1	<0.1	0.015	<0.1	0.061	0.033	0.020	0.051	0.001	0.004	0.0004	0.0003	0.015	Mid range of observed
Chloride	mg/L	37			-		1	<1	1	33	<1	6	3	9	200	Very limited information available. Set to a higher value to consider potential for values closer to baseline ore zone water quality
Cobalt, dissolved	mg/L		2.8	2.1	2.0	<0.1				0.15	0.03	0.16	0.53	0.42	2	High end of observed
Chromium, dissolved	mg/L	0.04	0.22	0.14	<0.05	<0.1	0.18	0.76	0.16	<0.05	<0.05	0.17	0.013	0.05	0.05	Mid range of observed
Copper, dissolved	mg/L	2.23	0.21	0.24	0.17	<0.1	6.2	5.8	9.2	25	3.1	3.2	20.1	4.7	0.17	Low end of observed
Fluoride	mg/L	NA	-	-	-		2.4	0.32	1.6	3	6.0	4.2	2	3		No data available at time of developing Restored Solution
Iron, dissolved	mg/L	54.1	378	334	324	13.0	23.2	92	40	124	33	75	74	57	100	Mid range of observed
Potassium	mg/L	<1	10.1	9.5	-	<8	3.5	4.7	1.5	3.7	1.5	5.6	1.9	1.4	9	High end of observed
Magnesium	mg/L	3.7	-	-	-	<6	0.6	11	0.2	3.0	0.4	4.4	38	43	6	Mid range of observed
Manganese, dissolved	mg/L	0.68	9.3	-	3.4	<8	0.57	0.63	0.85	2.0	0.98	4.1	0.31	0.30	3.4	Mid range of observed
Molybdenum, dissolved	mg/L	0.05	0.22	0.22	0.10	<0.1	0.16	2.1	0.10	0.05	0.05	0.03	0.58	0.019	0.1	Mid range of observed
Sodium	mg/L	221	283.2	351.0	-	120	3.1	4.1	2.8	760	3.0	4.3	3.7	378	190	Mid range of observed
Nickel, dissolved	mg/L	0.20	12.8	10.0	9.7	<0.1	0.56	3.2	0.75	0.55	0.06	0.35	1.04	0.92	9.7	High end of observed
Lead, dissolved	mg/L	3.08	2.9	3.41	3.1	1.8	4.97	0.68	0.96	1.3	0.22	0.10	2.64	0.50	3.1	Mid-high range of observed
Sulfate	mg/L	860	2700	2724	-	679	300	750	480	2180	470	1460	690	1220	620	Mid range of observed
Selenium, dissolved	mg/L	<0.025	0.31	0.23	0.08	<0.1	0.39	0.10	0.13	0.01	0.02	0.05	0.042	0.098	0.08	Mid range of observed
Si	mg/L	71.9	-	-	-										40	limited information available; value similar to available data assumed
Strontium, dissolved	mg/L		4.5	4.4	4.4	3.2	0.32	0.70	0.22	0.62	0.43	0.58	0.67	0.76	4.4	Upper range of observed
Zinc, dissolved	mg/L	1.48	1.6	1.4	1.4	0.14	1.7	3.6	3.0	10	0.14		0.20	0.13	1.4	Mid-range of observed
P	mg/L	-	-	-	-	<4									4	applied limited information
Uranium	mg/L	105	586	334	338	45.2	92	217	579	145	288	328	38.1	30.8	100	Mid-low end of observed; value set as upper bound in the EIS
Vanadium, dissolved	mg/L	0.09	2.9	0.8	0.51	0.32	0.35	2.8	1.1	0.13	0.70	0.51	1.8	0.006	0.51	Low end of observed
Polonium-210	Bq/L	6.3+/-0.5	-	-	1600	-	-	-	-	-	-	-	-	-	-	Not modelled (lack of thermodynamic constants)
Radium-228	Bq/L	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	Not modelled
Thorium-228	Bq/L	-	-	-	<3	-	-	-	-	-	-	-	-	-	-	Not modelled
Thorium-230	Bq/L	105+/-9.6	-	-	<500	-	-	-	-	-	-	-	-	-	-	See Below for values in mg/L
Radium-226	Bq/L	65.8+/-0.3	-	-	<200	-	-	-	-	-	-	-	-	-	-	See Below for values in mg/L
Lead-210	Bq/L	530+/-1.3	-	-	2400	-	-	-	-	-	-	-	-	-	-	Not modelled (transport behaviour taken into account with Pb)
Thorium-232	Bq/L	0.2+/-0.04	-	-	0.05	-	-	-	-	-	-	-	-	-	-	Not modelled
Radium-226	mg/L	1.80E-06	-	-	<5.47E-06	-	-	-	-	-	-	-	-	-	5.47E-06	Limited data, high end value ^b
Thorium-230	mg/L	1.38E-04	-	-	<6.55E-04	-	-	-	-	-	-	-	-	-	3.93E-06	Limited data set ^c

Notes

^a Data Available when developing the Restored Solutions for the modelling in Appendix 7-C of the EIS^b Arithmetic average values, calculated using detected measurements or where all values were non-detect, assumed the detection limit. pH value is the median, not the arithmetic average.^c Limited data set meant that PFS groundwater flushing data at pH 5.8 was also considered in setting this value, with a Th-230 concentration of 2.62E-07 mg/L and a Ra-226 value of 1E-05 mg/L (see Table IR-67-10)

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Table 10: Groundwater Chemistry basis for Restored Solution #2

Metallurgical Test		2018 Pre-Feasibility; Restoration Phase Data			Coreflood 3C	Coreflood 3C	2021 Column, 4	2022 Column, 2b	Restored Solution #2	Notes on Value Carried Forward in Restored Solution for Model
Sample Name		RPV 38-42	RPV 42-53	RPV 54-57	D-CF3C-238-256	D-CF3C-COMBINED-1 (D-CF3C-238-256)	D-CL4-FW-3	D-CL2b-116		
Statistic		-	-	-	Average ^a	-	-	-		
Remediation Method		GW Flush	Neutralization (NaHCO ₃)	GW Flush	Bicarbonate Neutralization	Bicarbonate Neutralization	Distilled Water Flush Post NaOH Neutralization	NaOH Neutralization		
pH	pH units	5.8	8.5	8.3	6.51	Same as adjacent (D-CF3C-238-256)	7.48	6.51	6.1	Low end of Observed
Eh	mV				402		-	387	-	Set in model to reflect oxidized conditions
Pore Volumes of remediation		-	76-84	82-108	-	131-162	-	18.70	-	
Aluminum, dissolved	mg/L	0.27	1.32	4.4	<5	0.56	0.70	10	0.56	Low end of observed
Arsenic, dissolved	mg/L	0.10	0.04	0.06	0.25	0.1	<0.01	0.000259	0.1	Upper end of observed
Barium, dissolved	mg/L	<0.05	0.05	0.04	<0.1	0.05	<0.05	0.2	0.05	Mid range of observed
Total Inorganic Carbon (C(4))		mg/L	-	-	-	-	-	-	105	Assumed to be approximately equivalent to GW values and considers some bicarbonate neutralization
Calcium	mg/L	28	13	5	48.1		16	127	10	Low end of observed
Cadmium, dissolved	mg/L	0.002	<0.001	<0.001	<0.1	0.004	0.004	<0.1	0.004	Mid range of observed
Chloride	mg/L	15	2	12			6	-	50	Set to a higher value to consider potential for values closer to baseline ore zone water quality
Cobalt, dissolved	mg/L				0.11	<0.01		<0.1	0.01	Low end of observed
Chromium, dissolved	mg/L	<0.01	<0.01	<0.01	<0.1	<0.05	0.05	<0.1	0.05	Mid range of observed
Copper, dissolved	mg/L	0.04	<0.01	<0.01	0.12	<0.02	0.33	0.2	0.02	Low end of observed
Fluoride	mg/L	0.5	1.2	0.8			1.4	-	0.8	Mid range of observed
Iron, dissolved	mg/L	6.13	0.44	1.23	9.1	4.7	1.7	10	4.7	Mid range of observed
Potassium	mg/L	<1	<1	2	<8		1.2	<8	3.5	Mid range of observed
Magnesium	mg/L	<1	<1	<1	6.7		1.2	<6	3	Mid range of observed
Manganese, dissolved	mg/L	0.07	0.02	0.05	<8	0.48	0.28	<8	0.48	Mid range of observed
Molybdenum, dissolved	mg/L	0.03	0.05	<0.005	0.47	0.13	<0.01	0.4	0.13	Mid range of observed
Sodium	mg/L	36	235	87	251		351	887	90	Low range of observed
Nickel, dissolved	mg/L	0.03	<0.01	<0.01	0.10	<0.01	0.21	0.1	0.01	Low end of observed
Lead, dissolved	mg/L	2.13	0.36	0.39	0.20	0.32	0.25	10.0	0.32	Mid range of observed
Sulfate	mg/L	174	117	100	718.7		440	2480	136	Low end of observed
Selenium, dissolved	mg/L	<0.025	<0.025	0.026	0.86	<0.01	0.09	<0.1	0.01	Low end of observed
Si	mg/L	43.7	43.8	44.4				132.6	40	Mid range of observed
Strontium, dissolved	mg/L				2.0	2.4	0.20	0.7	2.4	Upper end of observed
Zinc, dissolved	mg/L	0.08	<0.01	<0.01	0.10	<0.05	0.46	0.1	0.05	Mid-range of observed
P	mg/L				<4			<5	4	applied limited information available
Uranium (mg/L)	mg/L	3.5	4.1	0.5	19.3	26.4	187	38.7	30	Upper End of Observed
Vanadium, dissolved	mg/L	<0.01	0.007	0.03	0.13	0.16	0.03	0.2	0.16	Upper end of observed
Polonium-210	Bq/L	14.9+/-0.3	1.9+/-0.1	2.7+/-0.1	-	280	-	-	-	Not modelled (lack of thermodynamic constants)
Radium-228	Bq/L	-	-	-	-	<2	-	-	-	Not modelled
Thorium-228	Bq/L	-	-	-	-	<1	-	-	-	Not modelled
Thorium-230	Bq/L	0.2+/-0.03	1.36+/-0.14	3.2+/-0.4	-	<100	-	-	-	See Below for values in mg/L
Radium-226	Bq/L	389+/-0.7	262+/-0.5	129+/-0.4	-	370	-	-	-	See Below for values in mg/L
Lead-210	Bq/L	301+/-0.7	40+/-0.3	22+/-0.2	-	660	-	-	-	Not modelled (transport behaviour taken into account with Pb modelled)
Thorium-232	Bq/L	<0.01	<0.01	<0.01	-	0.007	-	-	-	Not modelled
Radium-226	mg/L	1.06E-05	7.17E-06	3.53E-06	-	1.01E-05	-	-	1.01E-05	Limited data, high end value
Thorium-230	mg/L	2.62E-07	1.78E-06	4.19E-06	-	<1.31E-04	-	-	1.31E-06	Limited data set ; Low end of observed

Notes

Data Available when developing the Restored Solutions for the modelling in Appendix 7-C of the EIS

Data Available when developing the Restored Solutions for the modelling in Appendix 7-C of the EIS, but not considered in the development of Restored Solution #2 as pH was alkaline

^a Arithmetic average values, calculated using detected measurements or where all values were non-detect, assumed the detection limit. pH value is the median, not the arithmetic average.

3.0. Remediation of Mining Area within the context of ALARA (Addresses Question #3 of IR-67)

Section 2.2.3 of the draft EIS presents the conceptual decommissioning plan (CDP). As part of the CDP, and as highlighted in Section 2.3.3.1.1 of the draft EIS, remediation of the mining area will continue until recovered water reaches and is demonstrated to be stabilized (maintained) at acceptable mining area decommissioning objectives. Such decommissioning objectives consider protection of plausible downgradient water uses. For the purpose of the assessment "plausible use" has been determined to be the protection of aquatic life in Whitefish Lake, since numeric 3D groundwater modelling has indicated that Whitefish Lake is where groundwater associated with the remediated mining area will discharge to. It is within this frame of reference therefore that the ALARA concept should be considered. That is, ALARA can be defined for the purpose of the remediation of the mining area to the extent that subsequent discharge of groundwater to Whitefish Lake does not adversely affect aquatic biota in the lake.

The metallurgical testing done to date evidences an amelioration of UBS quality post-mining with flushing using groundwater and base (hydroxide or bicarbonate) to a restored solution of pH in the range of 4.5-5.5. The intent of the remediation approach is to raise the pH consistently but incrementally, so as to avoid over-neutralizing and yielding an alkaline solution. Alkaline pH conditions favour the formation of precipitates that are not desired from a physical (clogging) or chemical standpoint (secondary solids formed in place of removal of COPCs in the dissolved-phase from the subsurface). Potential environmental effects were thus evaluated based on plausible use, as defined above, at a pH and groundwater conditions that were shown to be achievable through groundwater flushing and addition of base without the risk of over-neutralization. Restoration Solution #1 contains the higher remaining concentrations, and lower pH (i.e., differs more from baseline conditions in the ore zone) and was carried forward for geochemical reactive transport modelling to evaluate environmental effects.

It is noted that the freeze wall will remain in place during mining area remediation (see draft EIS Section 2.3.3.1.1), until decommissioning objectives are achieved to ensure there is no loss of tertiary control of the mining fluid (even in a diluted state). Refinement of the mining area decommissioning objectives and associated modelling will be done as the Project progresses through updates to the Decommissioning Plan; nevertheless, the objectives as they may evolve will be bound by the objectives evaluated in the EIS, which as shown are protective of aquatic biota in Whitefish Lake. The final acceptable mining area decommissioning objectives will be developed prior to initiation of groundwater remediation, as part of the Detailed Decommissioning Plan (DDP).

References

Denison (Denison Mines Corp), 2018. Prefeasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada. Report dated: September 24, 2018.

Denison (Denison Mines), 2023. Feasibility Study.

IR-20, IR-67, IR-69 Appendix A

2018 Column Leach Testing

Table A1: Sample Inventory for 2018 ISR Column Leach Test

Original Sample Purpose	Sample I.D.	WR Hole No.	Lithology	Est. U%	Mass (g)	Mass U (g)
Porosity/Perm.	S066906	419D1	BSMT	0.22	320	0.61
Porosity/Perm.	S066907	525D2	SDST	0.06	323	0.17
Porosity/Perm.	S066908	405D1	SDST	0.06	270	0.14
Porosity/Perm.	S066909	405D1	BSMT	0.08	299	0.21
Porosity/Perm.	S066910	525D1	BSMT	51.72	843	375
Leach Testing	S066911	525D1	SDST	0.06	282	0.17
Leach Testing Composite Sample	S066912- S066916	525D1 525D2	SDST & BSMT	29.4	1,090	276
Leach Testing Total Composite Sample	S066906- S066916	405D1 419D1 525D1 525D2	SDST & BSMT	19.03 (wet)	3,427 (wet)	652.3

Table A2: Mineralogy of the Ore Zone*

Unit	Mineral	Ideal Formula	Major (≥2% w/w)	Minor (< 2% w/w, or, shown to be present in Petrography or core logging)
Ore Zone	Pyrite	FeS ₂	X	
	Galena	PbS	X	
	Chalcopyrite	CuFeS ₂	X	
	Quartz	SiO ₂	X	
	Chlorite	(Fe,Mg)2(Al,Fe3+)3Si3AlO10(OH)8	X	
	Muscovite/Illite	KAl2(Si3Al)O10(OH,F)2	X	
	Kaolinite	Al2Si2O5(OH)4	X	
	Fe-oxy-hydroxides	FeO(OH)·nH ₂ O	X	
	Uraninite	UO ₂	X	
	UO ₂ .33	U ₃ O ₇	X	
	UO ₂ .25	U ₄ O ₉	X	
	Schoepite	UO ₃ ·2H ₂ O	X	
	Siderite	FeCO ₃	X	
	Fluorite	CaF ₂	X	
	Gersdorffite	NiAsS		X
	Nickeline	NiAs		X
	Dravite	NaMg3Al6(Si6O18)(BO3)3(OH)3(OH)		X
	Pyrrhotite	Fe _{1-x} S (x=0-0.17)		X
	Sphalerite	(Zn,Fe)S		X
	Feldspar	KAlSi3O8		X
	Calcite	CaCO ₃		X
	Apatite	Ca5(PO4)3(F,Cl,OH)		X
	Corundum	Cr ₂ O ₃		X
	APS Minerals	CaAl3(PO4)(PO3OH)(OH)6		X

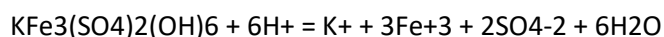
Notes

*The table above is excerpted from Table 3-1 of Appendix 7-C of the draft EIS (mineralogy for other “Units” provided therein are not shown here)

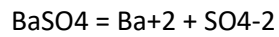
Uraninite **Blue bolded text** indicates dominant minerals; can be present at values exceeding 40% w/w

Reactions forming secondary sulphate minerals

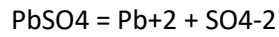
K-Jarosite



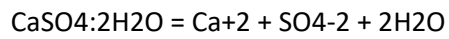
Barite



Anglesite



Gypsum



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IR-20, IR-67, IR-69 Appendix B

Table 3-5: Restored Solutions, UBS Composition representative of End of Mining conditions, and Representative Groundwater Composition by Hydrostratigraphic Unit

Parameter/ Groundwater or Restored Solution	Unit	Ore Zone (GWR-032)	PWZ (GWR-031 and Cigar Lake)	Lower Sandstone Aquifer and Decalcified Zone (GWR-011)	Intermediate Sandstone Aquitard (GWR-046)	Overburden and Upper Sandstone Aquifer (GWR-036, Primarily)	Range of Values of UBS constituent concentrations across Metallurgical tests from 2018-2021 representative of End of mining conditions		Restored Solution #1	50% Restored Solution #1	Restored Solution #2	50% Restored Solution #2
							Minimum	Maximum				
pH	unit	6.83	6.7	6.46	7.053	6.45	0.63	2.1	4.3	5.1	6.1	6.3
pe	unitless	-1.3	1.9	2.3	4.5	1.2	9.80	14.7	10	(set) 7	7.8	(set) 4
temp	°C	7	7	7	7	7	7	7	7	7	7	7
Al	mg/L	6.00E-04	3.40E-02	5.20E-02	8.00E-01	3.70E-02	6.90E+01	4.61E+03	7.00E+00	3.53E+00	5.60E-01	3.06E-01
As	mg/L	2.00E-04	5.00E-02	1.30E-03	4.75E-06	3.00E-04	<0.1	2.12E+01	6.00E-02	3.07E-02	1.00E-01	5.07E-02
Ba	mg/L	6.30E-02	3.60E-02	5.40E-02	2.41E-01	5.70E-03	<0.05	<0.5	5.00E-02	5.20E-02	5.00E-02	5.20E-02
C(4)	mg/L	1.76E+02	1.54E+02	8.66E+01	1.01E+02	3.39E+01	-	-	5.80E+01	7.23E+01	1.05E+02	9.58E+01
Ca	mg/L	5.50E+01	6.76E+00	9.78E+00	1.07E+01	2.70E+00	5.80E+01	7.23E+02	1.10E+02	6.00E+01	1.00E+01	9.89E+00
Cd	mg/L	1.00E-05	1.00E-05	1.00E-05	3.36E-05	1.00E-05	1.80E-02	1.81E+00	1.50E-02	7.52E-03	4.00E-03	2.01E-03
Cl	mg/L	1.90E+02	8.65E+01	7.20E+00	8.63E+00	6.86E+00	<10	1.22E+03	2.00E+02	1.04E+02	5.00E+01	2.86E+01
Co	mg/L	1.00E-04	1.00E-02	1.00E-04	5.84E-03	4.00E-04	5.00E-01	1.49E+01	2.00E+00	1.00E+00	1.00E-02	5.05E-03
Cr	mg/L	5.00E-04	4.50E-03	5.00E-04	1.69E-03	5.00E-04	<0.1	9.14E+00	5.00E-02	2.53E-02	5.00E-02	2.53E-02
Cu	mg/L	2.00E-04	5.00E-03	1.80E-03	6.29E-03	6.00E-04	5.16E+00	9.64E+02	1.70E-01	8.60E-02	2.00E-02	1.09E-02
F	mg/L	2.30E-01	5.30E-01	1.80E-01	5.90E-02	6.00E-02	1.00E+00	3.40E+01		9.00E-02	8.00E-01	4.90E-01
Fe	mg/L	4.20E+00	4.90E-01	8.60E-01	6.03E+00	4.05E-01	8.20E+02	4.09E+03	1.00E+02	5.05E+01	4.70E+00	2.78E+00
K	mg/L	4.60E+00	5.60E+00	2.00E+00	6.77E+00	2.80E+00	6.20E+00	1.49E+02	9.00E+00	5.51E+00	3.50E+00	2.75E+00
Mg	mg/L	1.10E+01	3.09E+00	1.60E+00	3.91E+00	1.80E+00	<10	2.40E+02	6.00E+00	3.80E+00	3.00E+00	2.30E+00
Mn	mg/L	2.20E-01	7.00E-01	3.60E-01	3.91E+00	1.40E-01	2.70E+00	4.10E+01	3.40E+00	1.88E+00	4.80E-01	4.20E-01
Mo	mg/L	3.80E-03	1.28E-02	4.20E-03	3.89E-03	7.00E-04	1.65E+00	5.96E+01	1.00E-01	5.22E-02	1.30E-01	6.71E-02
Na	mg/L	8.10E+01	7.61E+01	6.10E+00	8.96E+00	2.90E+00	6.00E+00	1.23E+04	1.90E+02	9.82E+01	9.00E+01	4.81E+01
Ni	mg/L	1.00E-03	1.50E-02	1.00E-04	4.87E-02	1.80E-03	<1	2.68E+01	9.70E+00	4.86E+00	1.00E-02	5.05E-03
Pb	mg/L	1.00E-04	1.00E-04	1.00E-04	1.57E-03	1.00E-04	2.00E-01	1.95E+01	3.10E+00	1.55E+00	3.20E-01	1.60E-01
S(6)	mg/L	1.30E+01	4.55E+00	4.70E+00	1.01E+01	1.90E+00	5.21E+03	2.09E+05	7.03E+02	3.54E+02	1.36E+02	7.04E+01
S(-2)	mg/L	1.00E-08	1.00E-09	1.00E-09	1.00E-09	1.00E-09	-	-	1.00E-09	1.00E-09	1.00E-09	1.00E-09
Se	mg/L	1.00E-04	1.00E-04	1.00E-04	3.59E-04	8.00E-04	<0.025	2.64E+01	8.00E-02	4.01E-02	1.00E-02	5.05E-03
Si	mg/L	1.33E+01	9.18E+00	2.41E+01	1.31E+01	2.62E+01	3.07E+01	1.92E+02	4.00E+01	3.21E+01	4.00E+01	3.21E+01
Sr	mg/L	1.66E+00	1.17E+00	1.20E-01	1.15E-01	1.20E-02	6.00E-01	5.19E+00	4.40E+00	2.26E+00	2.40E+00	1.26E+00
Zn	mg/L	2.62E+00	4.25E-03	1.20E-02	1.25E-02	4.40E-03	2.30E+00	3.31E+02	1.40E+00	7.07E-01	5.00E-02	3.10E-02
P	mg/L	1.00E-02	1.00E-02	1.00E-01	5.00E-02	4.00E-02	2.20E+00	7.54E+01	4.00E+00	2.05E+00	4.00E+00	2.05E+00
U	mg/L	1.10E-02	1.24E-02	7.00E-04	2.26E-02	5.00E-04	7.70E+02	3.88E+04	1.00E+02	5.01E+01	3.00E+01	1.50E+01
V	mg/L	1.00E-04	1.00E-04	1.00E-04	1.20E-03	1.00E-04	6.16E+00	1.61E+02	5.10E-01	2.55E-01	1.60E-01	8.01E-02
²²⁶ Ra	mg/L	4.92E-06	5.47E-09	1.37E-08	2.54E-08	1.64E-09	6.29E-06	8.21E-05	5.47E-06	2.75E-06	1.01E-05	5.06E-06
²³⁰ Th	mg/L	9.17E-06	1.00E-06	1.31E-07	2.62E-07	2.62E-08	2.75E-02	2.88E-01	3.93E-06	2.02E-06	1.31E-06	7.14E-07



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Conceptual Caribou Mitigation Plan

Version 1

June 2023

Revision History

Version	Date	Description of Revision
1	June 30, 2023	Conceptual plan to support provincial and federal review of the draft environmental impact statement

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Acronyms and Abbreviations

Term	Definition
Anthropogenic	Caused or produced by humans
BSCs	biological soil crusts
Boreal Caribou	The boreal ecotype of woodland caribou occurs within the boreal forest of Canada. These non-migratory caribou form small aggregations throughout the year and disperse for solitary calving.
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	A committee made up of experts from academic, government and non-government organizations that assess the conservation status of wildlife species that may be at risk of extinction in Canada.
Critical Habitat	The habitat that is necessary for the survival of a listed wildlife species and is identified as the species critical habitat in the recovery strategy or action plans for the species.
DERT Project	Developing Eco-Restoration Together Project
Disturbed habitat (per ECCC 2020)	Habitat showing: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer).
ECCC	Environment and Climate Change Canada
EA	environmental assessment
EIS	environmental impact statement
EMS	environmental management system
ENV	Saskatchewan Ministry of Environment
ha	hectare
Local Populations (ECCC 2020)	Group of boreal caribou occupying a defined area distinguished spatially from areas occupied by other groups of boreal caribou. Local population dynamics are driven primarily by local factors affecting birth and death rates, rather than immigration or emigration among groups. In this recovery strategy, “local population” refers to a group of boreal caribou occupying any of the three types of boreal caribou ranges (i.e., conservation unit, improved conservation unit, local population unit).

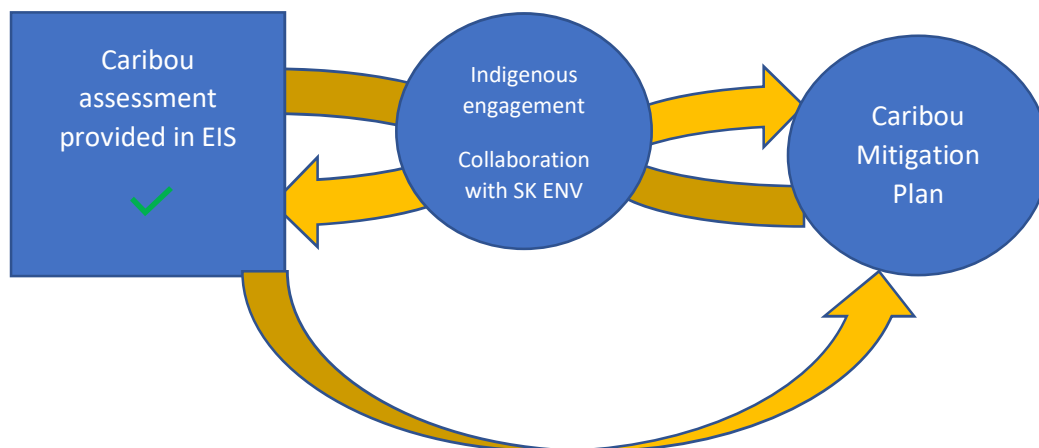
Plan	Conceptual Caribou Mitigation Plan
Project	Wheeler River Project
Range (per ECCC 2020)	<p>The geographic area occupied by a group of individuals that are subject to similar factors affecting their demography and used to satisfy their life history processes (e.g., calving, rutting, wintering) over a defined time frame.</p> <p>Environment and Climate Change Canada (2011) identified three types of boreal caribou ranges categorized based on the degree of certainty in the delineated range boundaries (i.e., conservation unit, improved conservation unit, local population unit).</p>
Recovery strategy	A planning document that identifies what needs to be done to stop or reverse the decline of a species.
SARA	Species at Risk Act
Self-sustaining local population (ECCC 2020)	A local population of boreal caribou that on average demonstrates stable or positive population growth over the short-term (≤ 20 years) and is large enough to withstand stochastic events and persist over the long-term (≥ 50 years), without the need for ongoing active management intervention.
Threatened species	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Undisturbed habitat (per ECCC 2020)	Habitat not showing any: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). Disturbance within the 500 m buffer would result in a reduction of the undisturbed habitat.

1 Introduction

The Wheeler River Project (the Project) environmental impact statement (EIS) evaluates and assesses potential Project-related effects on the Boreal population of woodland caribou (*Rangifer tarandus caribou*; referred to herein as caribou or boreal caribou) following standard environmental assessment (EA) methodology. The assessment of potential effects considered both direct (i.e., habitat loss) and indirect effects (i.e., habitat alteration) on caribou and their habitat, while assuming that caribou were present year-round and during all of their life stages (i.e., calving, rearing, mating, over wintering). In this way, the EIS took a precautionary or conservative approach to understanding/addressing the likely residual effects (i.e., effects remaining after mitigation measures were considered) of the Project on caribou and their habitat and is using this approach as a planning tool to inform/support future Project-related regulatory approvals processes and follow-up monitoring. The EIS has demonstrated that the Project, as proposed and assessed, is predicted to minimize the potential for environmental adverse effects on caribou and their habitat before any Project specific construction occurs. The conclusions of the assessment predicted that the likely residual effects of the Project on caribou were not significant.

This Conceptual Caribou Mitigation Plan (the Plan), developed proactively by Denison, has a different objective than the EIS. The Plan builds on the assessment of potential Project effects and commitments to mitigate such effects made in the EIS and is expected to be advanced with ongoing consultation with the Saskatchewan Ministry of Environment (ENV), as ENV finalize the caribou range plan for SK1. The EIS is a conservative planning tool, whereas the Plan is a practical, living document designed to define management works associated with caribou. The Plan is not a requirement for EA determination but is provided as a guidance document to help Denison proactively describe and inform the development and implementation of appropriate mitigation measures related to caribou and their habitat.

The Plan is an evergreen document. It will be consistent with the management goals of ENV for the SK-1 caribou conservation unit, and will be developed/refined in consultation with local communities including English River First Nation and Kineepik Métis Local in Pinehouse and regulators (e.g., ENV). As noted above, the boreal caribou range plan for SK-1 is under development and it is understood that this Plan will be updated as more information becomes available. The conceptual nature of the Plan is in part due to the absence of range plan priorities and reflects Denison's commitment to continue to work with the province to meet the management objectives and management strategies for the SK1 range.



2 Guidance and Regulatory Framework

A brief review highlighting federal and provincial considerations of boreal caribou is provided below for reference.

2.1 Federal

Boreal caribou have been designated as *threatened* under the federal *Species at Risk Act* (SARA). Environment and Climate Change Canada (ECCC) released amended recovery strategy for woodland caribou in 2020 (ECCC 2020). A recovery strategy is a planning document that identifies what should be done to stop or reverse the decline of a species.

The Project is located in the Boreal Shield West ecoregion of the Boreal Shield ecozone. The Boreal Shield West ecoregion stretches from Alberta to Ontario (Figure 2-1).



Figure 2-1: Boreal Caribou Distribution Across Ecozones and Ecoregions in Canada (source: ECCC 2020)

The SK1 range comprises more than 18,000,000 hectares (ha) and is characterized by high fire disturbance and low anthropogenic disturbance (ECCC 2020). The likelihood of caribou self-sustainability in the boreal shield range in SK1 is “likely” (ECCC 2020). For SK1, the amended recovery strategy (ECCC 2020) identifies 40% undisturbed habitat in the range as the disturbance management threshold, which provides a measurable probability (71%) for the local population to be self-sustaining. This threshold is considered a minimum threshold because at 40% undisturbed habitat there remains a risk (29%) that the SK1 local population cannot be self-sustaining. Disturbed habitat (ECCC 2020) is habitat showing: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the

anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). Undisturbed habitat (ECCC 2020) is habitat not showing any: i) anthropogenic disturbance visible on Landsat at a scale of 1:50,000, including habitat within a 500 m buffer of the anthropogenic disturbance; and/or ii) fire disturbance in the last 40 years, as identified in data from each provincial and territorial jurisdiction (without buffer). Disturbance within the 500 m buffer would result in a reduction of the undisturbed habitat.

Studies (e.g., McLoughlin et al. 2019) indicate that the SK1 local caribou population is likely self-sustaining at current levels of disturbance (60% total disturbance), with a 71% probability of persistence. Environment and Climate Change Canada's analyses also indicate that the SK1 local population is sensitive to small increases anthropogenic disturbance and sensitive to small decreases in adult survival. For these reasons, a higher probability of persistence was selected for critical habitat identification in SK1 (71%) than was selected for the other 50 ranges across Canada (60%) (ECCC 2019).

The precise location of the 40% undisturbed habitat within the range is expected to vary over time. The habitat within the SK1 range should exist in an appropriate spatial configuration such that boreal caribou can move throughout the range and access required habitat when needed. The key to this habitat delineation is achieving and maintaining an overall, ongoing range condition that allows for the dynamic habitat supply system, containing the biophysical attributes upon which caribou depend, to remain sustainable. It is this dynamic habitat supply system within the SK1 range that is the habitat condition considered to be necessary for the caribou.

2.2 Provincial

The responsibility for woodland caribou management lies with the Province of Saskatchewan. Broadly, the province is responsible for developing range plans or management plans which build on the federal recovery strategy by setting goals and objectives for maintaining sustainable population levels.

The Saskatchewan Conservation Data Centre (SK-CDC) is responsible for evaluating and assigning a conservation rank to each taxon, resident or transient, found in the province. Woodland caribou's subnational or S-rank conservation rank is S3. This ranking indicates that, provincially, the species is vulnerable/rare to uncommon which is associated with a moderate risk of extinction or extirpation due to a restricted range, relatively few populations, recent and widespread declines, threats, or other factors. Currently, the caribou population in SK-1 is stable (ENV 2023) and the range plan is under development. Engagement is a key component of the range plan process and will be completed with representatives from First Nation, Métis, industry, non-governmental organizations, and communities.

The provincial goal is to sustain and enhance woodland caribou populations, and maintain the ecosystems they require, throughout their current range (ENV 2013). Through the woodland caribou range assessment and range planning program, the province is:

- Gaining a better understanding of woodland caribou ecology;
- Working toward meeting objectives identified in provincial and federal strategies; and
- Improving how the province manages the species and related habitat.

The province's woodland caribou range assessment and range planning program incorporates two key components:

- Woodland caribou range assessment, which enhances the understanding of woodland caribou populations and their interactions with the environment; and
- Woodland caribou range planning, which provides a framework, strategies and objectives that allow for better decisions involving habitat management and self-sustaining caribou populations.

Although the management objectives and management strategies for caribou in SK1 are not yet defined, Denison is committed to working with ENV as the range plan is developed. The Plan will be updated as the Project advances so that it aligns with the conservation objectives as determined by the province as the primary steward of caribou in the province.

3 SK 1 Caribou Population – Background Information

Background information concerning the condition of the SK 1 caribou population is provided below.

3.1 Population Trends

The SK1 Boreal Shield management unit contains high-quality conifer-dominated caribou habitat with greater than 40-year-old stands of jack pine and black spruce forests suitable for lichen colonization, black spruce swamps, and open muskegs supporting relatively high densities of caribou, at 36.9 caribou/1,000 km² or approximately 4,000 caribou across the SK1 Boreal Shield Woodland Caribou Management Unit (McLoughlin et al. 2019).

Research has shown that up to 70% of the year-round diet of caribou may consist of ground and arboreal lichens. If the quantity of available lichen forage is low, caribou can exist without relying entirely on lichens (McLoughlin et al. 2019). Due to their physiology, lichens are resilient to periods of drought and cold temperatures, but because of their slow growth rate, exhibit a slow recovery time after depletion and fire events. In the SK1 range, McLoughlin et al. (2019) found that stand types with the highest potential for adequate lichen biomass for caribou are jack pine and poorly drained black spruce sites.

McLoughlin et al. (2019) observed that, from 2014 to 2018, the caribou population exhibited a high average adult female survival rate and moderate recruitment (0.192 calves per cow in March), ranging from a low of 0.134 calves/cow in March 2016 to 0.244 calves/cow in March 2018. These demographic parameters led the authors to assess the SK1 Boreal Shield caribou population as being stable at the time of their study (McLoughlin et al. 2019).

While calving areas have not been documented within the SK1 range, it is recognized that caribou may use open fen and treed bog habitat types for calving during the spring/summer period. In Saskatchewan, caribou habitat used during the calving season in the SK2 range demonstrated a strong selection for treed muskegs, but avoidance of jack pine, mixed hardwood stands, and roads (Dyke 2008).

Neufeld et al. (2021) summarized results from aerial surveys over a period of eight years in an 87,193 km² study area in the Athabasca Plain and Churchill River Upland ecoregions in the north, that are inclusive of the Terrestrial RSAs that were used in the EIS. During 11 of 16 aerial caribou surveys conducted between 2008 and 2015, woodland caribou were detected in the surveyed areas. The average density of the 16 surveys was estimated at 36.9 caribou/1,000 km² (95% CI = 26.7 to 47.2 caribou/1,000 km²). Across the Neufeld et al. (2021) study area and all years, estimated caribou densities were higher in comparison to averages reported for most other boreal woodland caribou ranges in Canada (i.e., caribou density reported in other areas ranged 4.3 to 18.7/1,000 km²) indicating that caribou can tolerate natural disturbance. One exception to the relatively high caribou densities in northern Saskatchewan was noted: the 2,285 km aerial the Millennium Project in March 2014, 10 km west of the Terrestrial RSA, resulted in lower woodland caribou densities at 5 caribou/1,000 km² (Neufeld et al. 2021).

Eight of the sixteen caribou surveys reported the ratios of male to female and calf to female in their results with the average male:female ratio calculated at 0.571 (95% CI = 0.444 to 0.699) and calf:female at 0.195 (0.158 to 0.232). Again, the 2014 Millennium survey reported a different male:female ratio, outside the reported range (1.6), concurring with the reported low caribou densities.

3.2 Predation

In addition to relatively low predator densities in their study area, McLoughlin et al. (2019) found some spatial separation between caribou and wolves. Caribou did not seem to avoid existing linear features (such as roads, trails, and transmission lines) in the area, while wolves established their territories away from linear features. Unlike caribou, who preferred mature conifer stands, wolves selected for wetlands and patches of deciduous-mixed forest, avoiding stands of mature conifers. Other prey species, such as moose, also occurred at relatively low densities (i.e., 45.7 moose/1,000 km²) (McLoughlin et al. 2019).

McLoughlin et al. (2019) observed that mortality of adult caribou occurred mostly during the snow-free season and only 1 of 94 collared caribou was harvested by a hunter during the four years of the study.

While predation is believed to be a key limiting factor for woodland caribou (Bergerud 1974; Stuart-Smith et al. 1997, DeMars et al. 2011 from ECCC 2020), Neufeld et al. (2021) suggested that habitat- or disturbance-mediated apparent competition only plays a minor role in the Saskatchewan woodland caribou population. Habitat- or disturbance-mediated apparent competition occurs when natural (e.g., forest fires) and anthropogenic (e.g., human development or activities) disturbances increase the abundance of other ungulates, which in turn may increase predator densities, which then increases predation risk to caribou. Neufeld et al. (2021) concluded that Northern Shield and Taiga ecoregions are of low productivity where caribou may compete with only one ungulate species (i.e., moose) and therefore, caribou and wolf dynamics do not follow general habitat- or disturbance-mediated apparent competition models.

3.3 Harvest

Indigenous peoples in Saskatchewan have an inherent right to harvest woodland caribou for subsistence purposes (ENV 2013). No other harvest of woodland caribou is currently permitted. Under provincial and federal recovery planning and effective species management, self-sustaining caribou populations will support long-term subsistence use of the species and protect treaty rights. Subsistence harvest levels are assumed to be low but actual numbers are not available because most communities or Indigenous groups are not collecting and/or publishing this information.

4 No Net Loss and Mitigation Hierarchy

A generic biodiversity mitigation hierarchy (OECD 2016) to achieve no net loss is provided in Figure 4-1. As shown in the hierarchy, an offset can be used to achieve no net loss if residual effects remain following efforts to avoid, minimize, and restore potential project effects. This generic hierarchy is generally consistent with the approach of ENV to manage effects on caribou and their habitat.

The balance of Section 4 of this Plan outlines Denison's approach to avoid, minimize, and restore caribou habitat per commitments made in the draft EIS associated with the Wheeler River Project.

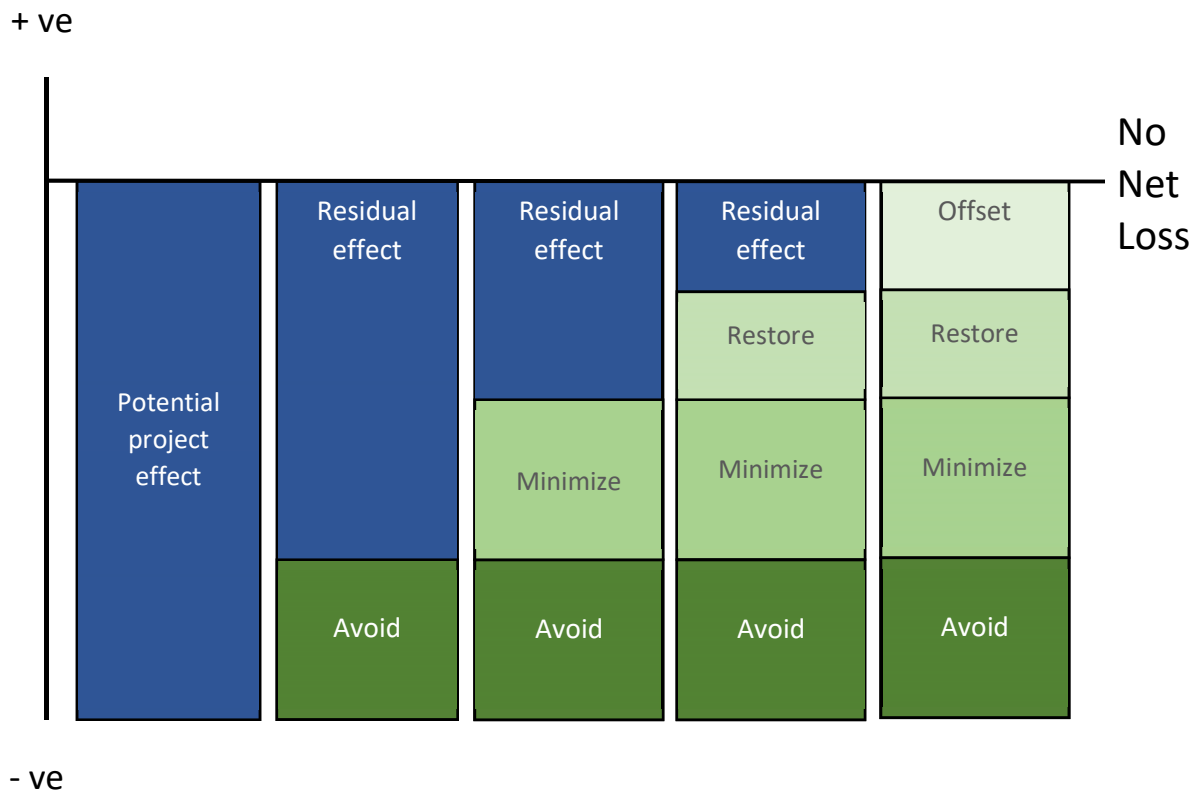


Figure 4-1: Generic No Net Loss and Mitigation Hierarchy (modified from OECD 2016)

4.1 Avoid

Potential adverse effects on the caribou have been avoided to the extent possible through Project design, including:

- Selection of in-situ recovery (ISR) mining avoids some direct and indirect effects compared to conventional underground or open-pit mining methods. ISR mining avoids the need for spatially expansive infrastructure such as waste rock piles and tailings management facilities reducing the Project footprint (i.e., avoids direct effects on caribou and their habitat). ISR mining also reduces the potential for interactions between caribou and Project components / activities as it concerns sensory disturbance as it is inherently a less intensive form of mining with reduced noise/light/vibration generation (i.e., avoids indirect effects on caribou and their habitat).

- Site clearing and other works that involve disturbance of vegetation and/or soil will be completed during least-risk timing windows for caribou (for example, outside of wintering/calving period from April 1-July 31, per ENV 2013), where practical, to avoid disturbance during sensitive time periods.
- Pre-disturbance wildlife surveys will be completed to identify caribou presence and work will be postponed if caribou are present.

4.2 Minimize

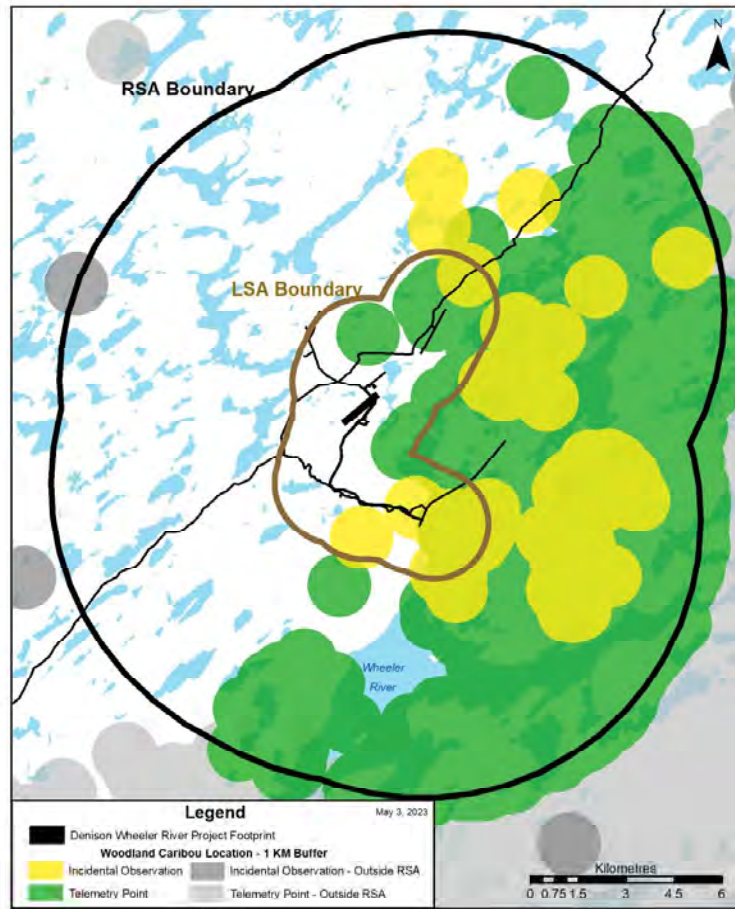
Additional mitigation measures to minimize effects on caribou and their habitat and tailored to Project features have been incorporated into the various Project management and monitoring plans within the Environmental Management System (EMS) including but limited to erosion and sediment controls, soil and vegetation monitoring, Decommissioning Plan, air quality monitoring, fuel spill control and response, Radiation Protection Plan, surface water and effluent monitoring, and Waste Management Plan.

The Project's EMS plans provide direction on monitoring and adaptive management so that issues are identified and mitigation measures are developed and implemented in a timely and effective manner. Mitigation measures specific to caribou are applicable during all Project phases, within all seasons and expected to be effective following appropriate implementation. Examples of the measures to minimize Project effects on wildlife in general, and caribou in particular, are highlighted below.

4.2.1 Disturbance Footprint

- Siting Project components in close proximity to the ISR mining area minimizes indirect effects on caribou and their habitat. The Project components are also west of the known home range of woodland caribou (based on tracking data received by the Ministry of Environment; Figure 4-2), although the absence of data does not mean the absence of caribou and Denison has observed caribou in the area. . Appropriate siting is anticipated to minimize the potential for interactions with woodland caribou and Project activities.
- The Project footprint (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable, resulting in limited/minimal habitat loss/disturbance and noise propagation.
- Portions of the proposed Project footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.

Denison-Wheeler Study Area - Woodland Caribou Location Data



RSA Boundary		
Data Type	Years	Number of Locations
Incidental Observation	1987, 2017 – 2022	89
Telemetry Point*	2013 – 2016	3,848

*Data from 15 individual woodland caribou cows

LSA Boundary		
Data Type	Years	Number of Locations
Incidental Observation	2017 – 2022	19
Telemetry Point*	2013, 2015 – 2016	62

*Data from 4 individual woodland caribou cows

NOTE: Absence of data does not mean absence of woodland caribou.

Figure 4-2 Saskatchewan Ministry of Environment Woodland Caribou Location Data Provided to Denison

4.2.2 Wildlife and Habitat Protection

- Project activities have been assessed for their potential to disturb or remove wildlife and/or wildlife habitat (e.g., site clearing, soil disturbance) to determine potential effects on wildlife and wildlife habitat and the assessment, including proposed mitigation measures, for the Project will guide Project activities.
- Pre-disturbance wildlife clearance surveys will be conducted within the Project Area; results of the clearance surveys will inform the development and implementation of appropriate mitigation (e.g., delay of work) to address the identified issue (e.g., presence of caribou).
- Personal firearms for employees and contractors will be prohibited within the Project Area to prevent hunting activities.
- Policies will be implemented prohibiting employees and contractors from feeding, approaching, or harassing wildlife species within the Project Area.
- To support wildlife habitat regeneration, progressive restoration including ecosystem-based revegetation will be conducted on disturbed areas as soon as practicable in accordance with the Decommissioning Plan.

4.2.3 Wildlife Deterrence and Prevention of Wildlife Entrapment

- In addition to installing secure fencing around all contaminated areas to prevent accidental contaminant exposure, buildings and other Project components will be designed and maintained to exclude wildlife from using buildings for refuge or shelter, and to deter wildlife from potentially becoming entrapped.

4.2.4 Sensory Disturbance

- Noise emitting Project activities will be managed to minimize sensory disturbance of wildlife, especially during sensitive time periods, such as calving. This would include:
 - locating excessive noise generating activities such as the concrete batching operation as far away from sensitive wildlife locations as possible;
 - directing the generator discharge openings away from sensitive locations; and
 - making use of available on-site obstructions to control sound exposure at sensitive areas (i.e., locate sources behind buildings).
- The main sources of noise will be related to transport of people and goods, drilling of holes for the freeze wall and wellfield, operation of the batch plant, operation of the processing plant, and operation of the pumphouses. Low sound emission equipment and the use of silencers or mufflers (whenever practical) will be used to reduce noise associated with Project activities. There will be regular maintenance of equipment to ensure it is in proper working order and not emitting noise unduly.

- Lighting will be focused on work sites and not surrounding areas, to minimize light trespass and other light-related pollution sources.
- Facilities will be illuminated only to meet standards set for the protection of workers to avoid over-illumination.
- Battery-powered, light vehicles and mobile equipment, and an AC powered dual rotary drill will be used for ISR wellfield development instead of a traditional diesel-powered unit, where practical, to reduce air emissions and noise levels and improve energy efficiency.
- Fugitive dust sources that could lead to deposition of dust on vegetation and waterbodies (including potential deposition of trace metals and radionuclides) will be reduced by:
 - dust suppression techniques on site roadways, such as road watering and traffic management;
 - directing processing plant exhaust from drying and packaging areas through a stack prior to release outside of the building;
 - designing the stack height based on results of air dispersion modelling to be an appropriate height for optimal dispersion;
 - making a wash bay available to clean items, equipment, and vehicles that may have been in contact with potentially contaminated materials. Contaminated water from the wash bay will be collected in a sump tank and routed to the water treatment plant for treatment and discharge; and,
 - conducting radiological clearance scanning as required for any items, equipment, and vehicles leaving the Project Area.

4.2.5 Road and Traffic Management

- Traffic and access control measures will be implemented, including managing traffic volume by scheduling truck convoys, using high-volume haul trucks, and restricting public access (e.g., private vehicles, snowmobiles, all-terrain vehicles, and foot traffic) to the Project site and roads with both north and south security access gates. It is important to note that if any individual were seeking access around the Project area to undertake Aboriginal and / or Treaty Rights, Denison staff would facilitate this, provided it was safe to do so given Project activities in the area.
- Appropriate road signage will be installed (e.g., speed limits, identification of wildlife crossings and areas of high activity) along Project roads to minimize the risk of wildlife-vehicle collisions.
- Speed limits will be implemented to reduce the risk of wildlife-vehicle collisions.
- Wildlife will have the right-of-way on Project roads, unless it is unsafe to stop (i.e., if a collision is imminent). Vehicles will not be used to encourage caribou to move off Project roads and processes will be implemented for employees and contractors to slow down and/or stop vehicles/equipment to allow caribou to move away or off the road before resuming normal road speeds for the area.

- Road watering and regular road maintenance to limit dust dispersion.
- Employees and contractors will report and communicate the location and circumstances of any roadkill observed on or alongside Project roads. Large-bodied wildlife carcasses found will be promptly reported to ENV and disposed of as directed to prevent scavenging.
- Vegetation along Project roads will be managed to reduce attractiveness to wildlife (e.g., forage plants) and maintain appropriate sightlines for drivers to minimize wildlife-vehicle collisions.
- Alternative measures on Project roads for de-icing and winter traction (e.g., sand, gravel) or dust suppression (e.g., water) will be implemented, whenever practicable, to limit the use of specialty chemicals and potential exposure of wildlife including caribou to them.
- Appropriately sized gaps in the roadside snowbanks during winter will be maintained to facilitate caribou crossing and escape and, with that, reducing their risk of vehicle collisions.
- New Project site and access roads will be designed to minimize sightlines for predators, whenever practicable, while still maintaining general road safety.
- Ditches and culverts along Project roads will be designed and maintained to minimize pooling of water as roadside pools may attract caribou.

4.2.6 Water Management, Waste Management, Emissions, and Hazardous Materials Management

- Education on and enforcement of proper water, waste, emissions and hazardous materials management practices will be provided to employees and contractors.
- A freeze wall will be established around the uranium deposit to reduce potential for groundwater disturbance or contamination mitigating the likelihood of exposure of caribou to contaminants in local areas of groundwater discharge to surface.
- The ISR wellfield and processing plant will be designed to re-use most of the solutions inside each circuit, reducing water use requirements to the extent feasible. Make-up water will be preferentially sourced from site runoff (instead of freshwater) where possible.
- Contaminated wastes (e.g., mineralized drill cuttings, process precipitates) will be temporarily stored on double lined pads with leak detection capabilities and an associated monitoring program until final disposal at an approved facility. An adjacent pond will be used to collect contact water from these pads.
- All contact water will be routed to the Industrial Wastewater Treatment Plant for treatment and eventual release to the environment. All treated effluent released to surface water will meet federal and provincial regulatory discharge limits. This will mitigate exposure of caribou to Project-related contaminants released to the environment.

- Surface pipelines will be designed to have secondary containment or catchment and have leak detection systems in place at key locations to mitigate the likelihood of the release of such chemicals to the environment that could result in exposure of caribou to the chemicals.
- Double-walled high-density polyethylene (HDPE) or equivalent piping will be used in the wellfields and will be freeze protected and secured to minimize pipe movement to mitigate the likelihood of the piping failure and the associated release of wellfield chemicals to the environment that could result in exposure of caribou to the chemicals.
- Denison is proposing to segregate and compost organic wastes on site in a composting system, reducing the volume of material in the domestic landfill generating odours and thereby minimizing wildlife attractants.
- Domestic waste will be collected and temporarily stored in wildlife-proof containers to avoid attracting wildlife and reduce the risk for human-wildlife interactions. The wildlife-proof containers will be inspected regularly for evidence of wildlife presence or access to waste disposal facilities. If evidence of wildlife presence or access to waste disposal facilities is detected, modified systems will be implemented and/or off-site waste disposal/incineration frequencies will be increased.
- A "no littering policy" for employees and contractors will be implemented within the Project Area.
- Air emissions will be reduced to the extent practical through implementation of the development of air emissions management and monitoring plans within the EMS.
- All vehicles and equipment will be equipped with industry-standard emission control systems; unnecessary idling of vehicles will be prohibited to reduce emissions.
- The use of hazardous materials will be limited as much as possible.
- Appropriate hazardous materials management practices will be implemented in accordance with industry guidelines to minimize the risk of accidental spills or leakage. This will mitigate the likelihood of release to the environment that could result in exposure of caribou to the hazardous materials.
- Hazardous materials will be handled, stored, and disposed of appropriately and in accordance to avoid attracting wildlife (e.g., wildlife-proof containers, exclusion fencing) to mitigate the likelihood of exposure of caribou to hazardous materials.
- Physical deterrents (e.g., fencing) will be employed around contaminated areas (e.g., waste ponds and waste pads), the domestic landfill, or hazardous materials storage areas to discourage wildlife use / interaction. The deterrents will be monitored and maintained .
- Appropriate spill response kits will be positioned adjacent to areas where hazardous materials are stored in accordance with the Spill Response Plan to mitigate the likelihood of

the release of hazardous material to the environment that could result in exposure of caribou to the material.

- A minimum 100 m distance from any waterbody will be maintained for fuel storage, refueling activities, or equipment servicing in accordance with the Spill Response Plan. This will mitigate the likelihood of a fuel spill to water that could result in exposure of caribou to fuel.
- Appropriate fuel, chemical, and materials management practices will be followed in accordance with the Spill Response Plan to minimize the risk of accidental spills or leakage of diesel fuel, other hydrocarbons, and other hazardous materials and mitigate the likelihood of exposure of caribou to such chemicals.
- All vehicles and equipment will be maintained in good working condition (e.g., no leaks) and furnished with industry-standard spill response kits.

4.2.7 Wildlife Education

- Employees and contractors will be provided with wildlife education and awareness training, including education about potential caribou issues on site and training on the mitigation measures summarized with the EMS and specifically in this Plan to avoid or minimize potential Project effects on caribou and caribou habitat.
- Employees and contractors will be educated on waste and hazardous waste management practices / policies that limit human-wildlife interactions and the potential exposure of wildlife to those wastes.
- Designated employees will be trained in appropriate wildlife deterrent techniques to minimize wildlife interactions with the Project.
- Employees and contractors will be requested to report wildlife observations, including prompt reporting of caribou observations and immediate communication to on-site staff. Wildlife encounters and outcomes will be monitored, and logbooks will be used to record wildlife observations. Logbooks and reports will be available to employees. Incidental observations recorded by staff will be entered into Species Detection Loadforms and submitted to the Saskatchewan Conservation Data Centre annually.

4.3 Restore

The temporal bounds for the Project as stated in the EIS are years 1 to 3 for construction, years 3 to 18 for operation, years 18 to 23 for decommissioning, and fifteen years of post-decommissioning monitoring and inspections from years 23 to 38. Importantly, during physical decommissioning the majority of Project components are scheduled to be removed from site which is expected to facilitate restoration activities. Also, because of the selected ISR mining method, there are no large, permanent Project components, such as waste rock piles or tailings management facilities, for which large scale and potentially complex restoration strategies are needed.

Denison's decommissioning commitment is to return the land back to the Province of Saskatchewan for unrestricted surface land use post-closure. The Project's Conceptual Decommissioning Plan (CDP) is included in the draft EIS. The details of decommissioning and restoration will be refined over time as the Project proceeds. A Preliminary Decommissioning Plan (PDP) will be developed by Denison to support licensing and permitting applications. Prior to executing decommissioning activities, Denison will prepare and submit a Detailed Decommissioning Plan (DDP) to regulators for their review and acceptance, which builds on the PDP.

The CDP outlines plans for physical decommissioning (mining area remediation; asset removal; and decontamination, demolition, and disposal), followed by restoration. A summary of the CDP is provided here.

- Ongoing decommissioning of Project components will be completed when possible.
- Denison has committed to progressively restore areas no longer necessary to support/facilitate Operations to limit the amount of disturbance at any given time. Restoration of inactive areas will take place when/as these areas become available. The progress and success of these activities will be assessed regularly at a schedule commensurate with the expectations of the activities per the decommissioning plan. Progressive restoration including ecosystem-based revegetation will be conducted on disturbed areas as soon as safely and logistically practicable with the use of suitable/appropriate native species and in accordance with the decommissioning plan.
- Once the asset removal, decontamination, demolition, and disposal are completed, and the site has been cleared and leveled, restoration activities, including planting, will take place. Currently this would largely be with jack pine seedlings, but the mix of plants will depend on location and available species. Restoration activities monitored until it is deemed self-sustaining and viable wildlife habitat.
- Future discussions will be held with Indigenous and general public Interested Parties to determine the amount of access to the area they wish to maintain in the future (post-decommissioning). Based on results of these discussions, transportation corridors including roads or trails associated with the Project site that are no longer needed will be graded, scarified, and vegetated with native, self-sustaining species as required. Access to facilitate safe post-closure monitoring or requested by appropriate Interested Parties (e.g., to facilitate land use) may be left in place. Access to the site may be restricted by gates and/or berms.
- Laydown areas will be scarified, covered with 0.5 to 1.0 m of stockpiled overburden, and vegetated with native, self-sustaining species. The footprints of other infrastructure, such as the camp, will be scarified and vegetated with native, self-sustaining species as required. The topsoil and brush stockpiled during pre-construction activities will be used during restoration.
- Lessons learned from progressive decommissioning and any site-specific restoration studies will be incorporated into the DDP. Additionally, information from other northern Saskatchewan mine

sites will be examined to help Denison select the restoration tools, including revegetation options, that will contribute towards decommissioning success.

Closure of the entire Project will be completed in accordance with provincial and federal regulations and guidance documents with the fundamental considerations being to confirm physical and chemical stability of the site to protect human health and the environment.

Progressive decommissioning and restoration will be completed throughout the life of the Project, whenever feasible, and reported to the regulatory agencies as part of the annual reporting requirements throughout Operation. Associated activities will focus on the decontamination, demolition, and disposal of unused buildings and infrastructure, as well as the removal of unused equipment and machinery. Progressive decommissioning and restoration are expected to continue and result in positive effects as revegetation is continued and regeneration occurs. Following decommissioning and restoration, wildlife habitat is expected to recover to baseline conditions.

5 Habitat Loss Calculation

5.1 Habitat Loss in Context of the Disturbance Management Threshold for SK1

To support the Plan with respect to the calculation of habitat loss, a mapping exercise was completed to provide context on the Project-related habitat loss in consideration of the woodland caribou range (SK1) disturbance management threshold (ECCC 2020).

5.1.1 Approach

First the Project infrastructure footprint area was delineated and estimated to be 80 ha. Next, a 500 m buffer was applied to the Project footprint, resulting in a total potential disturbance area of 1,350 ha. This is consistent with the approach for determining direct and indirect effects, as outlined in ECCC (2020).

Finally, an analysis was undertaken to quantify the amount of caribou habitat that is currently disturbed within the Project footprint + 500 m buffer. According to ECCC (2020), there are two contributors to disturbed habitat in SK1: 1. anthropogenic disturbance + 500 m buffer and 2. fire disturbance in the last 40 years, without a buffer. The two factors for disturbed habitat were considered as follows:

1. Existing anthropogenic disturbance + 500 m: For anthropogenic disturbance calculations to inform the Plan, mapping was completed and evaluated to determine the existing anthropogenic disturbance. Although the EIS considered anthropogenic disturbances on IKONOS imagery at the 1:5,000 scale, the mapping exercise to support habitat loss calculations in the Plan used anthropogenic disturbances visible on Landsat at the 1:50,000 scale, to be consistent with the definitions of disturbed habitat from the amended recovery strategy (ECCC 2020).
2. Fire disturbance in the last 40 years, without buffer: To determine ecosites that were in a regenerating phase or having experienced fire disturbance in the last 40 years, the ecosites BS3/BS7-Jack pine-blueberry/Black spruce-blueberry/lichen were used, based on previous ecosite classification work completed to support the EIS.

5.1.2 Results

As shown in Table 5-1 and Figure 5-1, the proposed Project footprint + 500 m buffer is almost entirely located within existing, buffered anthropogenic disturbance. This means the Project footprint + 500 m buffer is located within already disturbed habitat, according to ECCC (2020). Additionally, the mapping exercise shows that approximately half of the Project footprint + 500 m buffer is located within regenerating forest, i.e., forest burned less than 40 years ago (Figure 5-2).

Table 5-1: Existing Disturbed Habitat within Buffered Project Footprint

	Area within Project Footprint + 500 m buffer (1,350 ha)
Existing anthropogenic disturbance (+ 500 m buffer)	1,298 ha
Regenerating forest (fire disturbance in the last 40 years; no buffer)	730 ha

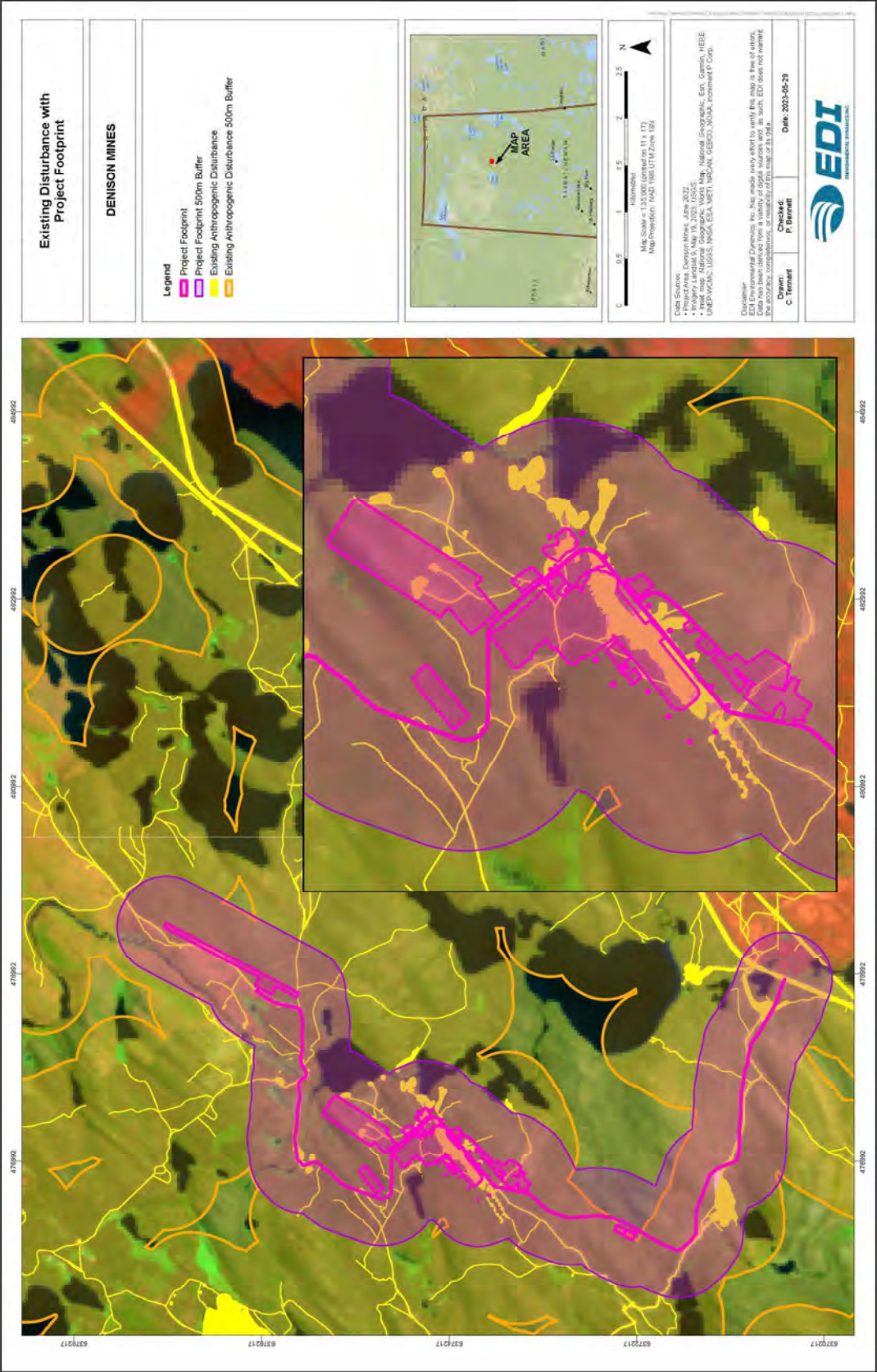


Figure 5-1: Proposed Project Footprint (+ 500 m buffer) with Existing Anthropogenic Disturbance (+ 500 m buffer) Visible on Landsat at 1:50,000

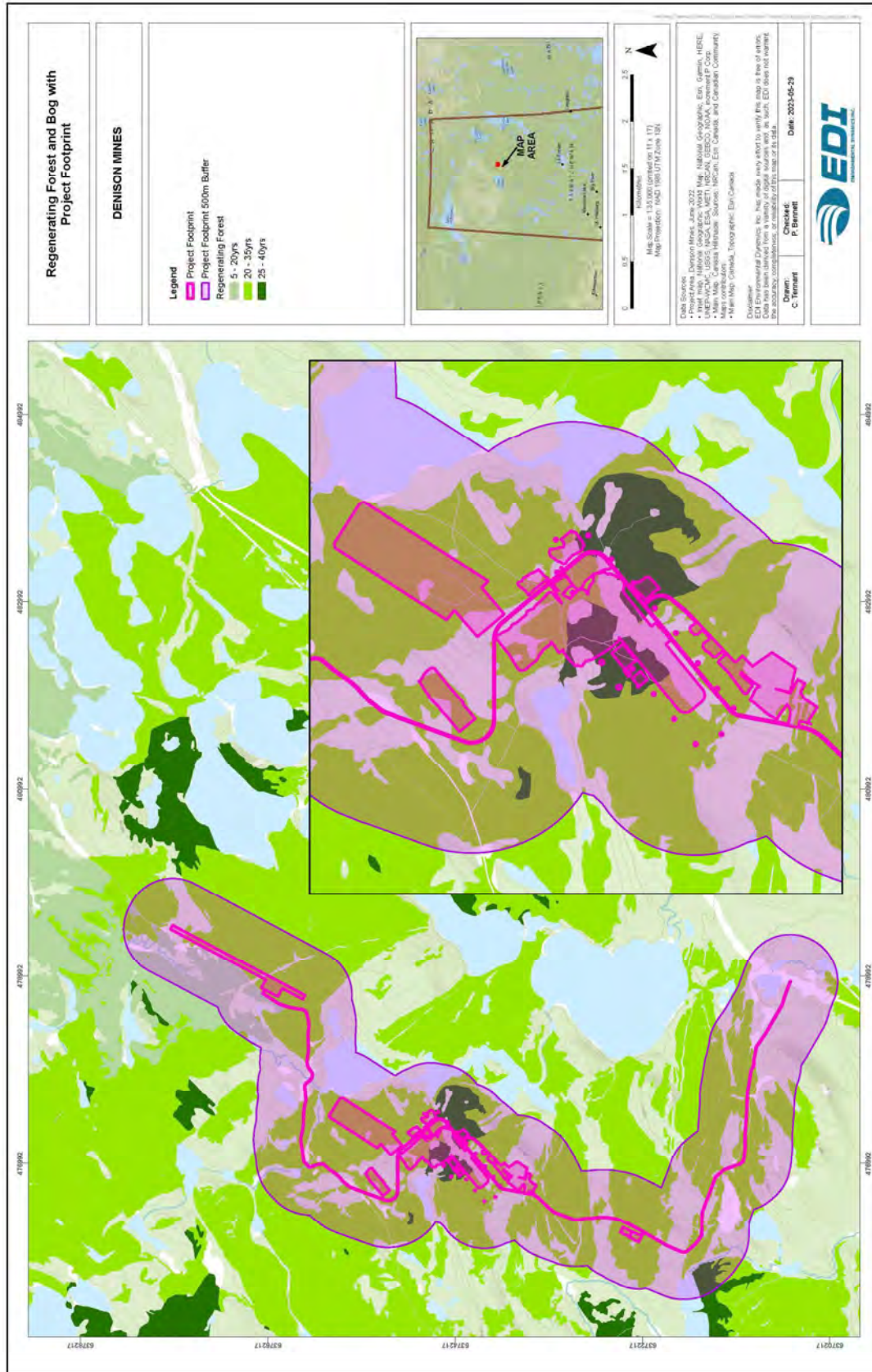


Figure 5-2: Proposed Project Footprint (+ 500 m buffer) with Regenerating Forest

Based on the above analysis using ECCC (2020) criteria, should the Project proceed, the disturbance management threshold for SK1 range would remain unchanged.

Additionally, ECCC (2020) identified the caribou population in the SK1 range as being self-sustaining at a threshold of 40% undisturbed habitat and recommended that total anthropogenic disturbance in the SK1 Boreal Shield range should not exceed 5% with the remainder (i.e., 55%) being attributed to natural disturbance (while maintaining a minimum of 40% undisturbed habitat in the range). ECCC (2020) calculated that approximately 58% of the SK1 Boreal Shield range is currently affected by past forest fires and 3% of the range is affected by anthropogenic disturbances. For additional context, the size of the SK1 Boreal Shield range is estimated at 18,034,870 ha (ECCC 2020). The Project footprint + 500 m buffer (1,350 ha) would represent an estimated Project-related disturbance of 0.007% at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit.

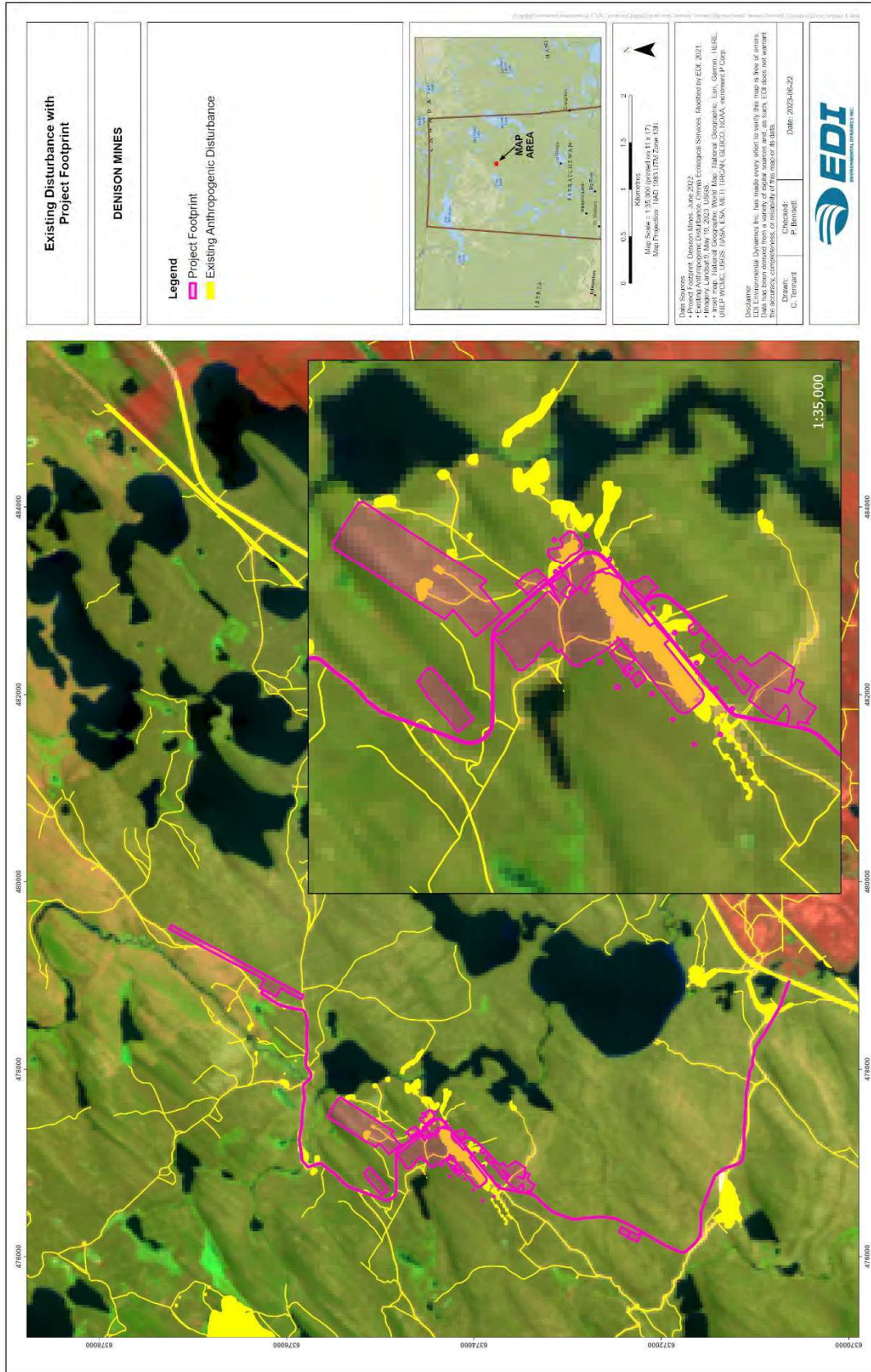
5.2 Direct Loss Calculation

The Project infrastructure footprint has been delineated and the area was determined to be 80 ha. Of this area, 12 ha are comprised of previously disturbed land resulting from past activities (e.g., access, exploration camp and laydown areas). The remainder of the Project footprint is comprised of regenerating forest (forest less than 40 years old) habitat which is typically considered to be low quality habitat for caribou (Figure 5.3).

Table 5-2: Land Cover Types within the Project Footprint

	Total Area
Project footprint	80 ha
Existing anthropogenic disturbance	12 ha
Regenerating forest habitat (i.e., low quality caribou habitat)	68 ha

Denison understands that the Project will likely result in a limited residual effect on caribou and their habitat within the RSA; however, these effects are considered to be small in a relative sense when considered in the context of the SK1 range, as described in Section 5.1.



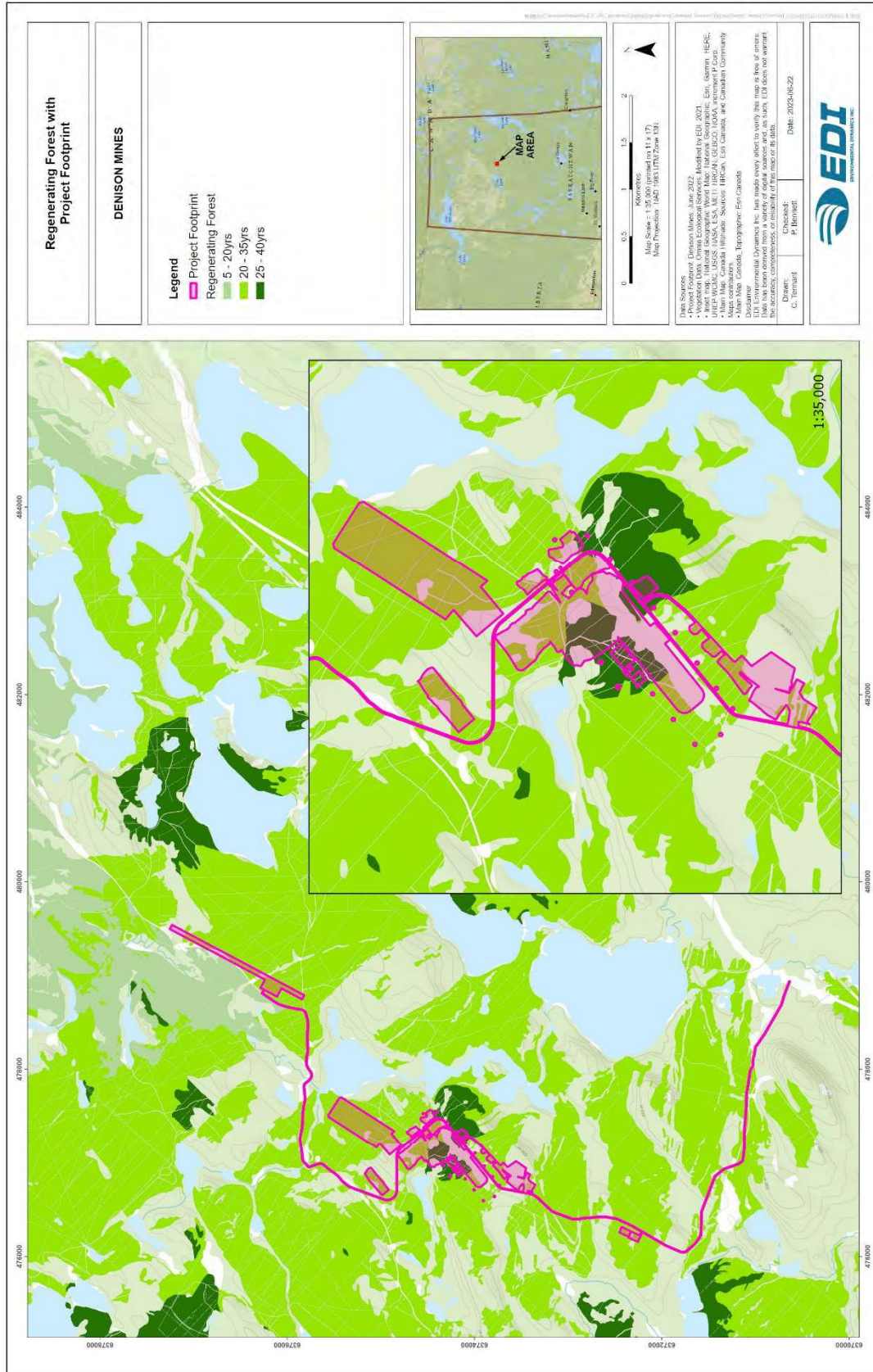


Figure 5-4: Proposed Project Footprint with Regenerating Forest

6 Offset Framework

This section provides a discussion on offset options will become more defined as the Plan advances, in consultation with ENV. This is expected to offset residual effects over the life-of-the-Project and enhance the restoration activities occurring within the Project footprint to result in no net loss of habitat within the RSA as a result of the Project.

6.1 Conceptual Offset Opportunities

An opportunity that Denison has proactively identified is a combined linear feature mitigation and restoration option. Denison has implemented a practical and experimental pilot study to investigate the design, implementation, testing, and monitoring of several functional and structural habitat mitigation options. This opportunity involves two components: 1) applying treatments to address (i.e., reduce) lines-of-sight and discourage linear feature use by both caribou and their predators, and 2) restoration focused on re-establishing terrestrial lichen communities co-established with a biological soil crust (BSC) component.

Importantly, to complete this pilot program, Denison has partnered with the University of Saskatchewan and Northwest Communities Environmental Services (an Indigenous-owned environmental company) under the Developing Eco-Restoration Together (DERT) program. This unique project aims to co-create ecological restoration practices that centre Indigenous peoples, worldviews, and values while also braiding knowledge from the land, Indigenous knowledge, and western science. The project is supported by the three partners but is ultimately guided by the Indigenous Project Advisory Board, and the Community Liaison/Education Coordinator. Through restoration trials, community engagement, and various planting techniques, Denison, with their partners are seeking to return ecosystem functions in areas where they have been previously disturbed (e.g., exploration cutlines). Through collaboration with community members, University of Saskatchewan, industry partners, two graduate students, and local youth, this project is expected to ultimately inform the creation of a framework for effective restoration practices in northern Saskatchewan that centre on caribou and Indigenous communities.

6.1.1 Caribou Trail Study

Wildlife, particularly bears, wolves, and woodland caribou, are using anthropogenic linear features to move throughout their habitat with greater ease. This can result in increased chance encounters between predators and prey and could contribute to the reduction in woodland caribou populations (Omnia 2022). Denison is conducting research on the use of linear features predators and prey in the Athabasca Basin to collect relevant data to inform an effective plan designed to disrupt the current risk related to predator/prey movements/interactions.

Currently, ENV has no guidelines or protocols for assessing the status of disturbance features or for evaluating the need for linear feature mitigation. Denison proactively initiated research to collect field-based findings on the effectiveness of linear disruption features on predator/prey movements in the vicinity of the Project. This field program was designed and implemented to deploy and monitor the effectiveness of five linear feature treatments across nine locations. Treatment types include, seeding and/or planting of jack pine, spreading coarse woody debris, tree tipping, constructing biodegradable fencing, and earth/debris mounding. Methods vary by location but have a common goal: to discourage prolonged disturbance and encourage new growth in areas of disturbance (Omnia 2022). Each

treatment area is monitored by game cameras year-round to determine how wildlife interact with the created physical and visual barriers. All treatments are temporary and biodegradable with the purpose of reducing trail use in the near-term so that the forest can regenerate naturally.

Preliminary results are encouraging and indicate that bear use of treated lines was reduced by 43% compared to untreated lines, caribou use was reduced by 95%, and wolf and moose use was reduced by approximately 94%. Overall, use of treated lines by species of interest was reduced by approximately 83% when compared to baseline monitoring rates. These successful preliminary results will guide future work to define potential offset options associated with linear feature mitigation and restoration.

6.1.2 Biological Soil Crust Research

To support restoration planning, additional research will be designed to investigate BSCs and conducted by a soil science graduate student at the University of Saskatchewan. This research is expected to contribute to the goals of the Developing Eco-Restoration Together Project. BSCs are communities of lichen, bryophytes, cyanobacteria, and microorganisms found in the top layer of the soil (Heindel et al. 2019). These surface soil mats are rich in diversity, and play an important role in the broader ecosystem, especially in locations with extreme climate, little moisture, and nutrient-poor soil (Cowden et al., 2022). Research on BSCs has been focused on desert regions, and this research provides insight to BSC's role in boreal ecosystems, specifically in northern Saskatchewan. By gaining a better understanding of how to support BSC establishment and growth, it is expected that the findings can inform restoration activities that would ultimately benefit caribou.

Sampling of BSCs within the region will be based on a fire chronosequence. This is expected to provide a foundation to better understand the functions and species present in BSCs, and how they develop post-disturbance (Coxson and Marsh 2001). Understanding how these communities develop and interact is important, especially considering the gap in knowledge on soil microbial communities, non-vascular species, and their role in restoration techniques.

A critical element in supporting caribou populations is the consideration of caribou forage lichens. Due to the slow-growing nature of lichens, it can be difficult to include them in restoration activities (McMullin and Rapai 2020). Denison is planning to focus on caribou forage, primarily through transplanting and propagation of the appropriate lichen species. Natural regrowth of lichen communities after fires takes place in a complex setting, where BSCs and bryophyte communities stabilize soil surfaces, providing habitats where lichen propagules can establish and grow (Coxson and Marsh 2001). Denison hypothesizes that reestablishment of terrestrial lichen communities will have a better chance of success where these supporting BSC components can be co-established at the same time. The findings from the BSC research within post-fire environments is expected to support lichen communities, restoration activities for the DERT project, and ultimately caribou and caribou habitat within the Wheeler River Project area.

7 Monitoring and Adaptive Management Framework

An adaptive management framework will be developed to support the implementation of this Plan (Figure 7-1). In this context the adaptive management framework provides the means for the integration of Plan scope, management, and monitoring to systematically evaluate assumptions to adapt and learn. In practical terms the framework will consider the outcomes of actions taken/implemented, whether they have been successful and, if not, how can such actions be adapted to increase the likelihood of success. Outcomes of the Plan would be measured by establishing performance indicators as the way to define and measure progress toward achieving the objectives.

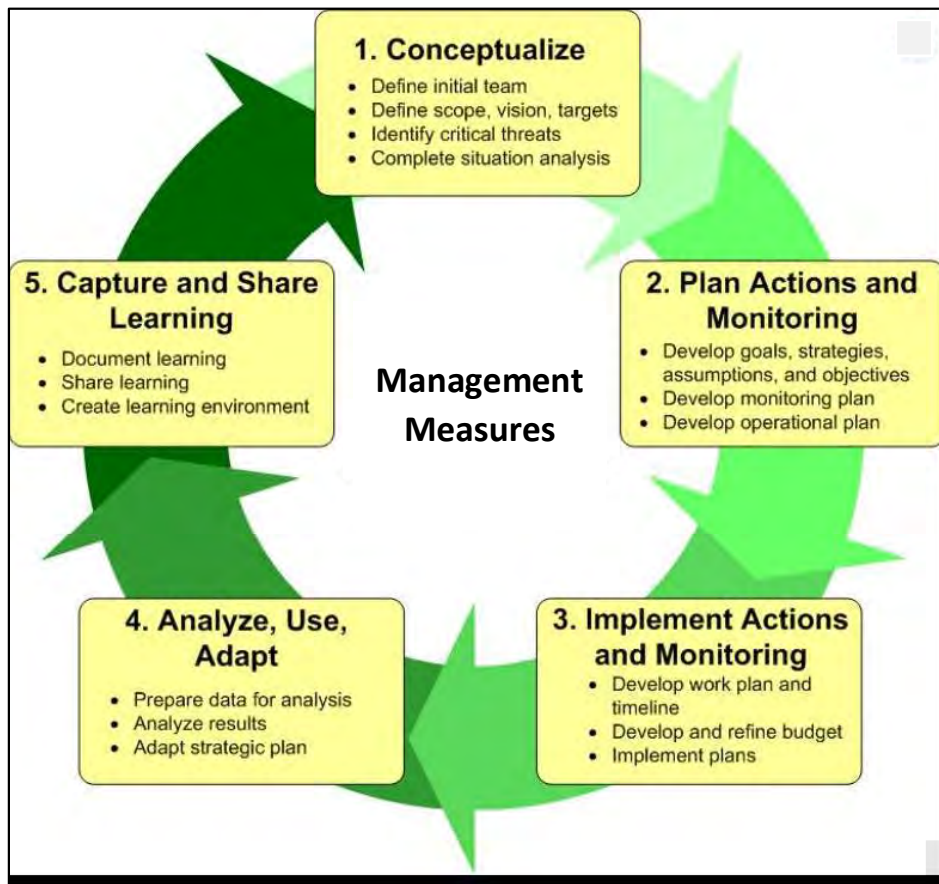


Figure 7-1: Adaptive Management Cycle

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Annex 1 – FIRT IR Table 0 Technical Review of the Wheeler River Project draft EIS
Denis Response – August 18, 2023

Ref. #	Dept.	Project Effects Link	Reference to EIS, appendices, or supporting documentation1	Reference to EIS Section	Context and Rationale	Information Requirement (IR)2	Denison Response (consistent with August 18 resubmission)	Final EIS Updates
IR-137	ECCC	Migratory birds, Wildlife and Wildlife Habitat, Vegetation and Wetlands	Section 9.2.1.3, Spatial and Temporal Boundaries for Vegetation and Ecosystems, Listed Plant Species and Wetlands Section 9.3.1.3.1, Spatial Boundaries for Ungulates, Furbearers and Woodland Caribou 9.4.1.3.1, Spatial Boundaries for Raptors, Migratory Breeding Birds, and Bird Species at Risk	Terrestrial Environment	<p>Context and Rationale: The CNSC’s Generic Guidelines for the Preparation of an EIS Pursuant to the Canadian Environmental Assessment Act, 2012 states that: “The EIS will describe the spatial boundaries, including local and regional study areas, for each VC to be used to assess the potential adverse environmental effects of the Project and provide a rationale for each boundary.</p> <p>Spatial boundaries will be defined taking into account the appropriate scale and spatial extent of potential environmental effects, community knowledge and Indigenous knowledge, current or traditional land and resource use by Indigenous groups, ecological, technical, social and cultural considerations.”</p> <p>The information provided in the EIS does not enable a biologically relevant assessment of the Project’s effects.</p> <p>The Proponent did not provide rationale for the selection of study areas for individual vegetation, wildlife or migratory bird valued components (VC). Different VCs may have different spatial boundaries for the LSA and/or RSA. For wildlife and bird VCs, the LSA is defined as a 1.7-km buffer from the Project area, and the RSA is defined as a 6.6- km buffer around the LSA. There is no information on how the spatial boundaries were derived.</p> <p>Specific to Woodland Caribou, boreal population (hereafter referred to as boreal caribou):</p> <p>Project Footprint: In a scientific assessment of critical habitat (Environment Canada, 2011) [1] ECCC demonstrated that the application of a 500-m buffer to mapped anthropogenic features best represents the combined effects of increased predation and avoidance on caribou population trends at the national scale. Adding a 500-m buffer to the Project footprint is required to represent functional habitat loss.</p> <p>The draft EIS does not appear to use a buffer for their Project area. The draft EIS (Section 9.3.1.3.1) states: “Project Area: the area within which the Project and all components/activities are located (i.e., the area of maximum physical disturbance). The Project Area covers 169.6 ha and is not VC-specific, but consistent throughout the EA.” (p. 9-168)</p> <p>LSA: The defined LSA for boreal caribou has to consider avoidance of disturbed areas, predator access to undisturbed areas, reduction in connectivity and sensory disturbance. This required information is not detailed in the draft EIS.</p> <p>Adverse effects of Projects including predator and prey access to undisturbed areas, reduction in connectivity, and sensory disturbance to individual boreal caribou can vary and extend several kilometers depending on Project activities and ecological context. At minimum, the LSA should capture the above- mentioned effects. For boreal caribou, the Project footprint should be defined as the immediate area to be cleared, plus a 500-m buffer to represent functional habitat loss. Following this guidance, the LSA should be defined as a buffer of the Project footprint with the 500-m buffer.</p> <p>RSA: The Amended Recovery Strategy for Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada states: <i>Mitigation of adverse effects from individual projects/activities will require a coordinated approach and management of cumulative effects within and among ranges. A cumulative effects assessment is essential to position the proposed project/activity in the context of all current and future development activities. The cumulative effects assessment will:</i></p> <ul style="list-style-type: none">Assess the impact of all disturbances (anthropogenic and natural) at the range-scale;Monitor habitat conditions, including the amount of current disturbed and undisturbed habitat, and amount of habitat being restored;Account for planned disturbances; and	<p>Provide a biologically relevant rationale for the delineated study boundaries (LSA and RSA) for all different valued components. Include the following information:</p> <ul style="list-style-type: none">Descriptions of how the RSA and LSA boundaries were derived for all VCs. <p>Specific to boreal caribou: Project Footprint:</p> <ul style="list-style-type: none">Include a 500-m buffer of area of maximum physical disturbance to represent functional habitat loss for boreal caribou <p>LSA:</p> <ul style="list-style-type: none">Include a description of how the LSA takes into account boreal caribou avoidance of disturbed areas, predator access to undisturbed areas, reduction in connectivity and sensory disturbance to individuals. <p>RSA:</p> <ul style="list-style-type: none">Include a description of how the RSA used in the draft EIS is an accurate representation of the SK1 boreal caribou range; orRe-do the assessment with the RSA at the scale of the range <p>See also related IRs: IR-154 and IR-156.</p>	<p>The Project Area was delineated to capture all direct, and most indirect, likely adverse effects on caribou; as this is the zone of influence most likely to affect caribou in the vicinity of the Project (i.e., in the vicinity of human activity, equipment use and vehicle use). The Project Area (169.6 ha) is the direct footprint of proposed Project infrastructure (74.8 ha) with a buffer applied, thereby representing the area of maximum physical disturbance. The Project Area is not VC-specific, but consistent throughout the EIS.</p> <p>The Wildlife LSA was designed to capture the majority of the Project effects. The LSA extends beyond Project Area of the site to include a reasonable estimation of where sensory disturbance from Project-related activities would extend and where effects on wildlife including caribou are most likely to occur. That is the primary rationale for selection of the spatial extent of the LSA – Denison believes this is an appropriate spatial scale that applies broadly to the wildlife VCs as a whole given the perceived mechanism of VC-Project interaction.</p> <p>Importantly, as noted in draft EIS Section 9.3.6.4, in the caribou assessment, the Project Area had a 500 m buffer applied to account for indirect effects/habitat alteration; this area is within the wildlife LSA (refer to Figure 9.3-14 for a map showing the spatial areas). The 500 m buffer for habitat alteration for caribou was selected in accordance with ECCC’s (2020) 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.</p> <p>Boreal caribou occur as one continuous population across the SK1 range, including within the Terrestrial RSA. It was decided to not use the entire SK1 range as an assessment area (e.g., due to the dilution factor) and instead use the Terrestrial RSA to appropriately and adequately assess residual and cumulative effects in proportion to the Project. It was deemed to be not feasible to use a large area like the SK1 range to assess residual Project effects because this would provide inappropriate context or "dilute" the adverse effects of the Project on the caribou that have a home range that overlaps with the RSA.</p> <p>The cumulative effect assessment of the draft EIS compares the Project-specific habitat effects (i.e., the Project Area plus a 500 m buffer to account for sensory disturbance) at the scale of the SK1 range (as the applicable management unit for portion of the woodland caribou population that uses the Terrestrial RSA). The</p>	No updates to the draft EIS are needed based on this IR response.

				<ul style="list-style-type: none">Assess the distribution of disturbance in large ranges for risk of range retraction in parts of the range. <p>The proposed Project’s cumulative effects for boreal caribou are possible at the scale of the SK1 boreal caribou range. The RSA used for boreal caribou for this Project is only 40,173.6 ha, compared to the SK1 range, which is 18,034,870 ha. As such, it is too small to capture cumulative effects to this species and does not follow the Scientific Assessment to Support the Identification of Critical Habitat for Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada (Environment Canada, 2011) or the Amended Recovery Strategy for Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada.</p> <p>Reference: [1] Scientific Assessment to Support the Identification of Critical Habitat for Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada (Environment Canada, 2011).</p>		<p>result showed that the Project is expected to add 0.001% of anthropogenic disturbance at the scale of the SK1 Boreal Shield Woodland Caribou Management Unit (Section 9.3.7.3.3 of the EIS).</p> <p>References: Environment and Climate Change Canada (ECCC). 2020. Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. xiii + 143pp.</p>	
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September 20, 2023

Ramada Hotel: 806 Idylwyld Dr N, Saskatoon

Time: 1pm – 3pm

Agenda:

1. Introductions
2. Overview of PBCN
3. PBCN lands and uses in the Project area
4. Denison: Project Overview
5. Denison: Responses to PBCN concerns identified in the submission on the draft EIS

Attendees:

Chief Karen Bird (PBCN)

Ben Merasty (PBCN)

Marvin Morin (PBCN)

Rose Morin (PBCN)

Nelson Morin (PBCN)

Peter R. (PBCN)

Kyle Morin (PBCN)

Ron Michel Jr. (PBCN)

Margaret Rosling (Aldridge & Rosling for PBCN)

Chani Campbell (Aldridge & Rosling for PBCN)

Kevin Himbeault (Denison)

Janna Switzer (Denison)

Carolanne Inglis-McQuay (Denison)

Rochelle Collette (Blakes for Denison)

Regrets:

Ted Merasty (PBCN)

Patti McCunn-Millar (PBCN)

Constance Agnew (LGL for PBCN)

Summary of Meeting:

Overview of PBCN and PBCN Land and Uses in the Area:

- Overview provided of the PBCN history and relationship to Reindeer Lake, from Hatchet Lake to Pelican Narrows
- PBCN noted that Denison is in the traditional territory of PBCN
- Denison requested information about specific PBCN land uses in and around the Wheeler River Project in order to better understand the potential for adverse impacts to PBCN rights
 - PBCN noted that Ted Merasty (unable to attend due to illness) has such information
- Overview provided to Denison of the PBCN Land and Resources Committee (“LRC”) and the process designed by the LRC to engage with industry and participate in the regulatory process, which has been delegated to them by the Chief and Council of PBCN
 - Part of this process is to ensure that projects and potential impacts are understood, and PBCN is engaged
 - Part of this process is to undertake commercial conversations with PBCN in relation to understanding impacts and sharing of benefits
 - Both of these above can be moved along with capacity funding agreements, or similar
- Denison restated its perspective that in order to consider such arrangements it would need to have clearer information about the potential for the Project to adversely impact PBCN land uses and Rights – and requested such information be provided to Denison.

Denison – Overview of Project:

Denison provided overview presentation (as attached)

Numerous points of clarification were sought from Denison by PBCN in the areas of:

- Drilling (company(ies) used by Denison for drilling – Currently Rivers / Hy-Tech Drilling
- Freeze wall containment – method and monitoring to ensure proper function.
- Ground stability in relation to removal of the uranium through the mining method.
- In situ mining method – nature of the mining solution, how the method works, monitoring
- Location of the Wheeler River Project – off highway 914, between Key Lake and McArthur River. Confirmation Wheeler River Project is quite far upstream from Hatchet Lake
- Length of time for decommissioning and remediation – 15 years, owing to the nature of the mining method and no conventional tailings management facility nor waste rock piles
- Employment from the project – types of jobs, numbers
- Ancillary facilities, such as where the power is generated, clarification of onsite processing facility, camp and sewage treatment facilities
- Monitoring of key elements of the Project – operational (freeze wall), environmental (ground and surface water)
- Timing of next steps for the regulatory process – Denison will be looking to file the next iteration of the EIS in Q1, 2024. Denison is also actively working on the licensing materials in support of the CNSC licensing process.

Key items raised by PBCN during the meeting:

1. Concern about potential for water to be contaminated from the Project and potentially impacting PBCN communities
2. Concern that PBCN will be impacted by the Project; that all mining activities affect PBCN
3. Transparency around communicating monitoring results and any monitoring results that are not expected
4. PBCN requested Denison engage more fully with PBCN about the Project, and to that end, enter into a formal agreement in relation to engagement

Denison: Responses to PBCN concerns identified in the submission on the draft EIS:

Due to time, Denison was not able to provide the presentation materials that responded to the PBCN concerns identified in the submission on the draft EIS.

PBCN and Denison agreed that Denison would provide a digital copy of that presentation and that PBCN would review in due course.

Agreed-upon next steps:

1. Denison to provide PBCN with responses to concerns identified in the submission on the draft EIS
2. Following this, steps are yet to be determined



The Wheeler River Project

September 20, 2023, Meeting with Peter Ballantyne Cree Nation

Comments on Wheeler River EIS

Peter Ballantyne Cree Nation's EIS comments express interests in terms of the following themes:

1. Country Foods
2. Human Environment
3. Aquatic Environment
4. Terrestrial Environment
5. General

1. Country Foods

- Effects of growing/carrying capacity of both aquatic and terrestrial environments for country foods because of potential changes to the landscape including the risk of introduction of contaminants
- Potential accidents/spills impacts on the harvesting of plant specific country foods
- Limitations to access lands for country food harvesting due to mining traffic or operation of the mine

1. Country Foods

- Effects of growing/carrying capacity of both aquatic and terrestrial environments for country foods because of potential changes to the landscape including the risk of introduction of contaminants

Denison Response

- A Human Health Risk Assessment was undertaken for the Project: Section 10
- HHRA evaluated direct exposure to constituents of potential concern (or contaminants) released to air and water, and through indirect exposure to the constituents associated with soil, sediment, and food, such as fish, wildlife, and plants.
- Assessment was inclusive of information based on use of traditional foods and a **specific traditional food diet from ERFN**
- **No significant adverse effects to human health from the Project**

1. Country Foods

- Limitations to access lands for country food harvesting due to mining traffic or operation of the mine

Denison Response:

- Access limitations will be limited to the 169-hectare footprint of the site (for reference, the McIlvenna Bay Project is 1,029 hectares [8 times bigger than Denison's Project])
- Access north of the Key Lake Road is **already limited to a select number of individuals / resources harvesters**, and will remain in place until such time that the access is changed by other parties
- Denison is sensitive to areas of high cultural value to ERFN and KML along Highway 914; appropriate mitigations and restrictions in place during periods of intensive use. **These, and other mitigations, could be applicable to all users of the highway, inclusive of PBCN**

1. Country Foods

- Potential accidents/spills impacts on the harvesting of plant specific country foods

Denison Response

- Standalone Accident and Malfunctions assessment: Section 14
- **Assessed almost 70 scenarios**, including many that would relate to unplanned release of chemicals and radiation to the environment with potential to effect country foods
- **Specific scenarios assessed:**
 - Adjacent to ERFN and Kineepik Metis Local culture camps located along Highway 914
 - The overall risks in consideration of likelihood and consequence were characterized as low
 - Risks to the environment from accidents and malfunctions can be reduced to levels that are as low as reasonably practical

2. Human Environment

- Socio-economic impacts that may result from the Project, including a 300-person construction camp and a 180- person operations camp and related impacts to vulnerable populations
- Employment and procurement opportunities for PBCN members and Group of Companies
- Lack of detail on the proposed means and haul route of yellowcake product to market

2. Human Environment

- Socio-economic impacts that may result from the Project, including a 300-person construction camp and a 180- person operations camp and related impacts to vulnerable populations

Denison Response

- Construction and operation camps will operate on a fly-in/out basis, limiting the opportunities for interactions between the workforce and Indigenous communities, as workers will be transported by air directly to the site.

2. Human Environment

- Employment and procurement opportunities for PBCN members and Group of Companies

Denison Response

- Denison's Indigenous Peoples Policy sets out priority for Indigenous employment and procurement (among other items)
- Section 13.3.2.1: **Residents of Saskatchewan's North** (i.e., those resident in the northern administration district of Saskatchewan, inclusive of PBCN communities) **are prioritized for employment as an expected condition of the Surface Lease Agreement; similarly for goods and services to service the Project**
- Local Study Area communities would receive first priority, NAD second



VERING



2. Human Environment

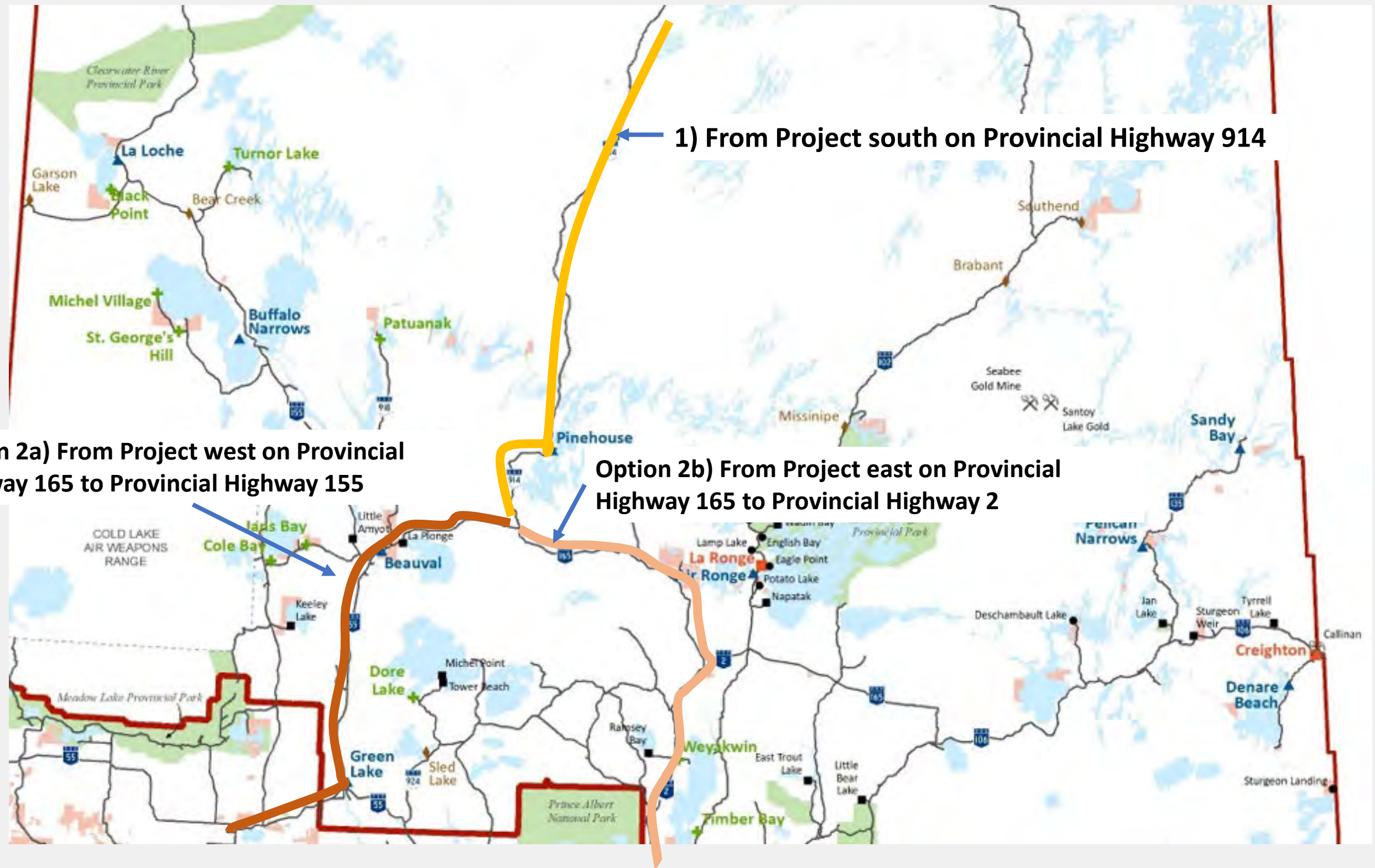


- Lack of detail on the proposed means and haul route of yellowcake product to market

Denison Response:

- The Yellowcake will be transported in industrial containers, in accordance with the Transportation of Dangerous Goods Act

2. Human Environment



3. Aquatic Environment

- Denison's proposed use of water from Whitefish Lake
- Treatment of mine contact effluent associated spills containment, and the anticipated downstream impacts. PBCN has a specific interest in the potential impacts to the interconnected waterbodies that PBCN relies on in the exercise of its indigenous rights.
- Potential impacts to the landscape as a whole, including aquatic and terrestrial environment

3. Aquatic Environment

- Denison's proposed use of water from Whitefish Lake

Denison Response

- Specific activity of water taking from Whitefish Lake was assessed: Section 8.1.4.2.2
- Conservative estimate of water taking would result in a reduction of flow of about 3% at times of low flow and the lake level could change by 1 cm
 - Beyond the ability of monitoring techniques to practically measure
 - Minor incremental changes did not represent a significant adverse effect

3. Aquatic Environment

- Treatment of mine contact effluent associated spills containment, and the anticipated downstream impacts. PBCN has a specific interest in the potential impacts to the interconnected waterbodies that PBCN relies on in the exercise of its indigenous rights.

Denison Response:

- Potential effects from the Project on water quality were assessed in Section 8.2 of the EIS – Assessment directly evaluated discharge of effluent from the site using predictive modeling.
- Water treatment will occur; testing will occur prior to release; no release will occur if water quality does not meet objectives
- The predictive modeling showed that constituent concentrations including radionuclides would be **below water quality objectives for the protection of aquatic life (ie, no effects would be expected) at the outlet of Whitefish Lake** well upstream of the outflow of the Iceland River to Russell Lake.
- Since no impact are expected to occur in these areas close to the Project, no effects would accrue in areas further downstream in the watershed where contributing sub watersheds are many, many-times the size of the sub watersheds near the Project site.

3. Aquatic Environment

- Potential impacts to the landscape as a whole, including aquatic and terrestrial environment

Denison Response

- Potential effects of the Project on the aquatic and terrestrial environments have been comprehensively assessed
- The spatial scale is very small (resulting from ISR mining method) of 160 hectares.
 - For reference, the McIlvenna Bay Project is 1,029 hectares (8 times bigger than Denison's Project)
- A conservative approach was taken in the assessment and the overall conclusion was made that there would be no significant adverse residual effects in consideration of proposed mitigations.

4. Terrestrial Environment

- Potential impacts to boreal shield woodland caribou
- Potential impacts to the landscape as a whole, including aquatic and terrestrial environment (see previous response)

4. Terrestrial Environment

- Potential impacts to boreal shield woodland caribou

Denison Response:

- Caribou in SK-1 are stable
- Potential effects on Woodland Caribou were considered in Section 9.3 of the EIS
- Concluded no significant adverse effects
 - Small spatial scale of the Project relative to the SK1 range (0.001%)
 - Risk of Project-related mortality being below natural variation
 - Various mitigation measures to be implemented
- Initial Draft Caribou Management Plan has been provided to the regulators; living document that will evolve over time in response to the eventual Provincial overall management plan for the SK1 range

5. General

- Ensuring PBCN participation in the development and execution of the long-term environmental effects monitoring and follow up programs
- Identification of PBCN into Denison's engagement approach

5. General

- Ensuring PBCN participation in the development and execution of the long-term environmental effects monitoring and follow up programs

Denison Response

- Detailed monitoring programs to be developed through licensing
- This would include how data is going to be reported and share
- The regulators have developed third party monitoring programs and undertake data review on an ongoing basis

5. General

- Identification of PBCN into Denison's engagement approach

Denison response:

- Denison acknowledges PBCN interests in respect of the Project

Peter Ballantyne Cree Nation

ROC 976



Wheeler River Project and Environmental Assessment Overview

September 20, 2023



Cautionary Statements & References RQO 976



This presentation and the information contained herein is designed to help you understand management's current views, and may not be appropriate for other purposes. This presentation contains information relating to the uranium market, third party and provincial infrastructure, and the plans and availability thereof, derived from third-party publications and reports which Denison believes are reliable but have not been independently verified by the Company.

Certain information contained in this presentation constitutes "forward-looking information", within the meaning of the United States Private Securities Litigation Reform Act of 1995 and similar Canadian legislation concerning the business, operations and financial performance and condition of Denison. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as "plans", "expects", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", or "believes", or the negatives and / or variations of such words and phrases, or state that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur", "be achieved" or "has the potential to". In particular, this presentation contains forward-looking information pertaining to the results of, and estimates, assumptions and projections provided in, the Wheeler PFS and the Waterbury PEA, including future development methods and plans, market prices, costs and capital expenditures; de-risking and project assessment activities, plans and objectives; assumptions regarding Denison's ability to obtain all necessary regulatory approvals to commence development at Wheeler; Denison's percentage interest in its projects and assumed continuity of its agreements with its joint venture partners and other third parties; production and SABRE development outlook for McClean Lake; and estimates of uranium industry factors, including physical uranium supply and demand. Statements relating to "mineral resources" are deemed to be forward-looking information, as they involve the implied assessment, based on certain estimates and assumptions that the mineral resources described can be profitably produced in the future.

Forward looking statements are based on the opinions and estimates of management as of the date such statements are made, and they are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of Denison to be materially different from those expressed or implied by such forward-looking statements. Denison faces certain risks, including the current and potential impacts of the COVID-19 pandemic, use of mining methods which are novel and untested in the Athabasca basin, the inability to permit or develop its projects as currently planned, the inability to secure sufficient financing to pursue its business objectives, the unpredictability of market prices, events that could materially increase costs, changes in the regulatory environment governing the project lands, and unanticipated claims against title and rights to the project. Denison believes that the expectations reflected in this forward-looking information are reasonable but there can be no assurance that such statements will prove to be accurate and may differ materially from those anticipated in this forward looking information. For a discussion in respect of risks and other factors that could influence forward-looking events, please refer to the "Risk Factors" in Denison's Annual Information Form dated March 25, 2022 available under its profile at www.sedar.com and its Form 40-F available at www.sec.gov/edgar.shtml. These factors are not, and should not be construed as being exhaustive.

Readers should not place undue reliance on forward-looking statements. The forward-looking information contained in this presentation is expressly qualified by this cautionary statement. Any forward-looking information and the assumptions made with respect thereto speaks only to the effective date of this presentation. Denison does not undertake any obligation to publicly update or revise any forward-looking information after such date to conform such information to actual results or to changes in its expectations except as otherwise required by applicable legislation.

Cautionary Note to United States Investors Concerning Estimates of Mineral Resources and Mineral Reserves: This presentation may use terms such as "measured", "indicated" and/or "inferred" mineral resources and "proven" or "probable" mineral reserves, which are terms defined with reference to the guidelines set out in the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") CIM Definition Standards on Mineral Resources and Mineral Reserves ("CIM Standards"). The Company's descriptions of its projects may not be comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations thereunder.

Qualified Persons

The disclosure of a scientific or technical nature within this presentation, including the disclosure of mineral resources, mineral reserves, as well as the results of the Wheeler PFS and Waterbury PEA, was reviewed and approved by David Bronkhorst, P.Eng. and Andy Yackulic, P.Geo, each of whom is a Qualified Person in accordance with the requirements of NI 43-101.

Technical Reports

- For further details regarding the **Wheeler River project**, please refer to the Company's press release dated September 24, 2018 and the technical report titled "Prefeasibility Study for the Wheeler River Uranium Project, Saskatchewan, Canada" with an effective date of September 24, 2018 ("Wheeler PFS").
- For further details regarding the **Waterbury Lake project**, please refer to the Company's press release dated November 17, 2020 and the technical report titled "Preliminary Economic Assessment for the Tthe Heldeth Túé (J Zone) Deposit, Waterbury Lake Property, Northern Saskatchewan, Canada" with an effective date of October 30, 2020 ("Waterbury PEA"). **The PEA is a preliminary analysis of the potential viability of the Project's mineral resources, and should not be considered the same as a Pre-Feasibility or Feasibility Study, as various factors are preliminary in nature. There is no certainty that the results from the PEA will be realized. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Scheduled tonnes and grade do not represent an estimate of mineral reserves.**

For a description of the data verification, assay procedures and the quality assurance program and quality control measures applied by Denison, please see Denison's Annual Information Form dated March 25, 2022. A copy of the foregoing is available on Denison's website and under its profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov/edgar.shtml.

In Situ Recovery ("ISR") Mining: *Introducing a proven mining technique to the Athabasca Basin*

Key Components for the Project



ISR is an established mining method¹

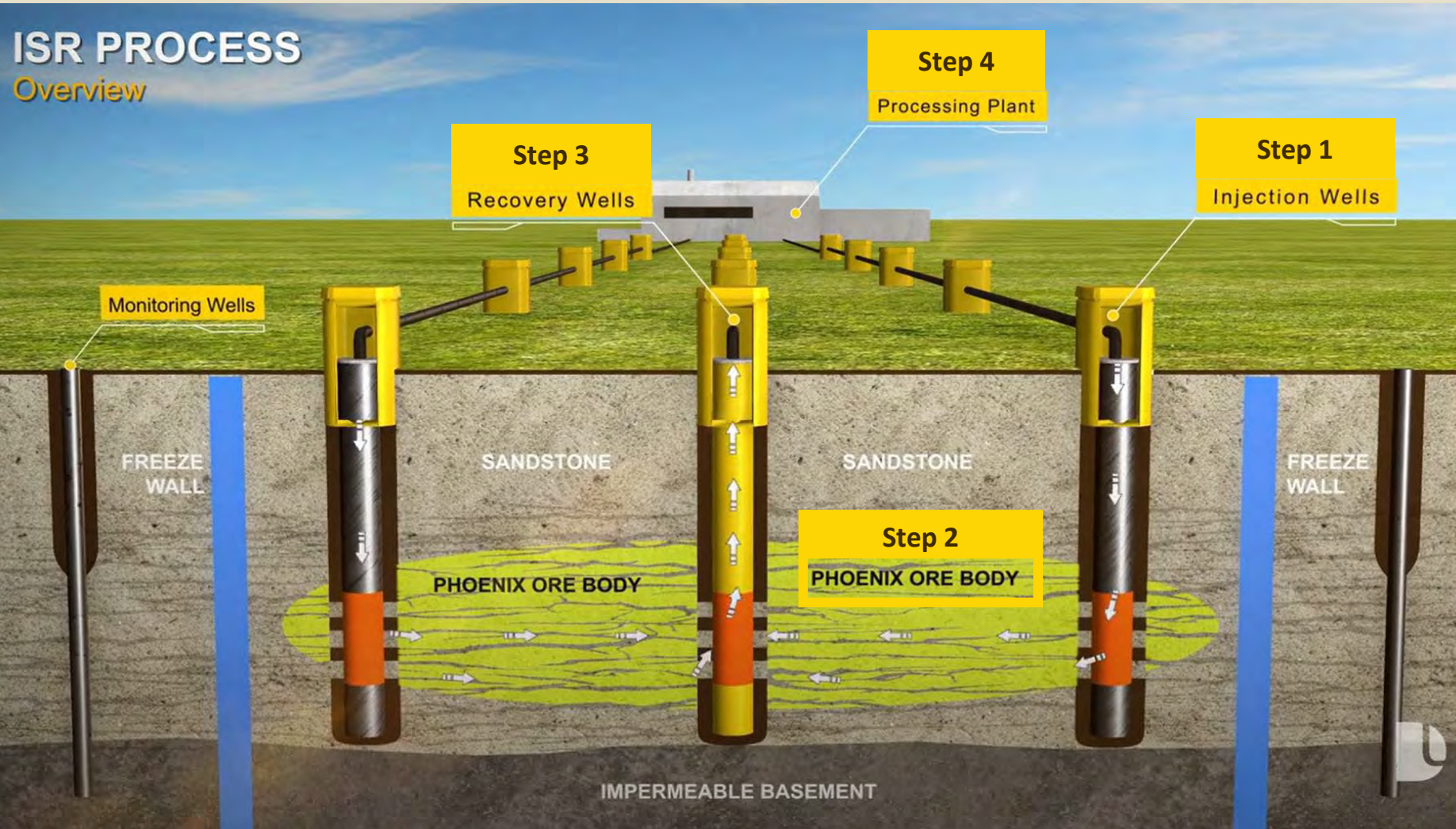
- In Situ Recovery ("ISR") was first used in the 1960s and currently accounts for more than half the world's annual uranium production

Project Technology: In Situ Recovery and Wellfield Remediation

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ISR PROCESS Overview



Step 1

Solution travels in piping from the processing plant and is injected into the deposit.

Step 2

The solution collects uranium as it travels through the deposit.

Step 3

The uranium bearing solution is pulled back to the surface through piping.

Step 4

The uranium bearing solution travels to the processing plant.

Repeat



Project Introduction: Location

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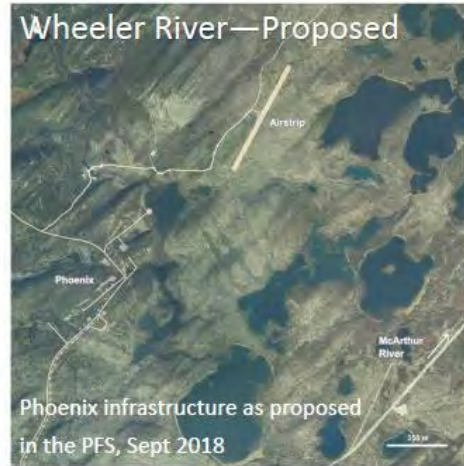


The Wheeler River Project is located:

- In northern Saskatchewan, Canada.
- Along the eastern edge of the Athabasca Basin.
- 4 km west of Highway 914.
- 35 kilometers northeast of the Key Lake and Key Lake controlled access point
- 35 kilometers southwest of the McArthur River

Project Technology: Advantages of ISR Mining

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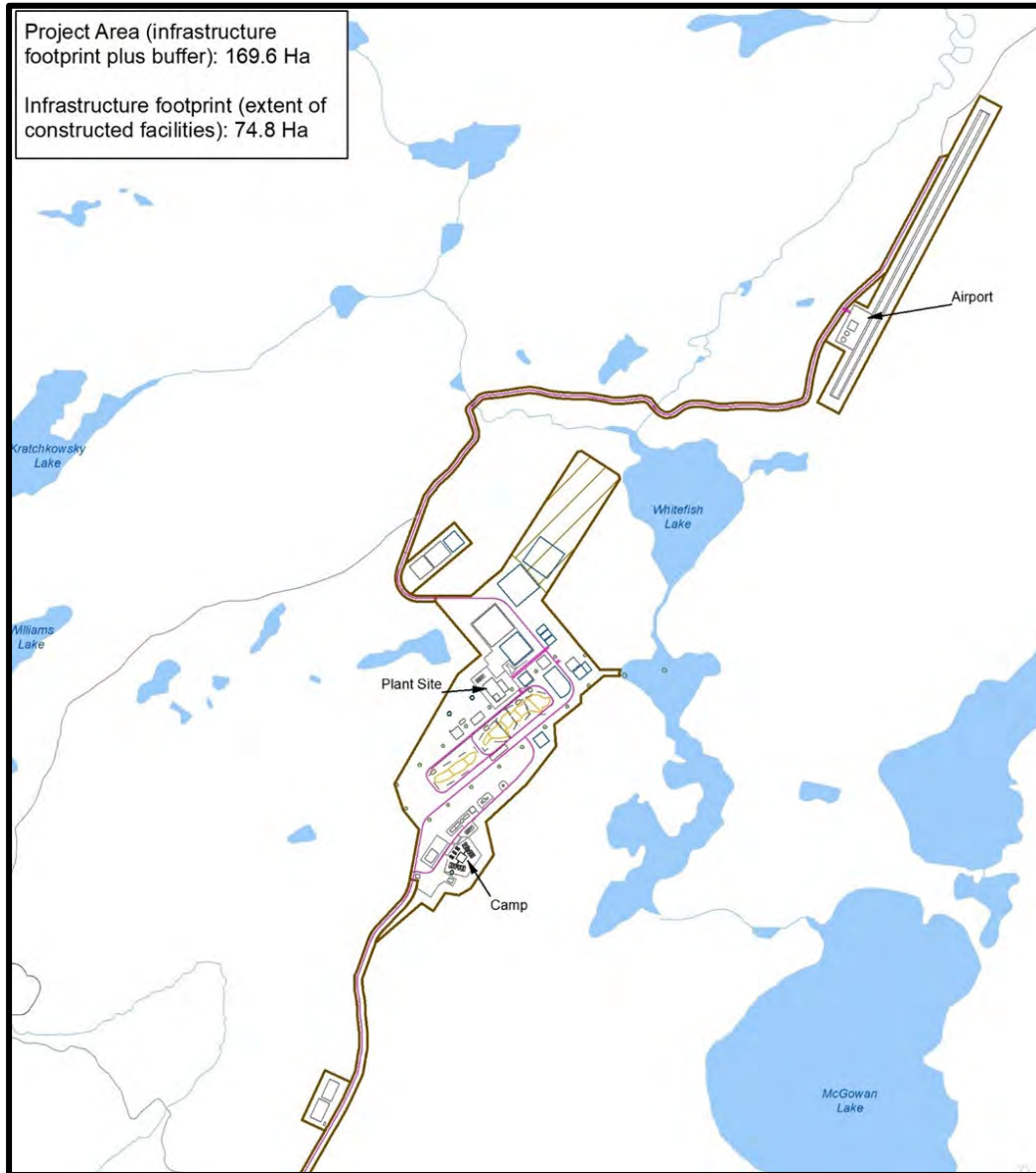


- ✓ Small surface footprint
- ✓ No tailings production
- ✓ Enhanced site reclamation
- ✓ Lower water consumption
- ✓ Lower energy consumption
- ✓ Small volume treated effluent released to surface water bodies
- ✓ Very small volumes of clean waste rock

Project Introduction: Wheeler River Site Layout

Project Area (infrastructure footprint plus buffer): 169.6 Ha

Infrastructure footprint (extent of constructed facilities): 74.8 Ha

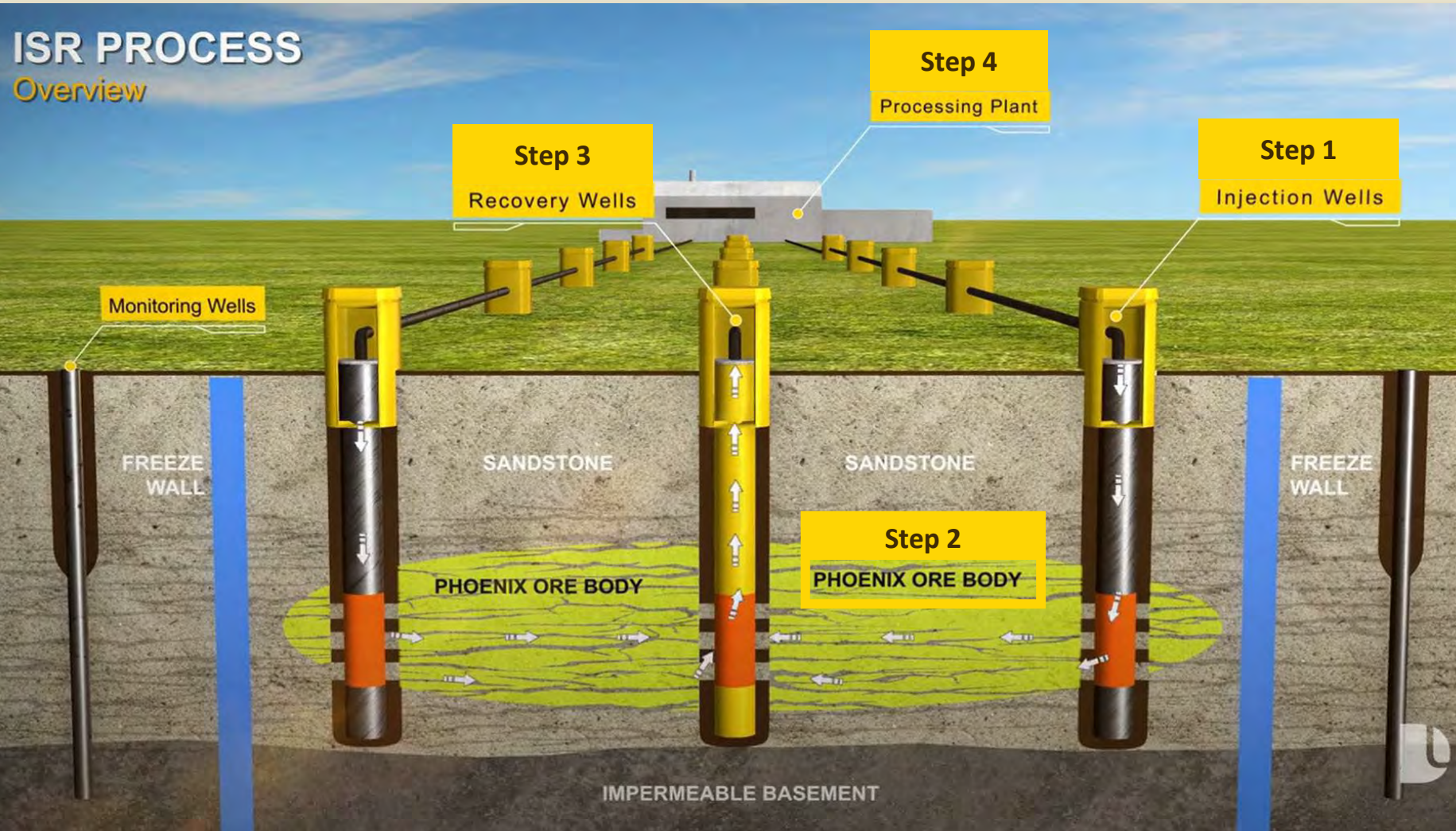


Project Technology: In Situ Recovery and Wellfield Remediation

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ISR PROCESS Overview



Step 1

Solution travels in piping from the processing plant and is injected into the deposit.

Step 2

The solution collects uranium as it travels through the deposit.

Step 3

The uranium bearing solution is pulled back to the surface through piping.

Step 4

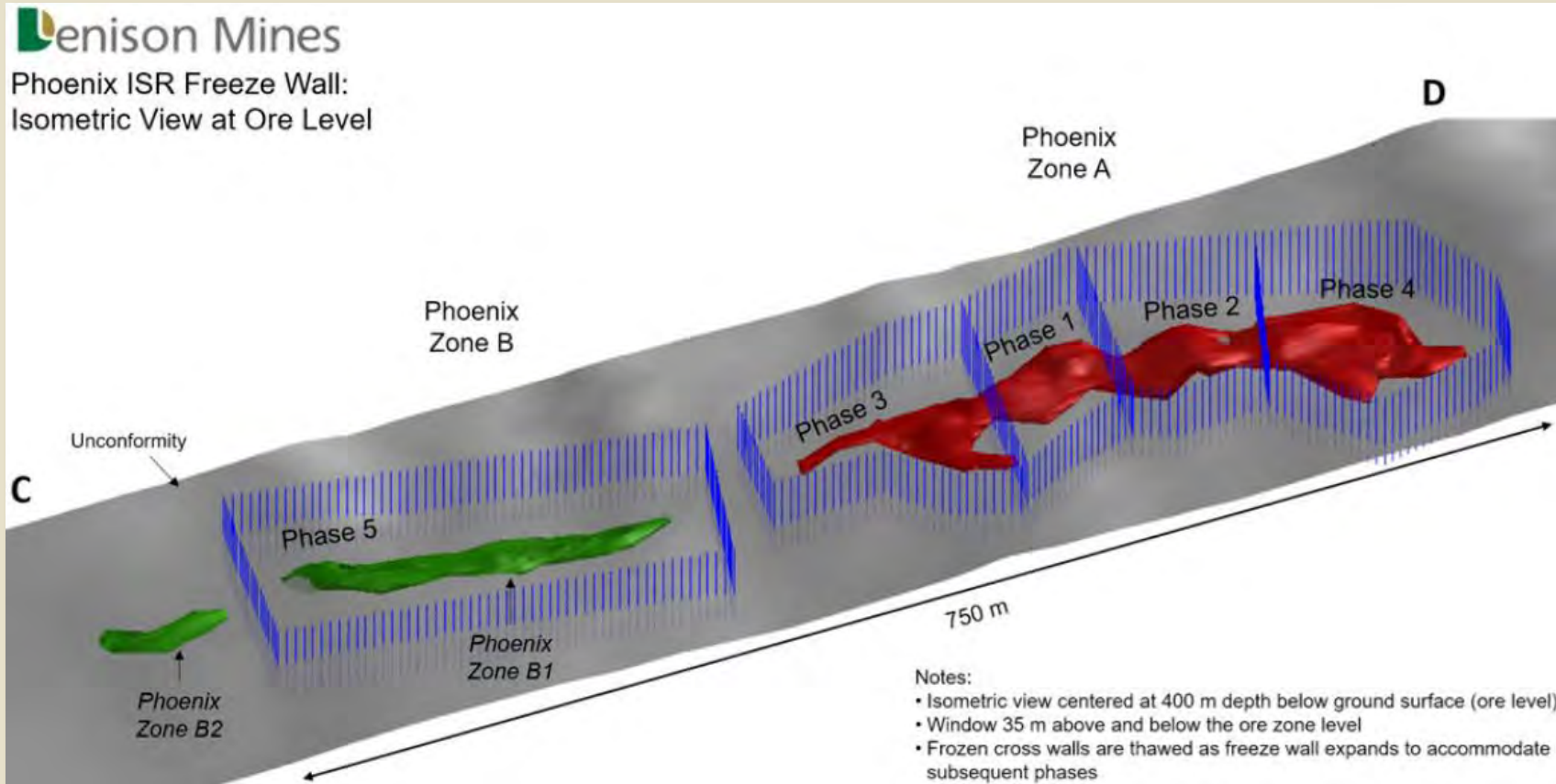
The uranium bearing solution travels to the processing plant.

Repeat



Project Technology: Freeze Wall

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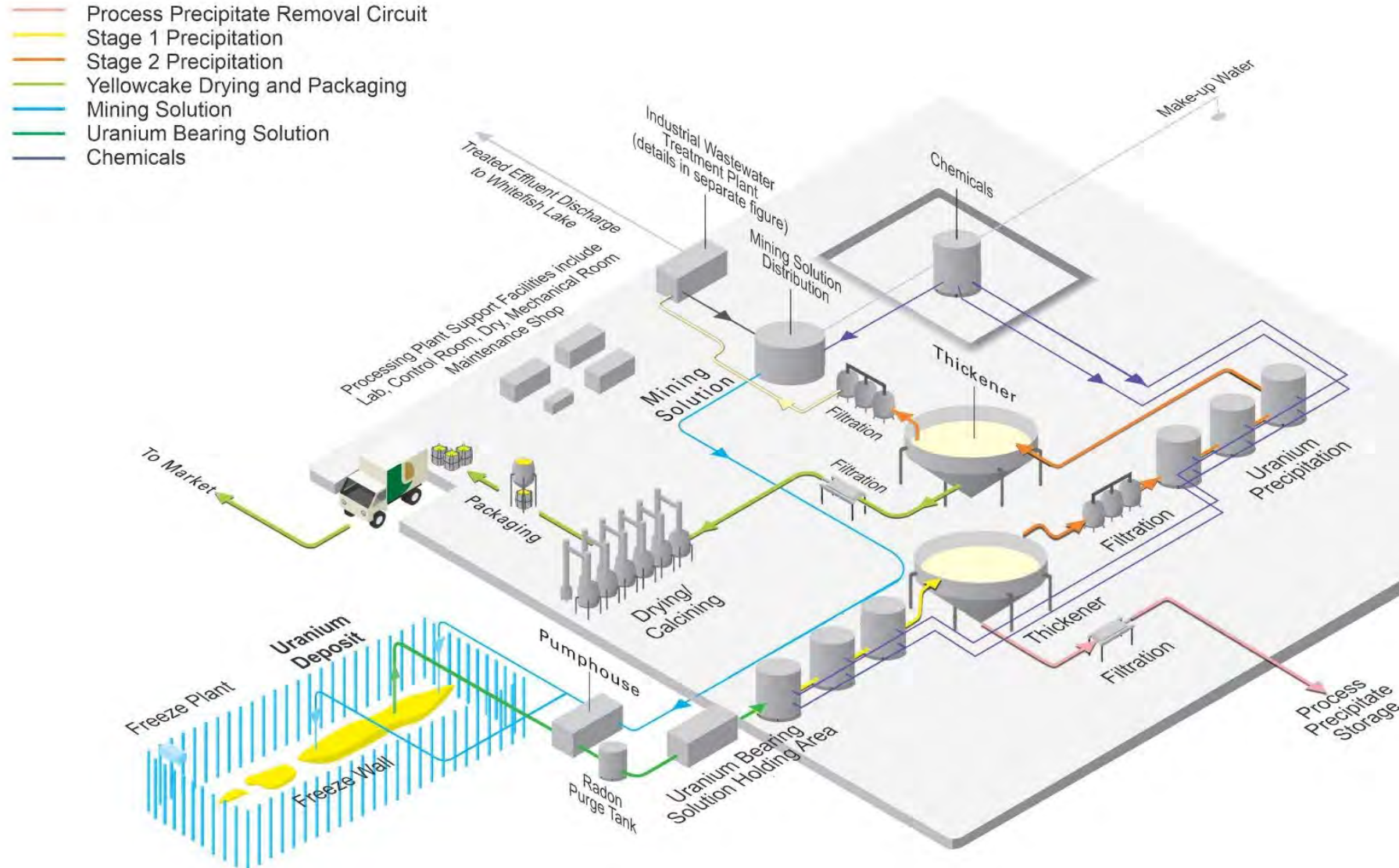
Freezing occurs in stages, starting during construction.

Freezing encloses the deposit, providing secondary containment.

Freezing occurs through the same process used at ice hockey rinks.

Project Technology: Processing Facilities

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Project Technology: **Video Overview**

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Project Introduction: Schedule of Activities

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Earthworks
Drilling
Freeze Wall
Wellfield
Process Plant
Camp
Access Road
Airstrip

ISR Mining
Processing
Water Management
Waste Management
Maintenance

Remediation
Asset Removal
Decontamination
Demolition
Disposal
Reclamation

Environmental Monitoring
Physical Monitoring
Chemical Monitoring
Biological Monitoring

Construction

2 Years

Operation

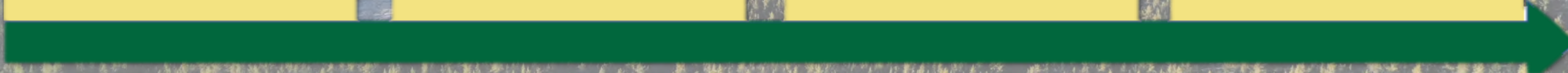
15 Years

Decommissioning

5 Years

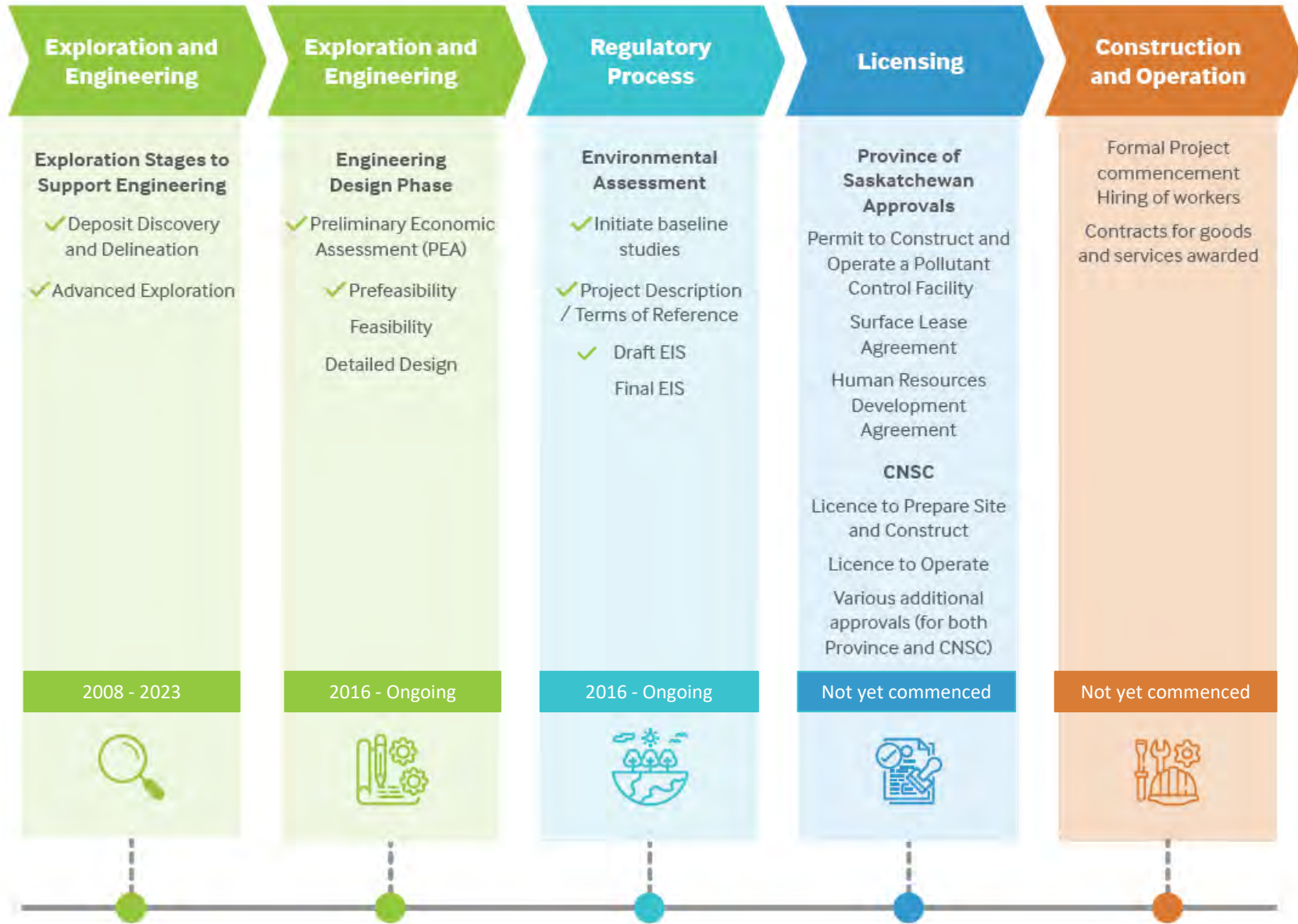
Post-
Decommissioning

15 Years



Mineral Development Process: Draft Environment Impact Statement

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Environmental Assessment: Approach and Methodology Overview

ROC 976



Project Components

Environmental
Baseline

Mitigation

Potential to Change
Baseline
Environmental
Conditions

Monitor



Environmental Assessment: Project Valued Components

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Human Environment

- Economy

Economics

- Cultural Expression
- Community Well-being
- Infrastructure & Services

Quality
of Life

- Indigenous Land & Resource Use
- Other Land & Resource Use
- Heritage Resources

Land and
Resource Use

- Human Health
- Worker Health

Human
Health

Physical Environment

Atmospheric and
Acoustic Environment

- Air Quality
- Noise

Geology and
Groundwater

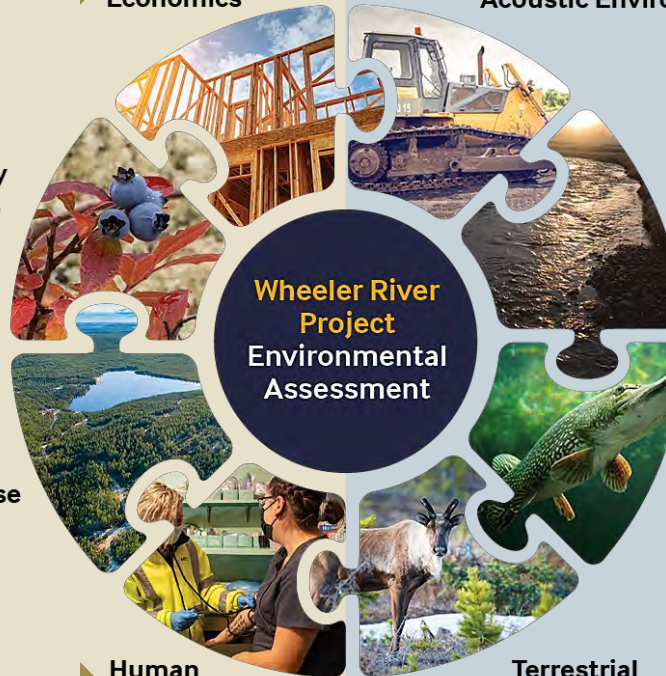
- Geology
- Groundwater Quality
- Groundwater Quantity

Aquatic
Environment

- Surface Water Quantity
- Surface Water Quality
- Sediment Quality
- Benthic Invertebrates
- Fish & Fish Habitat
- Fish Health

Terrestrial
Environment

-Terrain	-Ungulates
-Soil	-Furbearers
-Organic Matter/Peat	-Woodland Caribou
-Vegetation & Ecosystems	-Raptors
-Wetlands	-Migratory Breeding Birds
-Listed Plant Species	-Bird Species at Risk



From: [Carolanne Inglis-McQuay](#)
To: [Patricia McCunn-Miller](#)
Subject: Follow Up to Meeting between PBCN and Denison on September 20, 2023
Date: Tuesday, October 10, 2023 11:15:00 AM
Attachments: [20230920-WRE PRES DEN PBCN Overview.pdf](#)
[20230920-F-MeetingNotes.pdf](#)
[20230920-WRE PRES DEN PBCN EISComments.pdf](#)
Importance: High

Hi Patti,

We are following up on our recent meeting with PBCN in Saskatoon on September 20, 2023. We think the meeting was a productive opportunity for Denison and PBCN to learn more about one another and the Wheeler River Project. We appreciate Chief Bird and the Lands and Resources Committee making themselves available.

Enclosed is the presentation we had prepared to address the concerns raised by PBCN in its submission on the draft EIS. Unfortunately we weren't able to get to the presentation during our meeting due to time constraints, but we did have an opportunity to discuss several of the issues as part of Kevin's overview presentation (also attached to this email). This included discussion of Denison's relatively limited water use from Whitefish Lake, and the expected extent of predicted impacts resulting from treated effluent from Project operations. It also included some discussion of potential contracting opportunities at the Project.

I have also enclosed the presentation we provided at the meeting. For file size, I've removed the video links embedded in the videos, but have put the link to our videos here – which your team may find useful. <https://denisonmines.com/investors/videos/>

There were a number of questions regarding the location and footprint of the Project site. We think it may help to clarify that the treated mine effluent is expected to have negligible impacts at the outlet of Whitefish Lake (approximately 4 km downstream from the location of the treated effluent discharge location), which would then have to travel around 900 km further downstream to reach Southend, which we understand from PBCN is the PBCN community which was expressed as being of most interest in relation to this area of concern. This type of information can be found in section 8 of the draft EIS, of which we believe you have a copy of. If you do not, please let me know and we can facilitate sharing that document for you.

I have also attached meeting notes which summarize the general discussions undertaken during the meeting, from our perspective. Please do let us know if there are any varying perspectives on the meeting notes from your team.

We have noted PBCN's concerns raised during the meeting regarding the transparency around and communication of monitoring results for the Project. This issue is not addressed in the attached presentation as it was raised during the meeting. During the meeting we explained that the monitoring results in relation to the Project (water quality, air quality, radiation, etc.) will be required to be reported to both the Federal and Provincial regulators on a regular basis (such as quarterly and / or annually). In particular, Denison will be required to meet the CNSC's expectations with respect

to public disclosure; a copy of Denison's subsequent Public Disclosure Protocol will be publicly available once Denison completes the licensing process(es).

During the meeting, we discussed next steps in the regulatory process for the Project. Denison is in the process of responding to comments made on the draft EIS and is preparing to submit a table of comments, responses, and the status of each issue to the regulators this fall. Our hope is to identify for the regulator where our responses have satisfied PBCN's concerns.

We appreciated the overview Marg provided regarding the various processes that PBCN has in place for working with those proposing industrial projects. We understand PBCN's interest in the Project, and remain interested in learning more about the potential for the Project to impact PBCN land uses and rights and/or PBCN's interests in the Project area. We understand that Ted Merasty was going to provide further information on this during our meeting, but was unable to attend due to illness.

We hope the enclosed information assists with PBCN's further understanding about the Project. We look forward to discussing further once the PBCN team has had a chance to review.

Sincerely,
Carolanne

Carolanne Inglis-McQuay

Director, Corporate Social Responsibility

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345 4th Avenue South
Saskatoon, SK, Canada, S7K 1N3



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Denison Mines – Open House
Pinehouse Lake
October 24, 2023

Denison Mines

- Stephanie Lukowski
- Janna Switzer
- Chad Sorba
- Carolanne Inglis-McQuay
- CNSC and Province in attendance

~48 Community Members in attendance.

5:28pm Opening Prayer

5:50pm Opening Remarks

- **KML:** We have a group of Pinehouse people who are in direct contact and conversations with Denison Mines
- **KML:** Capacity funding allows our community to learn about the process of teaching – succession planning.
- **DEN:** Purpose of Open house- Supper, information about wheeler river project, information on the regulatory process.
- Presentation: Project Overview & Project Update
 - Vince Natomagan translated to cree.

Discussion

- **KML:** Millisieverts per year?
 - **DEN:** Worker exposure (ie drillers) about 11 millisieverts
- **KML:** What do you use for backfilling?
 - **DEN:** Where ore is removed there is no need to backfill. When mining is complete, the wells will be filled with grout or cement.

Door Prizes

Adjourned 7:00 PM



MEETING AGENDA

Northern Village of Pinehouse

Date: October 24th, 2023

Time: 5:00 PM

Facilitator: Walter Smith

Time	Item	Owner
5:00 PM	Doors open/ Welcome	Walter Smith
5:30 PM	Supper	N/A
6:00 PM	Introductions	Walter Smith
6:10 PM	Denison Mines Presentation	Denison Mines
6:40 PM	CNSC Presentation	Canadian Nuclear Safety Commission
7:00 PM	Questions	Walter Smith
7:30 PM	Meeting Adjourned	N/A

Wheeler River Presentation

Overview - Update
Licensing - Permitting

Lenison Mines

Agenda

Project Overview & Project Update

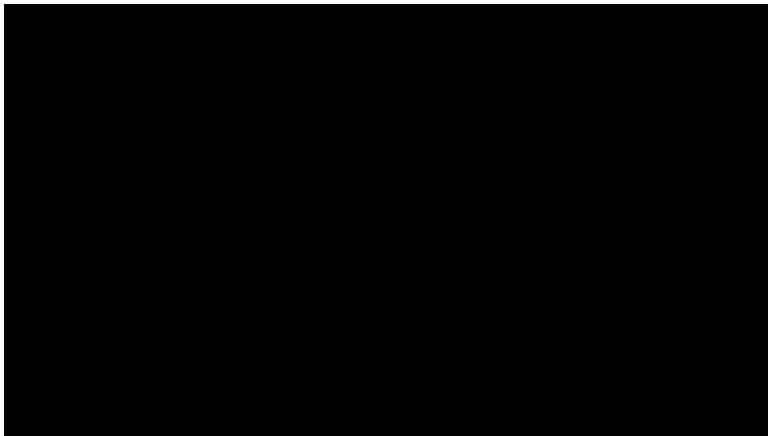
- Overview
- Project Components
- ISR Overview
- Project Stage

Licensing & Permitting

- Land & Land Use Activities
- Surface & Groundwater
- Wildlife
- Business & Work Opportunities
- Commitments

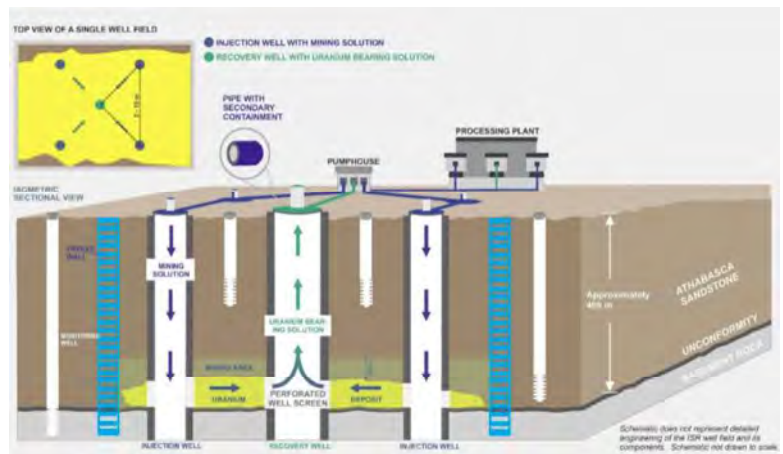
Video

Overview



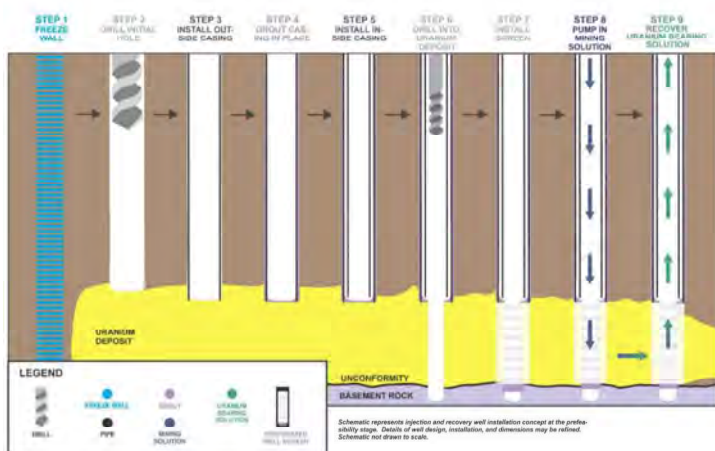
Wellfield

Project Components



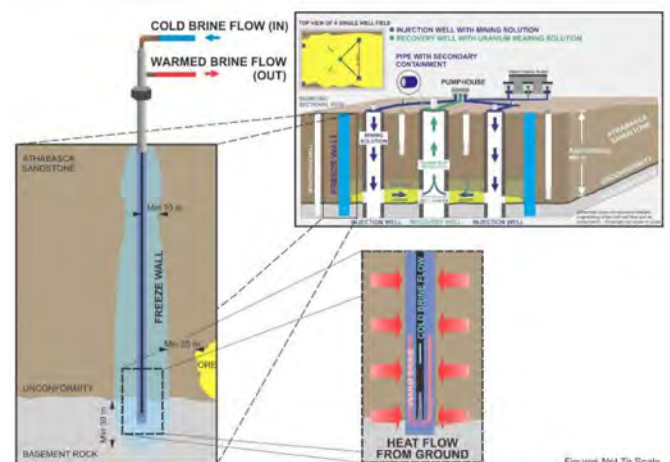
Wellfield & Freeze Wall Installation

Project Components



Freeze Wall

Project Components



ISR Overview

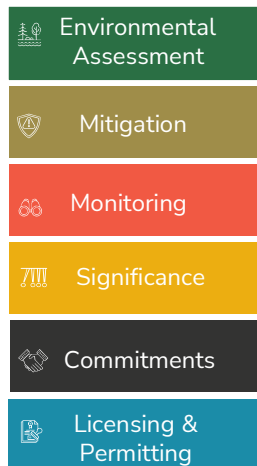


Project Stage



Guidance Materials

Licensing & Permitting



Environmental Assessment & Licensing can be complicated. Let's go over some information to help.



Over the years, we have heard that this is important to you.

"What is the long-term impact to the land?"

"I will consume the animals from my trapline, but there are fewer around than in the past."

"I fish in the area around Wheeler River."

"I might eat some berries while I am walking around."

"I am concerned about traditional land users and wildlife interruption."

"Will hunters and land users be restricted from accessing the area?"

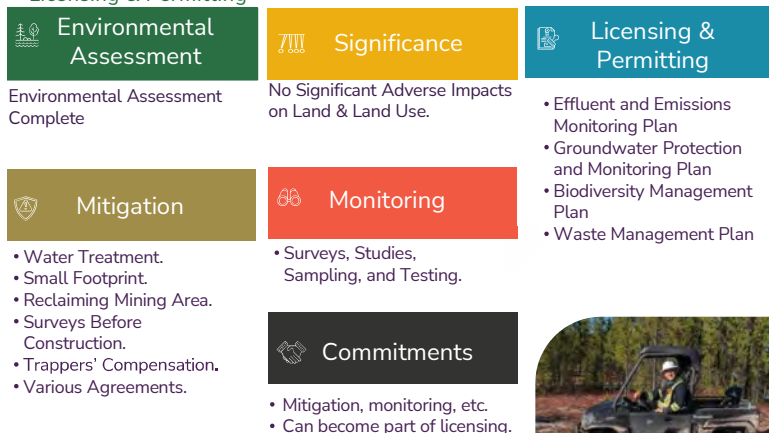
"Our ancestors have lived on our Traditional Territory since time immemorial."

"There are cultural sites and artifacts left throughout the region."

Land & Land Use Activities

Land & Land Use Activities

Licensing & Permitting



Over the years, we have heard that this is important to you.

"All animals are affected by water quality."

"What happens with groundwater monitoring once the mining is done, and the freeze wall comes out?"

"Will you be treating the discharged water?"

"I swim in many different lakes."

"Will the freeze wall affect groundwater?"

"How will you protect the water quality?"








"What happens when the freeze wall melts? Will there be monitoring of groundwater during this?"

"Is there any chance of the wells blowing and contaminating the ground around it?"

Surface & Groundwater

Surface & Groundwater

Licensing & Permitting

 Environmental Assessment Environmental Assessment Complete.	 Monitoring <ul style="list-style-type: none"> • Water Testing Before Release • Well Monitoring System • Pipeline Monitoring • Air testing. • Ground Sampling/Testing. 	 Licensing & Permitting <ul style="list-style-type: none"> • Waste Management Plan • Effluent and Emissions Monitoring Plan • Groundwater Protection and Monitoring Plan • Environmental Code of Practice
 Mitigation <ul style="list-style-type: none"> • Reducing Freshwater Use. • Water Treatment • Recycling Contact Water • Containment • Freeze Wall 	 Commitments <ul style="list-style-type: none"> • Mitigation, monitoring, etc. • Can become part of licensing. 	
 Significance No Significant Adverse Impacts on Surface Water & Groundwater.		

Over the years, we have heard that this is important to you.

"Moose is what is in my freezer. Will the Project interrupt harvesting moose? Will I still be able to safely eat moose that I harvest?"

"Will construction and operation harm moose and caribou populations."










"A lot of people live off the land; will the Project damage the animals?"

"Would the chemicals being transported possibly harm wildlife?"

Wildlife

Wildlife

Licensing & Permitting

 Environmental Assessment Environmental Assessment Complete.	 Significance No Significant Adverse Impacts on Land & Land Use.	 Licensing & Permitting <ul style="list-style-type: none"> • Environment Monitoring Plan • Biodiversity Management Plan • Waste Management Program • Facility and Equipment Management Program
 Mitigation <ul style="list-style-type: none"> • Small Footprint • Staff Education • Recording Wildlife Observations. • Ongoing Reclamation • Habitat Surveys • No Vegetation Clearing During Denning & Calving • Speed Limits 	 Monitoring <ul style="list-style-type: none"> • Wildlife Population Studies/Testing • Fish Population Surveys/Testing • Vegetation Sampling /Testing 	
 Mitigation 	 Commitments <ul style="list-style-type: none"> • Mitigation, monitoring, etc.. • Can become part of licensing. 	

Over the years, we have heard that this is important to you.

"Seasonal workers need more opportunities. This will show us that you care."

"What are the economic opportunities? A new and smaller scale mining method can reduce jobs for the community. We need to learn about this kind of mining."

"What is your plan for training and for young people?"

"For this new mining method, are there different types of jobs we should train for?"

"We have been promised jobs in the past, but those promises were not kept. I'd like to see this change. "

"Will you give site specific training, or training that is transferable?"

"When the mine eventually closes a lot of people are going to lose jobs."

"What kind of employment opportunities will we see with Denison?"

Business & Work Opportunities

Business & Work Opportunities

Licensing & Permitting

 Environmental Assessment Environmental Assessment Complete.	 Significance No Significant Adverse Impacts on Business/Work Opportunities. Local Northern Saskatchewan communities are expected to experience positive effects.	 Licensing & Permitting <ul style="list-style-type: none"> • Human Performance Program (Human Resource Development Plan) • Training Management Program • Surface Lease Agreement
 Mitigation <ul style="list-style-type: none"> • Buying Northern Goods. • Hiring & Training Locals, when possible. 	 Monitoring <ul style="list-style-type: none"> • Reporting on employment and business efforts. 	
 Mitigation 	 Commitments <ul style="list-style-type: none"> • Mitigation, monitoring, etc. • Can become part of licensing. 	

Licensing and Permitting

Commitments

			
<ul style="list-style-type: none"> • Develop a Draft Caribou Management Plan with the Ministry of Environment. • Survey before disturbance to inform species specific mitigation. • Monitoring to ensure engineering designs are being met. • Wellfield surface pipes will have secondary containment and a leak detection system. • In ground mining solution and UBS will have three layers of protection. 	<ul style="list-style-type: none"> • Liners (such as those used for the industrial wastewater treatment plant precipitate pond, hazardous waste storage pad, and effluent monitoring and release ponds) will be designed based on materials being stored. Performance monitoring will be in place. • Above ground, double walled, fuel storage tanks. • Adjusting and developing mitigation measures as needed, as part of an adaptive management process. 	<ul style="list-style-type: none"> • Hazardous substances managed appropriately. Procedures for spill management, handling, and cleanup located in accessible location. • Fresh water wells and surface water intake specifics developed according to best practice and applicable standards. • Treated effluent discharge adhere to approvals and regulations to protect wildlife and water. • Speed limits to reduce dust and protect wildlife. 	



Wheeler River

VCs: Ground, Terrain and Soil

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Environmental Assessment Considerations

- Land stability
- Soil quantity, quality and nutrients

Potential Effects

- Activities that could impact land stability, surface drainage patterns, surface erosion potential, soil quality, and soil quantity:
- Clearing, grading, and construction
- Unexpected spills, leaks
- Release of water to groundwater and/or surface water bodies

Reclamation of disturbed areas may result in similar Project-related effects, but to a lesser extent.

Mitigation Measures

- Limit the area of disturbance
- Construction strategies to eliminate or reduce impacts
- Use of existing clearings and previously disturbed land
- Reusing disturbed sources of soil nutrients, generated during construction, for the reclamation process
- Installation of sediment/erosion controls and surface water management features
- Monitoring of open-source dust associated with major earthworks and equipment travel
- Fuel Management and Spill Control Plan in place to respond to unexpected leaks, spills, and releases of materials
- Wherever possible, progressive reclamation will be conducted throughout the life of the Project in relation to landscape features (slope, aspect) and surface drainage patterns

Conclusions

- Effects are anticipated to be:
- Low magnitude—within range of natural variations
- Local—limited to areas disturbed by the project
- Medium term—up to, but not including post-decommissioning
- Not significant—residual effects are not expected to alter VCs integrity and sustainability nor their availability to contribute to the environment

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Information provided as of May, 2022

Wheeler River

VCs: Wildlife and Birds

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Environmental Assessment Considerations

- Populations and health of wildlife including:
- Ungulates: Moose, Woodland Caribou
- Furbearers: Wolverine, Mink, Muskrat
- Birds: Bald Eagle, Osprey, Common Nighthawk, Short-Eared Owl, Waterbirds, Game Birds, Songbirds, Yellow Rail, Rusty Blackbird, Olive-Sided Flycatcher

Potential Effects

- Activities that could reduce or disturb species of wildlife, birds, or habitats include:
- Vehicles, equipment, and aircraft traffic
- Dust
- Human presence
- Collisions with equipment and vehicles
- Entrapment in facilities
- Exposure to substances in dust
- Release of Project-related treated effluent
- Spills of hazardous materials
- More efficient hunter, trapper, and predator access to the Project area via new access routes

Changes to surface water quality could affect wildlife habitat and health from water management practices.

Decommissioning of Project site may result in a continued alteration of wildlife habitat and/or mortality from vehicle-wildlife collisions.

Mitigation Measures—Wildlife Management Plan

- Limit the area of disturbance
- Use of existing clearings and previously disturbed land
- Site clearing scheduled to avoid times when animal and birds are denning, nesting, breeding
- Nesting surveys conducted before clearing to identify and establish measures to protect dens, burrows, lodges, nests, and other habitat
- Measure and practices to reduce the generation of dust
- Secondary containment of tanks and pipelines to contain accidental leaks and spills
- Implementation of Fuel Management and Spill Control Plan
- Fencing and monitoring contaminated areas—waste ponds and pools, landfills
- Implementation of Woodland Caribou Management Plan
- Employees trained to minimize their impact on wildlife, such as no littering, respect for wildlife, etc.
- Implementation of speed limits to reduce risk of collisions with wildlife
- Waste and hazardous materials collected and temporarily stored in wildlife-proof containers

Conclusions

- Effects are anticipated to be:
- Low magnitude—risk of mortality within range of natural variations
- Regional effect on habitat loss—limited to Project area
- Local effect on mortality—direct mortality within Project area from vehicle-wildlife collisions, but indirect mortality could extend beyond Project area
- Medium term for long-term—highest loss of habitat and mortality vehicle-wildlife collisions expected during construction and operation, but may continue during other phases of the project
- Medium to long term for furbearers, raptors and at-risk bird species—loss of habitat and mortality vehicle-wildlife collisions expected during construction and operation
- Long term—wasteful effects not expected to alter habitat integrity nor wildlife and bird regional populations sustainability

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VC: Aquatic Environment

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Environmental Assessment Considerations

- Fish habitat availability and distribution
- Fish survival and reproduction
- Surface water levels and flow
- Concentration of chemicals and metals in surface water
- Concentration of chemical and metals in aquatic sediments
- Distribution and survival of snails, worms, dragonfly larvae, and other benthic invertebrates

Potential Effects

- Activities that could reduce or disturb aquatic environments, species, or habitats:
- Modification of fish habitat from disturbances around surface water
- Erosion and transport of sediments into surface water
- Water withdrawal from Whitefish Lake
- Releasing effluent to Whitefish Lake
- Water management could result in changes to water quality affecting fish, fish habitat, and benthic invertebrates
- Water management could alter stream flow or lake levels required for fish mobility and productivity
- Reclamation of disturbed areas could increase sediments in water and change fish habitat

Mitigation Measures

- Limiting duration of in-water working: conducting work during low-flow periods, and conducting work away from flows when possible
- Avoiding activities in windy or rainy conditions to limit erosion and sedimentation
- Plan activities in waterbodies to limit loss or disturbance to aquatic and sensitive habitat
- Limit shoreline degradation when operating machinery
- Stabilize shorelines to limit erosion and sedimentation by limiting clearing of vegetation and revegetating with native species, wherever possible
- Maintaining routes used for fish passage by designing water intake and treated water discharge locations to protect fish, fish movements, and fish habitats
- Planning to avoid chemicals entering waterways during near-water work
- Implementing an Erosion and Sediment Control Plan

Conclusions

- Effects are anticipated to be:
- Low magnitude—no loss of habitat and fish population
- Local—limited to Project area
- Long term for habitat availability—throughout construction and operation
- Short term for habitat distribution—fish movement protected throughout life of the project
- Not significant—residual effects not expected to alter local fish populations

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Wheeler River

VC: Relationship to the Land

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Environmental Assessment Considerations

- Resources availability
- Land availability
- Suitability of land and resources

Potential Effects

- The presence of the project and its activities may result in changes to:
- Water, vegetation, fish, and wildlife
- Access to the area
- Land area available
- Noise level, traffic, dust, and other disturbances associated with Project activities
- Quality of the experience using resources
- Opportunities for Indigenous land use activities
- Opportunities for non-Indigenous land use

Mitigation Measures

- Implementation of measures to protect plants, fish, and wildlife
- Limit the area of disturbance
- Use of noise reducing equipment
- Reduce dust and air emissions
- Enforce speed limits for traffic
- Implement radiological clearance of equipment before exiting Project site
- Implement progressive reclamation of disturbed areas
- Establish community agreements
- Establish trappers' compensation
- Implement Indigenous People's Policy, including ongoing communication with Indigenous Communities of Interest

Conclusions

- Effects are anticipated to be:
- Low magnitude—no loss of habitat and fish population
- Local—Project area (in and around the local and regional study area)
- Long term—until reclamation is complete
- Not significant—continuous in frequency, low in impact, and fully reversible following decommissioning

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Wheeler River

VCs: Community, Culture and Economy

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Environmental Assessment Considerations

- Populations, traffic, community infrastructure and services
- Income, employment, training, government revenues, business opportunities
- Community cohesion and traditional economy
- Employment and training (generally delivered through institutions connected to northern Saskatchewan)

Potential Effects

- Activities that could interact with community, culture, and economy:
- Population numbers and population characteristics
- Up to 300 jobs created during construction and more than 100 direct and contract roles during the operation phase
- Supervisory, trades, professional, technical, and foundational (entry level) positions available during operations
- Availability and increased opportunities for business and training
- Participation in traditional economic activities
- Abscense of Traffic
- Increased demand on community infrastructure and services

Mitigation Measures

- Implementation of agreements with communities (support)
- Prioritize Indigenous and non-Indigenous Communities of Interest (employment, training, and business, wherever possible)
- Implement procurement approach focused on communities
- Implementation of education and other support services for workers and in some cases their families
- Planned pick-up points in alignment with employment practices
- Implementation of Emergency Response Plan

Conclusions

- Effects on community well-being, infrastructure, services and economy are currently being assessed, and are anticipated to be:
- Minimal adverse and/or positive
- Low to moderate magnitude—during construction and operation, and low during reclamation
- Local—primarily in the Project area
- Short to medium—based on Project phases
- Not significant—continuous in frequency, moderate in context, and fully reversible following decommissioning

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Wheeler River

Risk Assessment

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To evaluate and understand if people, plants, and animals will be exposed to substances at amounts above what is known to be safe after the planned mitigation measures have been applied.

It incorporates the movement of substances through the food chain as well as direct exposure to substances (soil, air, water, etc.) to appropriately capture risk.

Human Health Risk Assessment

People who access the project site are considered in the risk assessment. They include:

- Camp workers
- Seasonal resident/edge operator—seasonal access
- People fishing/hunting/trapping/gathering fireweed/picking berries—traditional and recreational access
- Neighbouring residents fishing/hunting/trapping
- Future permanent residents—access to Project site after its decommissioning

Assessment Results and Mitigation

- Low overall health risk to people using the area
- Expected radiation doses to people below public dose limit
- Low risk of exposure of people to metals in the environment (below benchmarks for metals)
- Ongoing monitoring during all Project phases

Ecological Risk Assessment

Considers ecological receptors such as:

- Terrestrial Mammals—Woodland Caribou, hare, moose, black bear, lynx, etc.
- Riparian Mammals—Muskrat, mink
- Terrestrial Birds—Bald eagle, robin, Canada goose, etc.
- Riparian Birds—Mallard, loon
- Fish—Northern pike, white sucker
- Aquatic Invertebrates—Zooplankton, benthic invertebrates
- Terrestrial Vegetation—Lichen, Blueberry, Labrador tea
- Aquatic Vegetation—Phytoplankton, Macrophyte

These can be exposed to substances through direct exposure in water, sediment, soil, air or through the food chain.

Assessment Results and Mitigation

- Low overall health risk to animals, plants, and invertebrates
- Expected radiation doses to ecological receptors below benchmarks
- No risk of exposure to ecological receptors to non-radionuclides hazards
- Ongoing monitoring during all Project phases

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Information provided as of May, 2022

Wheeler River Project People

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At the Wheeler River Project site, we strive to employ as many Northerners as possible. We also strive to hire most of the contractors and services we need from northern and Indigenous people owned businesses. Here are some of the people who have been on site in the past few years; some have moved on while others continue to help advance the Project.



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Information provided as of May, 2022

Wheeler River Building Relationships

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Denison and the Wheeler River Project team are committed to meaningful engagement with Indigenous people, communities, residents, and organizations with an interest in our Project.

TALKING together. LISTENING to you. RESPONDING to explain.

Engagement With Indigenous and Non-Indigenous Communities of Interest

- English River First Nation
- Kinship Mine Local 30 (Ponchoal)
- Mists Nation - Saskatchewan
- A La Bale Mine Local 31 (Weila Cross)
- Spotted Mine Local 37 (Brewster)
- Patuxent Mine Local 82 (Patuxent)
- Northern Hamlet of Patawask
- Northern Village of Patawask
- Northern Village of La La Cross
- Northern Village of Beauval

Other communities, organizations and groups of interest:

- Lac la Ponge Indian Band
- Birch Narrows Dene Nation
- Buffalo River Dene Nation
- Hatcher Lake First Nation
- Black Lake First Nation
- Fond du Lac First Nation
- Hatcher Lake First Nation
- Yath'Néni Land and Resource Office
- Prince Albert Grand Council
- Meadow Lake Tribal Council
- Commercial Trappers
- Commercial Fishers
- Commercial Lodgers
- Cabin and lease owners

Thank You, Bobby John

Bobby John lived, trapped, fished and hunted in the Wheeler River Project area long before Denison and its predecessors started exploring the site. Over the years, Bobby John became someone our Project team relied on for insight on the area, for feedback on the Project proposal, for help with tracking wildlife and for assistance for our field teams, cutting through the bush and more. We will not forget Bobby John's contributions.

Since 2016 and every year after, Denison has met with community members and leadership through workshops, site tours, public meetings, and even virtual community meetings to hear concerns, receive knowledge and input, and share Project information. Subjects of workshops and meetings have included:

- Wheeler River Project components:
 - Access road
 - Treated water left/land discharge location
 - Mining method
 - Design change to freezing containment method
- Environmental considerations:
 - Water bodies - fishing
 - Fish habitat
 - Species at risk
 - Land disturbance

Our Support of Communities

Denison's support of communities can take various forms:

- Donations to community organizations
- Sponsorships of community events
- Sponsorships of in-kind support of education and field trips
- Direct agreements with specific Indigenous communities

Here are some examples of Denison's support in 2021:

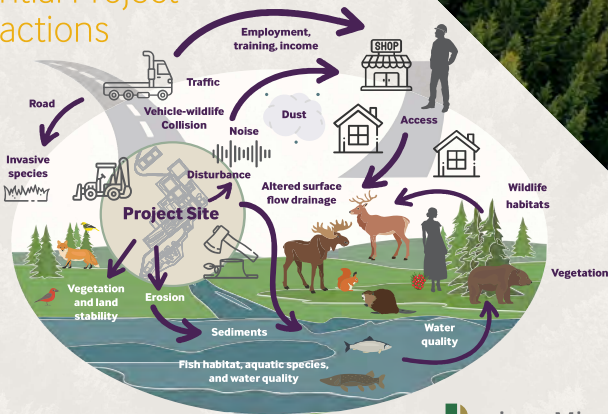
- Entered into an Exploration Agreement with English River First Nation
- Hatcher Lake First Nation Region 3 South Day Gathering
- Hatcher Lake First Nation and their market garden initiative
- Hatcher Lake hockey tournament
- Improvements to the English River First Nation Culture Camp at the Meadow Lake Reserve at 160km
- Many Christmas initiatives in the region, including those in Beauval, La La Cross, and the Hamlet of Patawask

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Information provided as of May, 2022

Wheeler River Potential Project Interactions

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Wheeler River Project – Denison Mines

mâci masinahamihk okâwiymâw askiy mêskopicikêwin wihtamasinahkan kâ-wî-itôtamihk atoskêwin

anima Wheeler River atoskêwin(anima atoskêwin) anima Denison itascikêwin êkota situ miskêwin (ISR) kaskatêw asiniy wâtihkêwin êkwa osihcikêwin misi-wikamik:

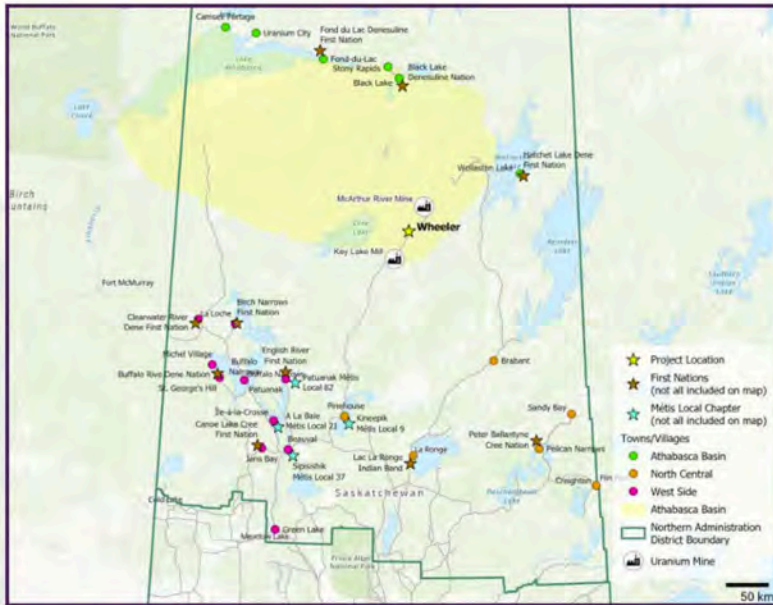
- tânitê: kîwîtinohk Saskatchewan, kanâta
- atoskêwin kîkwaya êkwa itôtamowina: anima tâwayihk atoskêwin kîkwaya anihi ISR wâtihkêwin êkwa anima osihcikêwin misi-wikamik. sihtoskamihk misi-atoskêwin kîkwaya êkwa itôtamôwina astêwa kîkwaya osci wêpinikêwina, nipiy pimipayicikana, wâskwatawêpicikana, êkwa pimitâpâsowin, tâskoc tôhêwina, sâkahikanisa, wikamikwa, mêskanawa, êkwa pimihâkan mêskanaw.
- pihcâyihk: kanâtahk nipiy, nanâtohk âpoya (osci wâtihkêwin, kaskatêw asiniy osihcikêwin, nipiy kanâcihcikêwin), wâskwatawêwin êkwa pimiy.
- wayawê itôtamowina: wêpinikêwin (askiwiya, kanâti asiniy wêpinikêwina, pîtosî wêpinikêwin asiniy (wâtihkêwin askiy), cîki wêpinikêwin, misi wêpinikêwin, sâpipêwina ohci osihcikêwin wikamik êkwa nipiy kanâcihcikêwin, mîsêw âpoy) îhîwina mîna pêwâpisk kaskâpahtêwina (GHGs) kisêwêwin, êkwa kanâcihtâhk nipiy kâ-sîkipitamihk nipîhk.
- kîkway osihtâhk: U3O8 ahpô osâwi-wîhkikasikan. anima kîkway Denison atâwâkêcik apacihcikâtêw isi pimiy êkota kaskatêwi asiniy wikamikohk, sihtoskamihk okâwiymâw askiy itôtamowin ka-nîkipitamihk GHG kaskâpahtêwina.
- atoskêwin: nântaw 300 atoskêwiyniwak kâ-osihtâhk êkwa 180 ikospê atoskêwin. anima pimipayicikêwin ka-pihci-pimihâwak êkwa wayawê-pimihâwak atoskêwin.
- atoskêwin ispayik, 5 askiy osci pônihkamihk, êkwa 15 askiya osci kîsihtâhki-pônihkamihk ispayihowina.

anima okâwiymâw askiy kinwâpahcikêwin (EA) kâ-masinahikâtêk ôta okâwiymâw askiy mêskopicitamihk wihtamâkêwin (EIS) kinwâpahcikâtêw êkwa nanisihkâc, askôhamihk itôtamowin ka-kinwâpahtamihk atoskêwina tâskoc mêskocipayinwa. Kakwê osihtâhk kanawêyicikêwin EA masinahamihk, ahpô ayiwâk pihci, anima nistohtamowin misi-atoskêwin osihcikêwina. Tâskoc, anima tipêyaw nakatamowin osci osihcikêwak masinahikêwina nântaw 75 ha, mâka anima EIS itêhtamwak anima atoskêwin mêskocipayiwin cîki 170 ha. pêyakwan, tahto askiy osihcikêwin osci osihcikêwak osihtâwin anima 6 Mlbs U3O8 tahto askiy iskohk 10 askiya, mâka EIS itêhtamwak osihtâwin 9 Mlbs U3O8 tahto askiy isi 15 askiya, mîna mistahi itôtamowin iskohk 12 Mlbs U3O8 askiy osci itôtamowin waskawêwin. Itastêw, tâskoc, anima EIS kinwâpahtamwak pihcâyihk nitawêhtamihk êkwa wayawêwina osihtâhk tahtwâ askiy 50% ayiwâk kâ-itêhtamihk.

kîkwaya kâ-astêki kâ-kîsi kanâcihtâhk ikospê pihkaw osci askiy ê-kîskatahikâtêk, ayiwâk ayisîniwak ê-pimitâpâsocik, kaskâpahtêw, wêpinikêwina, êkwa nipiy pimipayicikêwin. Kîkway kâ-ispayiki kinwâpahcikâtêwa êkwa itasiwâtamihk anihi EIS anima atoskêwin kâ-kî-osihcikâtêw, pimipayicikâtêw, êkwa pônî-apacihcikâtêw ikospê misi-wikamikwa êta kâ-wîkicik miywâsinwa êkwa ahkami apacihcikâtêwa, kinosêwak êkwa pisiskiwak miywâyâwak, ayisîniw miywâyâwin kanawêyicikâtêw, astêwa kîkway ka-apacihcikâtêw askiy, tâskoc iyiniw pakitinikowisowina, êkwa ahakami kiyohkêwin êkwa sônîyahkêwin. Anima EIS itasinahikâtêw kwayisk itôtamowina, kinwâpahcikêwina, êkwa asotamâkêwina osci Denison ka-ayâcik sohkêyimowin anima atoskêwin ê-pimipayik êkwa ispayihowin osci atoskêwin osihtâwin, pimipayicikêwin, pônî-apacihcikâtêk astêwa êkota ahpô apisîs itêhtamowina ispayihowina.

misawê, ôma atoskêwin itêhtâkwan kwayisk ta-ispayik askîhk pihci kotakwa wâtihkêwina. pihkaw osci, anima ISR wâtihkêwin itôtamowin, anima atoskêwin astêwa namôya mistahi kîkway ê-nakacikâtêki kâ-kîsi-kanâcihtâhk pihci kotakwa wâtihkêwina ahpô atâmihk askîhk wâtihkêwina êkwa kotakwa itôtamowina.

mistêhtâkwan, Denison pâ-pîkiskwâtêwak iyiniwak êkwa kotakwa atoskêwikamikwa, ayisîniwak, êkwa kanawêyicikêwak ikospê 2016. Mâmawi itôtamowin isi pîkiskwêwin êkwa yahtohtahikêwin osci anima atoskêwin wihtamwak ôki ayisîniwak ka-miyo-ispayiki atoskêwina êkwa anihi EA nanâtohk êsi. Denison wâpahtamwak anima EIS tâskoc mistêhtâkwahk wiycikêwin kîkway ka-sihtoskamihk nîkânihk itôtamowina êkwa pîkiskwêstamwak pêyak itôtamowin êkota kâ-ayimahk EA, masinahikêwin, êkwa pakitinamihk kaskatêwi asiniy wâtihkêwin wikamik êkota kanâta.



tântê

anima Wheeler River atoskêwin
astêw êkotî kîwîtinohk
Saskatchewan êkota Athabasca
kapâwin.

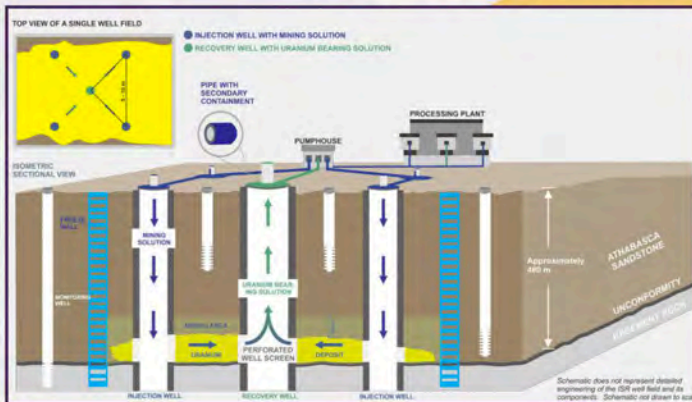
atoskêwin kâ-êsi nakatamihk

animi kihci atoskêwin
apacihcikana astêwa êkota situ
kâwi-miskamihk wâtihkêwin
êkwa osihtâwin wikamik.

êkota SITU kâwi-miskamihk

êkota situ kâwi-miskamihk apacihcikâtêw kisitêk
âpoy ka-otinamihk kaskatêwi asiniya osci askîhk
isi cîstamihk êkwa kâwi mônahipâna. Anima
osihtâwin wikamik astêwa maskimota êkwa
apacihcikana ka-otinamihk kaskatêwi asiniy osci
situ kâwi-miskamihk isi osâwi wihkihasikan.

Denison ka-atâwâkêwak anima osâwi
wihkihasikan ka-apacihtâhk ka-sipwêpitamihk
wâskwatawêwikamikwa, sihtoskâtahkik
okâwiymâw askiy itôtamowina ka-nîkipitamihk
pihcupowi kaskâpahtêwina.



mistakihtêki apacihcikana & atoskêwina waskawêwina

Denison kinwâpahtwak kîkwaya,
isihkâtêki mistakihtêki ispayihowina osci
anima atoskêwin êyikoni kîkwaya.



Wheeler River Project – Denison Mines

Ēłóchëlë Nih Bazi t'áú nih besoídi ha si erit'is.

T'aghá Holnį si diri nih bazi nuhhel kodi hasj.

Diri Wheeler River – Denison Mines nih sēnolye ha si, t'au nih nághįna ha (situ) Yanathē tthe ghą nade ha si.

- Yathē nene diri Saskatchewan k'eyaghē ho?ą si Canada tth'i k'eyaghē.
- Diri t'au tu t'arat'į si senalye ha, t'a ghą nade si konųhełnį ha. Kon/tthe slįnį (Uranium) senalye seráde ha, tulu k'e ts'etai sēlye, yoh tth'i ts'etai sohúde ha. Beyets'et'ali neltła ha tth'i senuhut'a ha. T'a?u tu t'arat'į si (tu slįnį) sohulye ha. Diri t'a?u nih t'arat'į si senalye ha hodi sj.
- 'Senahulye de, tu nezų, tthe slįnį t'a?u senalye ha. Kon bēt'á asi hēt'ēl si, t'ēs tth'i ts'etai sēlye si."
- Ku diri halye ha si, t'áchaghē, tthe t'a bohełtaile si, t'a?u nih dałdhe nįsi, tu, tujērē-ú, tsą tue-ú, t'a?u tthe t'arat'į si tu hēl si, sēlye ha. Ku diri asi ghą nade t'a horehth'a si ya bazį tth'ú. T'a tu senalye si eyi tth'i hahodi.
- Diri tthe slįnį (uranium) łes ?ahot'į alye si bēt'á kon hołe, kon heltsi ha. Diri kon uranium t'a holį de, dēhth'agh hile snį.
- Diri nih Senahulye si bónįther de tononą (300) ts'etai sohulye ha si. Łononą- įłk'etoną tth'i Dene ēghádálana ha sj. Diri bónįther de beyets'et'ali t'arat'į ha.
- Diri t'a bēghą Eghalada ha si tóną-įłk'edįghį nene-ú, nake nene ts'etai sohúde ha-ú, sọlaghe nene t'a nuhut'ą si nanelye ha, Sọlaghe ts'adhel nene ts'etai senahulye ha.

Diri nih senahulye si horelyų net'į, nih-ú, ya-u t'áú besuwidi ha.

T'a?u nih ts'etai sēlye ha si, t'a Dene yēghą erit'is dałtsi hotié deza (engineering), erit'is nédhé bets'į deza, t'a?u nih hotié ts'etai ?alye ha.

Diri t'a?u aresį henį, nih nechozē ?atnį sj, įlaisdįghį nih hultsai anįtttha u, kuli horįchoze ?ats'edi sj, T'a ha seráde si tthe slįnį (uranium) halye ha hodi sj łonēną nene ha hodi. Ku diri t'a the slįnį halye hasi, sọlaghe ts'adhel nene tthe nezų halye ha henį. T'at'ú tthe įłk'etaghē limil (łonēną anelt'e) ?ajįdath henį, kuli lota limil tthe hilchu has henį. Kuli sọlaghe ts'ēdel nene anįtttha de nake ts'adhel limil ?ajįdath the hilchu hasi. Eyi t'a soloną (percent) ho?anelt'e tthe hilchu ha henį sj.

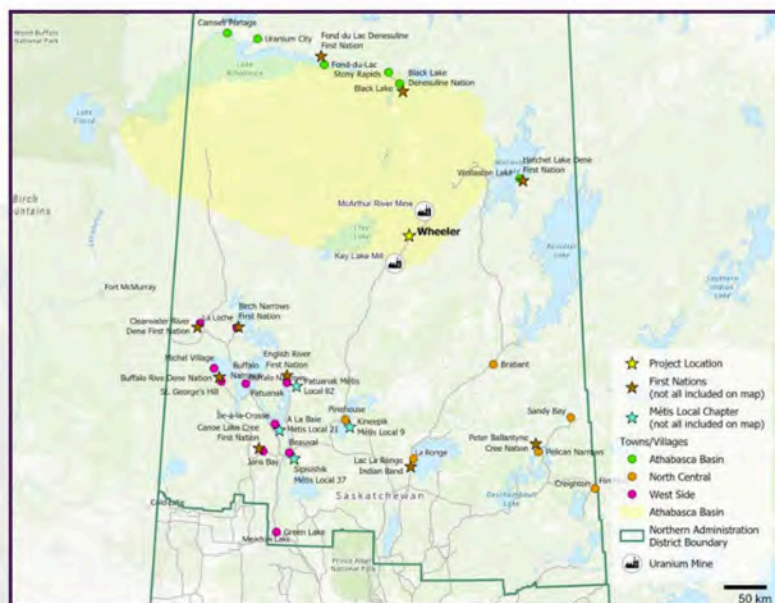
Diri bēt'á Eghalada si t'au nih ts'etai sēlye si, bēhchēnē tth'i la ha-ú, horetth'a t'au, asi?aldel tth'i ła-ú, tu t'a bēt'á Eghalada si besorįthēn ha la. ?atų nih, tu-ú, ya ts'en bo?ēłta hasą. Kuli yedołnį ha henį.

Diri bēghą Eghalada si, yēghą ēghadálghēna hoyaghē ts'etai sedáhúlye-ú, łue-ú, nųneshe, ēch'ērē, hotié besoídi ha, Dene t'a dąghēna. Denesųłine nih t'a dąghēna la, nuhhene theri ho?ą. Nih-u, tu-ú, ya-ú nuųha besudi ho?ą.

Diri t'a?u nih ghą ēghádálana si hotié bahodi, t'a?u erit'is holį si hotié déza, t'a?u ts'etai sohúde-ú, t'a?u ēghádálana-u, t'a?u nih senalye si hotié déza.

Diri t'aghą ēghádálana si hotié nih hodi ha henį, yanįzi t'a?u nih hesdohołts'į si konalyehaile dųų henį. T'a tthe nih-u, tu-u, ya-u bēt'á nezųle ni, dųų tthe slįnį si bēt'á nih-u, tu-u, ya-u hesedowełnį ha henį. T'a tthe nih horįcha nailts'el nį, nih yaghē tth'i dēgharē nih nárałts'ul nį – dųų kone haile henį.

Dųų de t'a benenē k'e ēghadálghēna si bedóghelįnį déza, hotié t'a ghą ēghadalaida si bełkoridi ho?ą 2016 hots'į. Diri t'a bēghą náide si t'a benenē si beł ho?ą. Nih hodi ho?ą, tu-u, ya-u boghedi ha. Diri t'a erit'is beł'azi (license) si, horelyų sohúde déza, diri Canada k'eyaghē tthe slįnį ghą naidi hade.



LOCATION

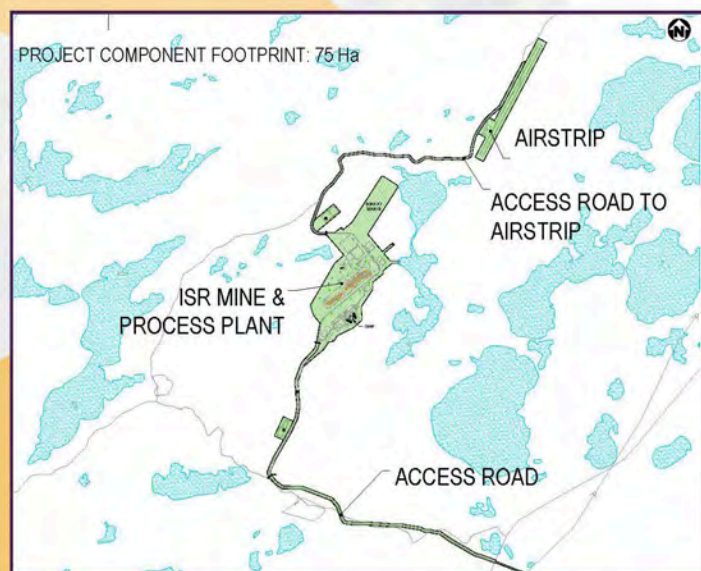
Ku diri k'eyaghē deht'is si t'a
ts'en ēghadālgheḥa hasi horet'ī –
Dene nenene k'e.

PROJECT FOOTPRINT

Diri t'a yet'a nih ghā nade has si
deht'is sj.

IN SITU RECOVERY

Diri tu het'el t'a tthe slīḡ hīlchu, horīcha horet'ī
la, t'at'u tthe sēralye si bēt'a les hoḷe. Ku eyer
hots'ī les bēghā nāḡ, horelyu nene k'e, t'a
horehtth'a ch'a hodoḷni sj. Eyi Ṗaraḡḡ
Greenhouse Emissions, diri nih k'e náide si
besoīdi ha.



VALUED COMPONENTS & PROJECT INTERACTIONS

T'aṗu nih besoīdi hasi Dene
yek'odarēlya haṡ.



Wheeler River Project – Denison Mines

Draft Environmental Impact Statement

Project Overview

The Wheeler River Project (the Project) is Denison's proposed in situ recovery (ISR) uranium mine and processing plant:

- Location: northern Saskatchewan, Canada.
- Project components and activities: the central Project components are the ISR 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: U_3O_8 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.

The environmental assessment (EA) outlined in this environmental impact statement (EIS) was transparent and conservative, following a standard, step-wise 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. Similarly, the annual production for current engineering design is 6 Mlbs U_3O_8 per year over 10 years, but the EIS assumed production of 9 Mlbs U_3O_8 per year over 15 years, with a peak production up to 12 Mlbs U_3O_8 in a given year to allow for operational flexibility. This means that, for example, the EIS assessed inputs needed and outputs generated on an annual basis as being 50% more than expected.

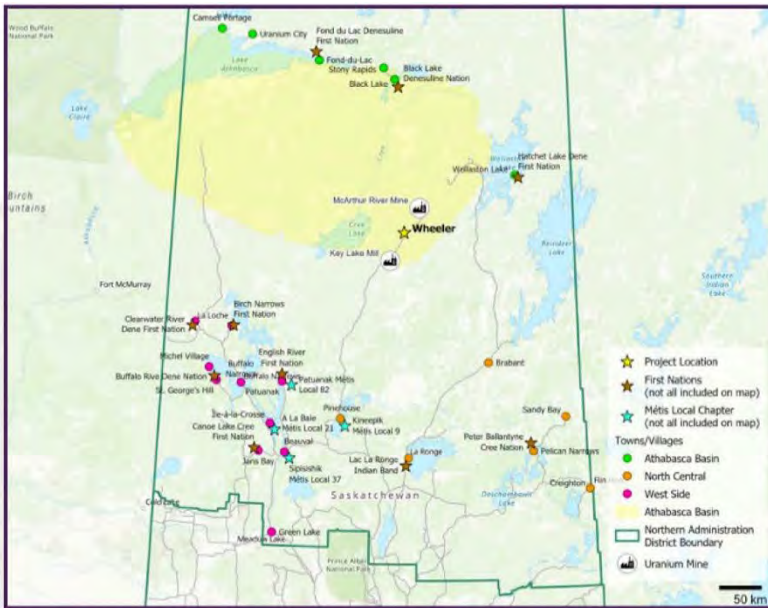
Residual effects remaining after mitigation were largely linked to land clearing, increases in traffic, emissions to air, waste generation, and water management. Residual effects were evaluated for 32 Valued Components (VCs) and significance determined for receptor VCs. The evaluations and conclusions 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.

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.

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.

LOCATION

The Wheeler River Project is located in northern Saskatchewan in the Athabasca Basin.

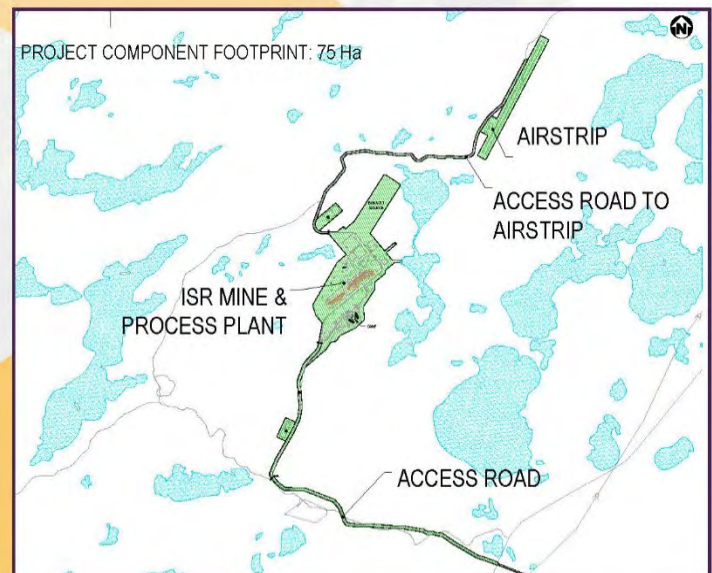


PROJECT FOOTPRINT

The main Project components are the in situ recovery mine and the processing plant.

IN SITU RECOVERY

In situ recovery uses an acidic solution to leach uranium ores from the ground through a series of injection and recovery wells. The processing plant houses the tanks and equipment to process the uranium recovered from in situ recovery into yellowcake. Denison will sell the yellowcake to the market for use in nuclear power plants, supporting global efforts to reduce greenhouse gas emissions.



VALUED COMPONENTS & PROJECT INTERACTIONS

Denison is assessing elements, called valued components, important to people or the environment, and the potential effects of the Project on these elements.



Open House

**Village of Pinehouse Lake
Pinehouse Village Hall**

Oct 24, 2023

5:00pm to 8:00pm

Wheeler River Project

Come to meet with Denison staff, to discuss the Project, to share a meal, and to get a chance to win great door prizes.



Information



Community Supper



Door Prizes

 **Denison Mines**

redefiningmining.ca | denisonmines.com

Open House

Village of Pinehouse Lake
Pinehouse Village Hall

Oct 24, 2023
5:00pm to 8:00pm

Powering
**PEOPLE, PARTNERSHIPS
AND PASSION**

Wheeler River Project

Come to meet with
Denison staff, to discuss
the Project, to share a
meal, and to get a chance
to win great door prizes.




Information



Community Supper



Door Prizes

 **Denison Mines**

Denison Mines – Land User Meeting
Pinehouse Lake
October 24, 2023 – 1pm to 3pm, Village Hall

Denison Mines

- Stephanie Lukowski
- Janna Switzer
- Chad Sorba
- Carolanne Inglis-McQuay
- CNSC and Province in Attendance

20 KML Members in attendance.

Welcome and introductions: Walter Smith

Opening prayer

Translator: Vince spoke in Cree- explained purpose of the presentations.

KML: How many freeze walls holes? How many holes need to be drilled? Recovery holes? Is that a large portion of the capital?

KML (Vince): When we're dealing with uranium and radiation is involved – what does your modeling look like when radiation hits the mine site.

DEN: CNSC has limits – Cameco has their internal maximum ml per year. Internal mechanisms for radiation exposures for Denison. Exposure in the environmental procedures.

KML: When talking about wheeler river – he spent many years commercial fishing in Wheeler with his little work camp.

KML: Social economic benefits – the fact you are politically, we want some kind of insurance that you look at the whole community and any kind of funds – the whole community needs to be involved not only a few people.

KML: Work concern – being forced right in the corner as private contractors, if I have 100s of employers in the past he is down to nothing cause the community forced him to step down from politics. He asks in fairness – in any conditions or licenses that everyone gets an equal amount out of all this. The thing is, yes people care about the environment and the future of the children. The negotiating you are doing with the politicians, are not always going to be there. If you want to make a footprint for northern Saskatchewan, leave it for our future children. Asking the mines and CNSC to be evenly distributed to the whole community. He has always supported the mining industry.

CNSC Presentation/Overview

- Who they are, what they do and what they do not do:
- Independent Commission
- Environmental Protection Framework

- Purpose of environmental assessments
- Indigenous Engagement and Consultation

KML: He thought how this work, how we should be given economic opportunities – how we should be given first opportunities and it never really did work out.

KML: DTC – is that part of CNSC departments? Yes, it is.

KML: When DTC comes to Pinehouse, we ask questions, and we never really get answers and we do not understand when we are left out and not have our questions answered. It was not properly exercise – not just read out from the paper, because we can do that ourselves. Stating that DTC feels like it is not being worth it.

Walter – regarding DTC - it is a Growing process, not too long ago we did not have a voice. Like 2 or 3 years ago they started hearing us. What has changed in the last 3 years – we are not being consulted. Negotiations now to industry, it has brought a bigger impact to our community in a good way.

Gov't of Sask Presentation/Overview

- Environmental assessments
- DTC
- With any project it is a long process, and they need to make it beneficial enough to release that project.

KML: It is hard to get in contact with anyone in the Government environment department.

Closing remarks – Walter



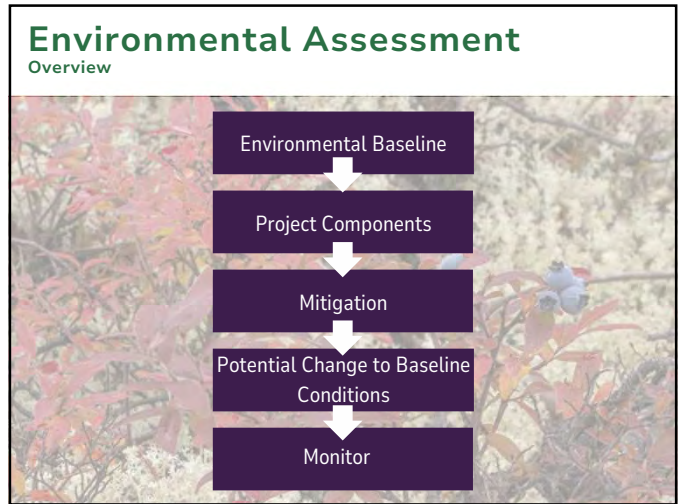
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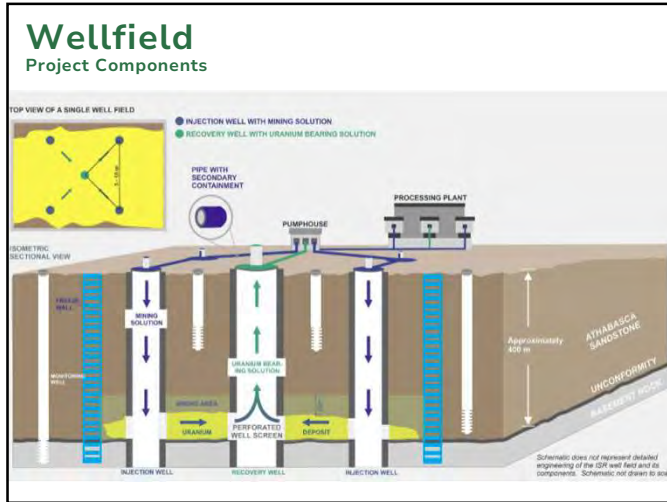
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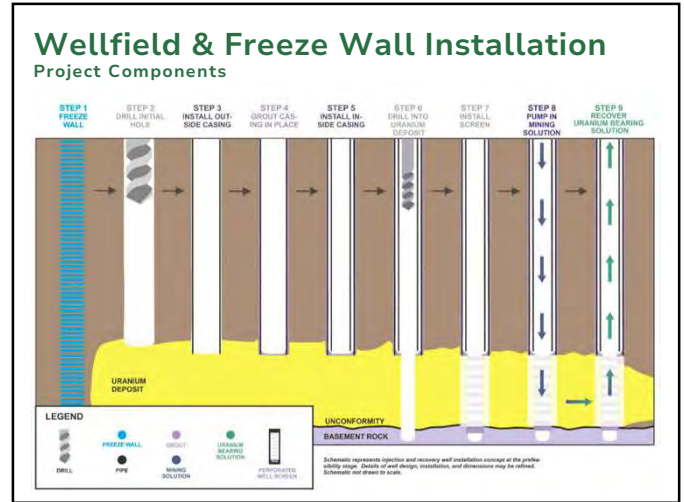
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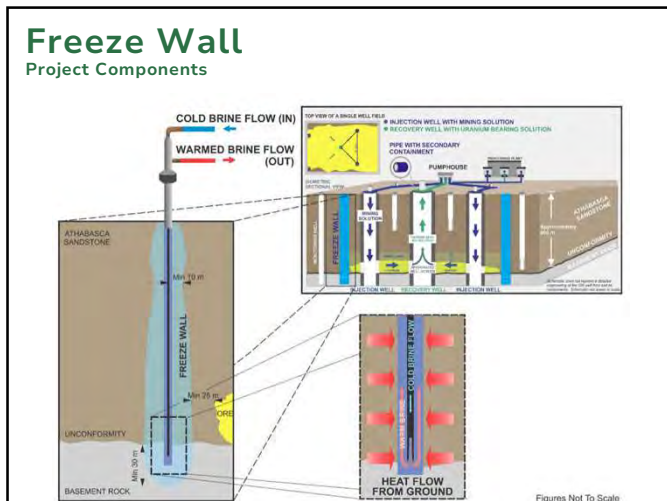
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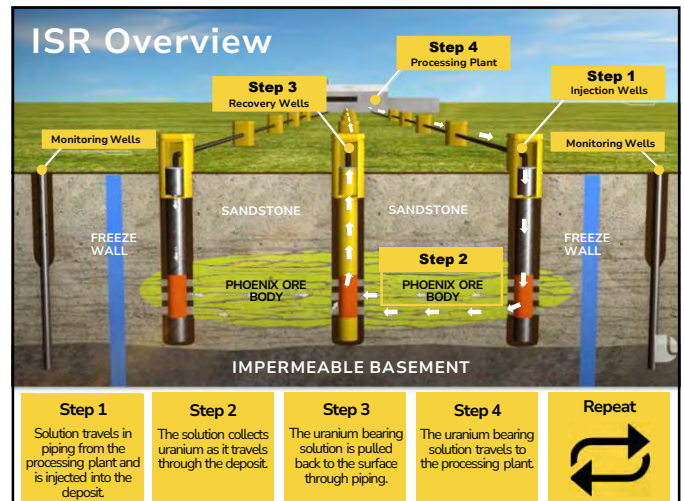
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8

Project Stage



9

Guidance Materials

Licensing & Permitting

Environmental Assessment

- Any new mine will result in changes to the environment. The goal is to understand what these changes could be, and to reduce them as much as possible.
- This is done through an Environmental Assessment.

Mitigation

- Through the Environmental Assessment process, we learn what the effects could be.
- Removing these effects or making them as small as possible is done through Mitigation.
- Examples of mitigation measures include:
 - Recycling and re-using process water to reduce water intake and water discharge.
 - Implementing speed limits to reduce vehicle collisions with wildlife.



Significance

- Applying mitigation measures to planned mining activities reduces or removes effects, leaving behind potential remaining effects. Determining how significant these potential remaining effects are is called Significance Determination.

- Significance is determined by:
 - Magnitude, Geographic Extent, Time, Frequency, Duration, Reversibility, Context
- After all of this is assessed, a determination is made about how significant a potential effect would be.
- Denison must ensure that our new mine will result in no significant adverse effects.

Monitoring

- An important part of the Environmental Assessment process is determining what kind of monitoring is required.
- The purpose of monitoring is to confirm that changes to the environment and land are the same as what was predicted.
- Common mining project monitoring examples include:
 - Surface water testing at near and far locations.
 - Testing and observing wildlife, fish, and habitats.
 - Groundwater testing for mining method performance.

Commitment

- As one the final steps of the Environmental Assessment process, Denison's commitments will be listed which include mitigation, monitoring, and other efforts.

Licensing & Permitting

- When the Environmental Assessment for a project is approved, it then moves on to a very important stage referred to as licensing and permitting.
- During this stage, the Federal and Provincial governments apply relevant legal requirements, standards, and guidelines to the project at a detailed level.
- Commitments may become legal requirements for the project, in addition to applicable requirements upheld by the regulators.
- License titles include:
 - CNSC: License to Prepare Site, License to Construct, and License to Operate. Often these titles are combined depending on what licensed activities a company aims to include.
 - Ministry of Environment: Approval to Construct a Pollutant Control Facility and Approval to Operate a Pollutant Control Facility.
 - For Denison, the two key regulators are the Canadian Nuclear Safety Commission and the Province of Saskatchewan's Ministry of Environment.

10

Over the years, we have heard that this is important to you.

"What is the long-term impact to the land?"

"I will consume the animals from my trapline, but there are fewer around than in the past."

"I fish in the area around Wheeler River."

"I might eat some berries while I am walking around."

"I am concerned about traditional land users and wildlife interruption."

"Will hunters and land users be restricted from accessing the area?"

"Our ancestors have lived on our Traditional Territory since time immemorial."

"There are cultural sites and artifacts left throughout the region."

Land & Land Use Activities

Land & Land Use Activities

Licensing & Permitting

Environmental Assessment

We understand the importance of Land and Land Use in Northern Saskatchewan; it's one of the reasons we completed an Environmental Assessment on the potential effects.

Mitigation

- Some key mitigation measures to manage and control the potential effects before and during operations include:
- Taking measures to protect plants, fish, and wildlife.
 - Treating water to regulatory standards to protect aquatic life.
 - Limiting the Project footprint and using areas that have already been cleared.
 - Reducing dust and air emissions and using noise reducing equipment.
 - Reclaiming disturbed areas on an ongoing basis.
 - Establishing Trappers' compensation and various agreements.
 - Assessing areas prior to construction for cultural sites and artifacts.

Significance

The Environmental Assessment has determined that there will be **No Significant Adverse Impacts on Land and Land Use**.

Monitoring

- Main monitoring activities to be undertaken:
- Wildlife populations studies
 - Bird surveys
 - Fish populations surveys
 - Vegetation sampling and testing

Commitment

Mitigation, monitoring, and other efforts are commitments Denison has made. These will be outlined in a simple format for the regulators. Commitments then can become part of licensing.

Licensing & Permitting

The Canadian Nuclear Safety Commission will regulate project activities through an issued license. The Saskatchewan Ministry of Environment will regulate project activities through an Approval to Operate. Conditions related to land and land use will be contained within licenses and permits once received.

- Denison will ensure requirements related to land and land use are met through implementation of programs, plans, procedures etc. Some examples include:
- Effluent and Emissions Monitoring Plan
 - Groundwater Protection and Monitoring Plan
 - Biodiversity Management Plan
 - Waste Management Plan



11

12

Over the years, we have heard that this is important to you.

"All animals are affected by water quality."

"What happens with groundwater monitoring once the mining is done, and the freeze wall comes out?"

"Will you be treating the discharged water?"

"I swim in many different lakes."

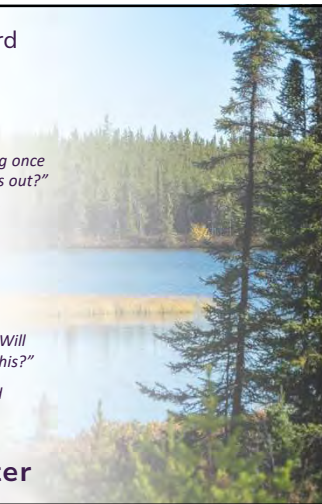
"Will the freeze wall affect groundwater?"

"How will you protect the water quality?"

"What happens when the freeze wall melts? Will there be monitoring of groundwater during this?"

"Is there any chance of the wells blowing and contaminating the ground around it?"


Surface & Groundwater





13

Surface & Groundwater

Licensing & Permitting



Environmental Assessment



Significance



Licensing & Permitting

We understand the importance of Surface Water and Groundwater in Northern Saskatchewan; it's one of the reasons we completed an Environment Assessment on the potential effects.

The Environmental Assessment has determined that there will be **No Significant Adverse Impacts on Surface Water and Groundwater**.


Mitigation


Monitoring


Commitments

Some key mitigation measures to manage and control the potential effects before and during operations include:

- Reducing freshwater intake and release to Whitefish Lake.
- Water treatment in place before release of treated effluent.
- Recycling contact water for use as process water.
- Establishing a monitoring system for wells and pipelines.
- Designing pipelines to have a second barrier to minimize spills to the environment.
- Creating the freeze wall before mining operations as a third level of containment to prevent mining solution from entering into surrounding groundwater.

Main monitoring activities to be undertaken:


- Water testing prior to release to the lake.
- Air testing.
- Ground sampling and testing.

Mitigation, monitoring, and other efforts are commitments Denison has made. These will be outlined in a simple format for the regulators. Commitments then can become part of licensing.

The Canadian Nuclear Safety Commission will regulate project activities through an issued license. The Saskatchewan Ministry of Environment will regulate project activities through an Approval to Operate. Conditions related to surface and groundwater will be contained within licenses and permits once received.

Denison will ensure requirements related to surface water and groundwater are met through implementation of programs, plans, procedures etc. Some examples include:

- Waste Management Plan
- Effluent and Emissions Monitoring Plan
- Groundwater Protection and Monitoring Plan
- Environmental Code of Practice



14

Over the years, we have heard that this is important to you.

"Moose is what is in my freezer. Will the Project interrupt harvesting moose? Will I still be able to safely eat moose that I harvest?"

"Will construction and operation harm moose and caribou populations?"

"A lot of people live off the land; will the Project damage the animals?"

"Would the chemicals being transported possibly harm wildlife?"


Wildlife





15

Wildlife

Licensing & Permitting



Environmental Assessment



Significance



Licensing & Permitting

We understand the importance of wildlife in Northern Saskatchewan; it's one of the reasons we completed an Environment Assessment on the potential effects.

The Environmental Assessment has determined that there will be **No Significant Adverse Impacts on Wildlife**.


Mitigation


Monitoring


Commitments

Some key mitigation measures to manage and control the potential effects before and during operations include:

- Limiting the Project footprint and using areas that have already been cleared.
- Providing wildlife education and awareness training to staff.
- Recording wildlife observations.
- Ongoing reclamation of disturbed areas.
- Surveying for habitat before clearing vegetation.
- Working as quiet as possible, and avoiding clearing vegetation, during denning and calving periods.
- Putting up speed limit signs and wildlife crossing signs on Project roads.

Main monitoring activities to be undertaken:



- Wildlife population studies and testing
- Bird surveys and testing
- Fish population surveys and testing
- Vegetation sampling and testing

Mitigation, monitoring, and other efforts are commitments Denison has made. These will be outlined in a simple format for the regulators. Commitments then can become part of licensing.

The Canadian Nuclear Safety Commission will regulate project activities through an issued license. The Saskatchewan Ministry of Environment will regulate project activities through an Approval to Operate. Conditions related to wildlife stewardship will be contained within licenses once received.

Denison will ensure requirements related to wildlife are met through implementation of programs, plans, procedures etc. Some examples include:

- Environment Monitoring Plan
- Biodiversity Management Plan
- Waste Management Program
- Facility and Equipment Management Program

16

Over the years, we have heard that this is important to you.

"Seasonal workers need more opportunities. This will show us that you care."

"What are the economic opportunities? A new and smaller scale mining method can reduce jobs for the community. We need to learn about this kind of mining."

"What is your plan for training and for young people?"

"For this new mining method, are there different types of jobs we should train for?"

"We have been promised jobs in the past, but those promises were not kept. I'd like to see this change."

"Will you give site specific training, or training that is transferable?"

"When the mine eventually closes a lot of people are going to lose jobs."

"What kind of employment opportunities will we see with Denison?"

Business & Work Opportunities

17

Business & Work Opportunities

Licensing & Permitting

Environmental Assessment

We understand the importance of Business and Work Opportunities in Northern Saskatchewan; it's one of the reasons we completed an Environment Assessment on the potential effects.

Mitigation

Some key mitigation measures to manage and control the potential effects before and during operations include:

- Prioritizing buying goods and services for the Project from local communities and communities in Northern Saskatchewan.
- Prioritizing the hiring and training of local residents.
- Establishing Trappers' compensation and various agreements.



Significance

The Environmental Assessment has determined that there will be **No Significant Adverse Impacts on Business and Work Opportunities**.

Local Northern Saskatchewan communities are expected to experience positive effects.

Monitoring

Main monitoring activities to be undertaken:

- Reporting on employment and business efforts.

Commitment

Mitigation, monitoring, and other efforts are commitments Denison has made. These will be outlined in a simple format for the regulators. Commitments then can become part of licensing.

Licensing & Permitting

The Canadian Nuclear Safety Commission will regulate project activities through an issued license. The Saskatchewan Ministry of Environment will regulate project activities through an Approval to Operate. Conditions related to business and work opportunities will be contained within licenses once received.

Denison will ensure requirements related to business and work opportunities are met through implementation of programs, plans, procedures etc. Some examples include:

- Human Performance Program (Human Resource Development Plan)
- Training Management Program
- Surface Lease Agreement



18

Licensing and Permitting

Commitments



- Develop a Draft Caribou Management Plan with the Ministry of Environment.
- Survey before disturbance to inform species specific mitigation.
- Monitoring to ensure engineering designs are being met.
- Wellfield surface pipes will have secondary containment and a leak detection system.
- In ground mining solution and UBS will have three layers of protection.
- Liners (such as those used for the industrial wastewater treatment plant precipitate pond, hazardous waste storage pad, and effluent monitoring and release ponds) will be designed based on materials being stored. Performance monitoring will be in place.
- Above ground, double walled, fuel storage tanks.
- Adjusting and developing mitigation measures as needed, as part of an adaptive management process.
- Hazardous substances managed appropriately. Procedures for spill management, handling, and cleanup located in accessible location.
- Fresh water wells and surface water intake specifics developed according to best practice and applicable standards.
- Treated effluent discharge adhere to approvals and regulations to protect wildlife and water.
- Speed limits to reduce dust and protect wildlife.

19



Questions?

20

Wheeler River

VCs: Ground, Terrain and Soil

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Environmental Assessment Considerations

- Land stability
- Soil quantity, quality and nutrients

Potential Effects

Activities that could impact land stability, surface drainage patterns, surface erosion potential, soil quality, and soil quantity:

- Clearing, grading, and construction
- Unexpected spills, leaks
- Release of water to groundwater and/or surface water bodies

Reclamation of disturbed areas may result in similar Project-related effects, but to a lesser extent.

Mitigation Measures

- Limit the area of disturbance
- Construction strategies to eliminate or reduce impacts
- Use of existing clearings and previously disturbed land
- Reusing disturbed sources of soil/nutrients, generated during construction, for the reclamation process
- Installation of sediment/erosion controls and surface water management features
- Monitoring of open-source dust associated with major earthworks and equipment travel
- Fuel Management and Spill Control Plan in place to respond to unexpected leaks, spills, and releases of materials
- Wherever possible, progressive reclamation will be conducted throughout the life of the Project in relation to landscape features (slope, aspect) and surface drainage patterns

Conclusions

Effects are anticipated to be:

- Low magnitude—within range of natural variations
- Local—limited to areas disturbed by the project
- Medium term—up to, but not including post-decommissioning
- Not significant—residual effects are not expected to alter VCs integrity and sustainability nor their availability to contribute to the environment

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Information provided as of May, 2022

Wheeler River

VCs: Wildlife and Birds

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Environmental Assessment Considerations

- Populations and health of wildlife including:
- Ungulates: Moose, Woodland Caribou
 - Furbearers: Wolverine, Mink, Muskrat
 - Birds: Bald Eagle, Osprey, Common Nighthawk, Short-Eared Owl, Watershrike, Game Birds, Songbirds, Yellow Rail, Rusty Blackbird, Olive-Sided Flycatcher

Potential Effects

- Activities that could reduce or disturb species of wildlife, birds, or habitats include:
- Vehicles, equipment, and aircraft traffic
 - Dust
 - Human presence
 - Collisions with equipment and vehicles
 - Entrapment in facilities
 - Exposure to substances in dust
 - Release of Project-related treated effluent
 - Spills of hazardous materials
 - More efficient hunter, trapper, and predator access to the Project area via new access routes

Changes to surface water quality could affect wildlife habitat and health from water management practices.

Decommissioning of Project site may result in a continued alteration of wildlife habitat and/or mortality from vehicle-wildlife collisions.

Mitigation Measures—Wildlife Management Plan

- Limit the area of disturbance
- Use of existing clearings and previously disturbed land
- Site clearing scheduled to avoid times when animal and birds are denning, raising, breeding
- Nesting surveys conducted before clearing to identify and establish measures to protect dens, burrows, lodges, nests, and other habitat
- Measure and practices to reduce the generation of dust
- Secondary containment of tanks and pipelines to contain accidental leaks and spills
- Implementation of Fuel Management and Spill Control Plan
- Fencing and monitoring contaminated areas—waste ponds and pools, landfills
- Implementation of Woodland Caribou Management Plan
- Employees trained to minimize their impact on wildlife, such as no littering, respect for wildlife, etc.
- Implementation of speed limits to reduce risk of collisions with wildlife
- Waste and hazardous materials collected and temporarily stored in wildlife-proof containers

Conclusions

Effects are anticipated to be:

- Low magnitude—risk of mortality within range of natural variations
- Regional effect on habitat loss—limited to Project area
- Local effect on mortality—direct mortality within Project area from vehicle-wildlife collisions, but indirect mortality could extend beyond Project area
- Medium term for long-term—highest loss of habitat and mortality vehicle-wildlife collisions expected during construction and operation, but may continue during other phases of the project
- Medium to long term for furbearers, raptors and at-risk bird species—loss of habitat and mortality vehicle-wildlife collisions expected during construction and operation
- Long term for woodland caribou and migratory breeding birds—alteration of habitat and mortality vehicle-wildlife collisions expected through all phases of project—highest mortality potential during construction and operation
- Not significant—residual effects not expected to alter habitat integrity nor wildlife and bird regional populations sustainability

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VC: Aquatic Environment

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Environmental Assessment Considerations

- Fish habitat availability and distribution
- Fish survival and reproduction
- Surface water levels and flow
- Concentration of chemicals and metals in surface water
- Concentration of chemical and metals in aquatic sediments
- Distribution and survival of snails, worms, dragonfly larvae, and other benthic invertebrates

Potential Effects

Activities that could reduce or disturb aquatic environments, species, or habitats:

- Modification of fish habitat from disturbances around surface water
- Erosion and transport of sediments into surface water
- Water withdrawal from Whitefish Lake
- Releasing effluent to Whitefish Lake
- Water management could result in changes to water quality affecting fish, fish habitat, and benthic invertebrates
- Water management could alter stream flow or lake levels required for fish mobility and productivity
- Reclamation of disturbed areas could increase sediments in water and change fish habitat

Mitigation Measures

- Limiting duration of in-water working: conducting work during low-flow periods and conducting work away from flows when possible
- Avoiding activities in windy or rainy conditions to limit erosion and sedimentation
- Plan activities in waterbodies to limit loss or disturbance to aquatic and sensitive habitat
- Limit shoreline degradation when operating machinery
- Stabilize shorelines to limit erosion and sedimentation by limiting clearing of vegetation and revegetating with native species, wherever possible
- Maintaining routes used for fish passage by designing water intake and treated water discharge locations to protect fish, fish movements, and fish habitats
- Planning to avoid chemicals entering waterways during near-water work
- Implementing an Erosion and Sediment Control Plan

Conclusions

Effects are anticipated to be:

- Low magnitude—no loss of habitat and fish population
- Local—limited to Project area
- Long term for habitat availability—throughout construction and operation
- Short term for habitat distribution—fish movement protected throughout life of the project
- Not significant—residual effects are not expected to alter local fish populations

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VC: Relationship to the Land

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Environmental Assessment Considerations

- Resources availability
- Land availability
- Suitability of land and resources

Potential Effects

The presence of the project and its activities may result in changes to:

- Water, vegetation, fish, and wildlife
- Access to the area
- Land area available
- Noise level, traffic, dust, and other disturbances associated with Project activities
- Quality of the experience using resources
- Opportunities for Indigenous land use activities
- Opportunities for non-Indigenous land use

Mitigation Measures

- Implementation of measures to protect plants, fish, and wildlife
- Limit the area of disturbance
- Use of noise reducing equipment
- Reduce dust and air emissions
- Enforce speed limits for traffic
- Implement radiological clearance of equipment before exiting Project site
- Implement progressive reclamation of disturbed areas
- Establish community agreements
- Establish trappers' compensation
- Implement Indigenous People's Policy, including ongoing communication with Indigenous Communities of Interest

Conclusions

Effects are anticipated to be:

- Low magnitude—no loss of habitat and fish population
- Local—Project area (in and around the local and regional study area)
- Long term—until reclamation is complete
- Not significant—continuous in frequency, low in context, and fully reversible following decommissioning

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VCs: Community, Culture and Economy

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Environmental Assessment Considerations

- Populations, traffic, community infrastructure and services
- Income, employment, training, government revenues, business opportunities
- Community cohesion and traditional economy
- Employment and training (generally delivered through institutions connected to northern Saskatchewan)

Potential Effects

Activities that could interact with community, culture, and economy:

- Population numbers and population characteristics
- Up to 300 jobs created during construction and more than 100 direct and contract roles during the operation phase
- Supervisory, trades, professional, technical, and foundational (entry level) positions available during operations
- Availability and increased opportunities for business and training
- Participation in traditional economic activities
- Abscense of Traffic
- Increased demand on community infrastructure and services

Mitigation Measures

- Implementation of agreements with communities (support)
- Prioritize Indigenous and non-Indigenous Communities of Interest (employment, training, and business, wherever possible)
- Implement procurement approach focused on communities
- Implementation of education and other support services for workers and in some cases their families
- Planned pick-up points in alignment with employment practices
- Implementation of Emergency Response Plan

Conclusions

Effects on community well-being, infrastructure, services and economy are currently being assessed, and are anticipated to be:

- Minimal adverse and/or positive
- Low to moderate magnitude—during construction and operation, and low during reclamation
- Local—primarily in the Project area
- Short to medium—based on Project phases
- Not significant—continuous in frequency, moderate in context, and fully reversible following decommissioning

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Risk Assessment

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To evaluate and understand if people, plants, and animals will be exposed to substances at amounts above what is known to be safe after the planned mitigation measures have been applied.

It incorporates the movement of substances through the food chain as well as direct exposure to substances (soil, air, water, etc.) to appropriately capture risk.

Human Health Risk Assessment

- People who access the project site are considered in the risk assessment. They include:
- Camp workers
 - Seasonal resident/edge operator—seasonal access
 - People fishing/hunting/trapping/gathering fireweed/picking berries—traditional and recreational access
 - Neighbouring residents fishing/hunting/trapping
 - Future permanent residents—access to Project site after its decommissioning

Assessment Results and Mitigation

- Low overall health risk to people using the area
- Expected radiation doses to people below public dose limit
- Low risk of exposure of people to metals in the environment (below benchmarks for metals)
- Ongoing monitoring during all Project phases

Ecological Risk Assessment

Considers ecological receptors such as:

- Terrestrial Mammals—Woodland Caribou, hare, moose, black bear, lynx, etc.
- Riparian Mammals—Muskrat, mink
- Terrestrial Birds—Bald eagle, robin, Canada goose, etc.
- Riparian Birds—Mallard, loon
- Fish—Northern pike, white sucker
- Aquatic Invertebrates—Zooplankton, benthic invertebrates
- Terrestrial Vegetation—Lichen, Blueberry, Labrador tea
- Aquatic Vegetation—Phytoplankton, Macrophyte

These can be exposed to substances through direct exposure in water, sediment, soil, air or through the food chain.

Assessment Results and Mitigation

- Low overall health risk to animals, plants, and invertebrates
- Expected radiation doses to ecological receptors below benchmarks
- No risk of exposure to ecological receptors to non-radionuclides hazards
- Ongoing monitoring during all Project phases

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Wheeler River Project People

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At the Wheeler River Project site, we strive to employ as many Northerners as possible. We also strive to hire most of the contractors and services we need from northern and Indigenous people owned businesses. Here are some of the people who have been on site in the past few years; some have moved on while others continue to help advance the Project.



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Wheeler River Building Relationships

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Denison and the Wheeler River Project team are committed to meaningful engagement with Indigenous people, communities, residents, and organizations with an interest in our Project.

TALKING together. LISTENING to you. RESPONDING to explain.

Engagement With Indigenous and Non-Indigenous Communities of Interest

- English River First Nation
- Kinship Mine Local 30 (Ponchoal)
- Minto Nation - Saskatchewan
- A La Bale Mine Local 31 (Weila Cross)
- Spotted Horse Local 37 (Bewaulk)
- Patuxent Mine Local 82 (Patuxent)
- Northern Hamlet of Patuxent
- Northern Village of Patuxent
- Northern Village of Weila Cross
- Northern Village of Bewaulk

Other communities, organizations and groups of interest:

- Lac la Ponge Indian Band
- Birch Narrows Dene Nation
- Buffalo River Dene Nation
- Hatcher Lake First Nation
- Black Lake First Nation
- Ford du Lac First Nation
- Hatcher Lake First Nation
- Yath'Né First Nation and Resource Office
- Prince Albert Grand Council
- Meadow Lake Tribal Council
- Commercial Trappers
- Commercial Fishers
- Commercial Lodgers
- Cabin and lease owners

Thank You, Bobby John

Bobby John lived, trapped, fished and hunted in the Wheeler River Project area long before Denison and its predecessors started exploring the site. Over the years, Bobby John became someone our Project team relied on for insight on the area, for feedback on the Project proposal, for help with tracking wildlife and for assistance for our field teams, cutting through the bush and more. We will not forget Bobby John's contributions.

Since 2016 and every year after, Denison has met with community members and leadership through workshops, site tours, public meetings, and even virtual community meetings to hear concerns, receive knowledge and input, and share Project information. Subjects of workshops and meetings have included:

- Wheeler River Project components:
 - Access road
 - Treated water effluent discharge location
 - Mining method
 - Design change to freezing containment method
- Environmental considerations:
 - Water bodies - fishing
 - Fish habitat
 - Species at risk
 - Land disturbance

Our Support of Communities

Denison's support of communities can take various forms:

- Donations to community organizations
- Sponsorships of community events
- Sponsorships of in-kind support of education and field trips
- Direct agreements with specific Indigenous communities

Here are some examples of Denison's support in 2021:

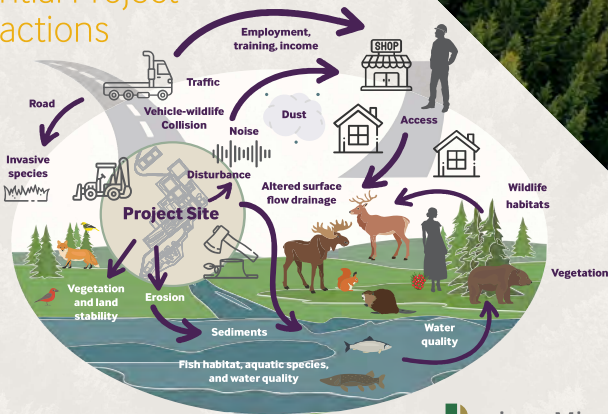
- Entered into an Exploration Agreement with English River First Nation
- Hatcher Lake First Nation Region 3 South Day Gathering
- Patuxent Mine Group and their market garden initiative
- Pinetown Lake hockey tournament
- Improvements to the English River First Nation Culture Camp at the Meadow Lake Reserve at 160km
- Many Christmas initiatives in the region, including those in Hatcher Lake, Weila Cross, and the Hamlet of Patuxent

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Wheeler River Potential Project Interactions

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Wheeler River Project – Denison Mines

mâci masinahamihk okâwiyâmâw askiy mêskopicikêwin wihtamasinahkan kâ-wî-itôtamihk atoskêwin

anima Wheeler River atoskêwin(anima atoskêwin) anima Denison itascikêwin êkota situ miskêwin (ISR) kaskatêw asiniy wâtihkêwin êkwa osihcikêwin misi-wikamik:

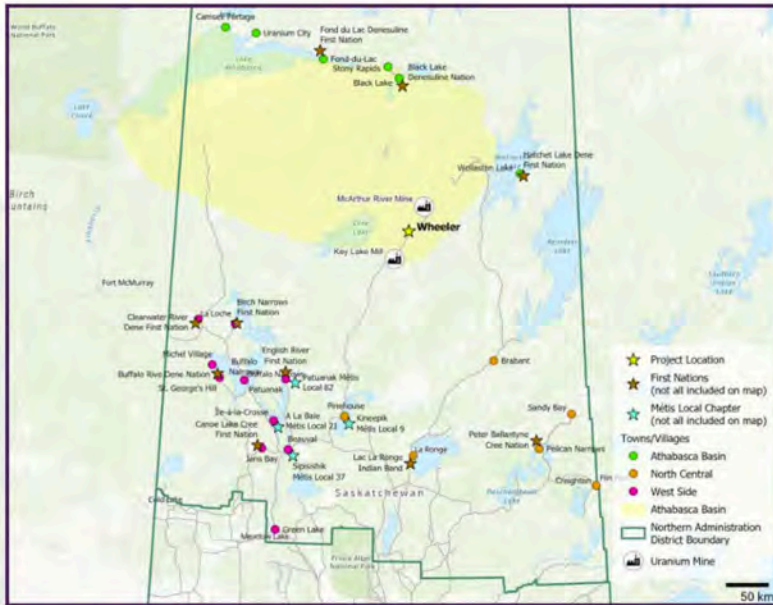
- tânitê: kîwîtinohk Saskatchewan, kanâta
- atoskêwin kîkwaya êkwa itôtamowina: anima tâwayihk atoskêwin kîkwaya anihi ISR wâtihkêwin êkwa anima osihcikêwin misi-wikamik. sihtoskamihk misi-atoskêwin kîkwaya êkwa itôtamôwina astêwa kîkwaya osci wêpinikêwina, nipiy pimipayicikana, wâskwatawêpicikana, êkwa pimitâpâsowin, tâskoc tôhêwina, sâkahikanisa, wikamikwa, mêskanawa, êkwa pimihâkan mêskanaw.
- pihcâyihk: kanâtahk nipiy, nanâtohk âpoya (osci wâtihkêwin, kaskatêw asiniy osihcikêwin, nipiy kanâcihcikêwin), wâskwatawêwin êkwa pimiy.
- wayawê itôtamowina: wêpinikêwin (askiwiya, kanâti asiniy wêpinikêwina, pîtosî wêpinikêwin asiniy (wâtihkêwin askiy), cîki wêpinikêwin, misi wêpinikêwin, sâpipêwina ohci osihcikêwin wikamik êkwa nipiy kanâcihcikêwin, mîsêw âpoy) îhîwina mîna pêwâpisk kaskâpahtêwina (GHGs) kisêwêwin, êkwa kanâcihtâhk nipiy kâ-sîkipitamihk nipîhk.
- kîkway osihtâhk: U3O8 ahpô osâwi-wîhkikasikan. anima kîkway Denison atâwâkêcik apacihcikâtêw isi pimiy êkota kaskatêwi asiniy wikamikohk, sihtoskamihk okâwiyâmâw askiy itôtamowin ka-nîkipitamihk GHG kaskâpahtêwina.
- atoskêwin: nântaw 300 atoskêwiyiniwak kâ-osihtâhk êkwa 180 ikospê atoskêwin. anima pimipayicikêwin ka-pihci-pimihâwak êkwa wayawê-pimihâwak atoskêwin.
- atoskêwin ispayik, 5 askiy osci pônihkamihk, êkwa 15 askiya osci kîsihtâhki-pônihkamihk ispayihowina.

anima okâwiyâmâw askiy kinwâpahcikêwin (EA) kâ-masinahikâtêk ôta okâwiyâmâw askiy mêskopicitamihk wihtamâkêwin (EIS) kinwâpahcikâtew êkwa nanisihkâc, askôhamihk itôtamowin ka-kinwâpahtamihk atoskêwina tâskoc mêskocipayinwa. Kakwê osihtâhk kanawêyicikêwin EA masinahamihk, ahpô ayiwâk pihci, anima nistohtamowin misi-atoskêwin osihcikêwina. Tâskoc, anima tipêyaw nakatamowin osci osihcikêwak masinahikêwina nântaw 75 ha, mâka anima EIS itêhtamwak anima atoskêwin mêskocipayiwin cîki 170 ha. pêyakwan, tahto askiy osihcikêwin osci osihcikêwak osihtâwin anima 6 Mlbs U3O8 tahto askiy iskohk 10 askiya, mâka EIS itêhtamwak osihtâwin 9 Mlbs U3O8 tahto askiy isi 15 askiya, mîna mistahi itôtamowin iskohk 12 Mlbs U3O8 askiy osci itôtamowin waskawêwin. Itastêw, tâskoc, anima EIS kinwâpahtamwak pihcâyihk nitawêhtamihk êkwa wayawêwina osihtâhk tahtwâ askiy 50% ayiwâk kâ-itêhtamihk.

kîkwaya kâ-astêki kâ-kîsi kanâcihtâhk ikospê pihkaw osci askiy ê-kîskatahikâtêk, ayiwâk ayisîniwak ê-pimitâpâsocik, kaskâpahtêw, wêpinikêwina, êkwa nipiy pimipayicikêwin. Kîkway kâ-ispayiki kinwâpahcikâtêwa êkwa itasiwâtamihk anihi EIS anima atoskêwin kâ-kî-osihcikâtêw, pimipayicikâtêw, êkwa pônî-apacihcikâtêw ikospê misi-wikamikwa êta kâ-wîkicik miywâsinwa êkwa ahkami apacihcikâtêwa, kinosêwak êkwa pisiskiwak miywâyâwak, ayisîniw miywâyâwin kanawêyicikâtêw, astêwa kîkway ka-apacihcikâtêw askiy, tâskoc iyiniw pakitinikowisowina, êkwa ahakami kiyohkêwin êkwa sônîyahkêwin. Anima EIS itasinahikâtêw kwayisk itôtamowina, kinwâpahcikêwina, êkwa asotamâkêwina osci Denison ka-ayâcik sohkêyimowin anima atoskêwin ê-pimipayik êkwa ispayihowin osci atoskêwin osihtâwin, pimipayicikêwin, pônî-apacihcikâtêk astêwa êkota ahpô apisîs itêhtamowina ispayihowina.

misawê, ôma atoskêwin itêhtâkwan kwayisk ta-ispayik askîhk pihci kotakwa wâtihkêwina. pihkaw osci, anima ISR wâtihkêwin itôtamowin, anima atoskêwin astêwa namôya mistahi kîkway ê-nakacikâtêki kâ-kîsi-kanâcihtâhk pihci kotakwa wâtihkêwina ahpô atâmihk askîhk wâtihkêwina êkwa kotakwa itôtamowina.

mistêhtâkwan, Denison pâ-pîkiskwâtêwak iyiniwak êkwa kotakwa atoskêwikamikwa, ayîsiniwak, êkwa kanawêyicikêwak ikospê 2016. Mâmawi itôtamowin isi pîkiskwêwin êkwa yahtohtahikêwin osci anima atoskêwin wihtamwak ôki ayisîniwak ka-miyo-ispayiki atoskêwina êkwa anihi EA nanâtohk êsi. Denison wâpahtamwak anima EIS tâskoc mistêhtâkwahk wiycikêwin kîkway ka-sihtoskamihk nîkânihk itôtamowina êkwa pîkiskwêstamwak pêyak itôtamowin êkota kâ-ayimahk EA, masinahikêwin, êkwa pakitinamihk kaskatêwi asiniy wâtihkêwin wikamik êkota kanâta.



tântê

anima Wheeler River atoskêwin
astêw êkotî kîwîtinohk
Saskatchewan êkota Athabasca
kapâwin.

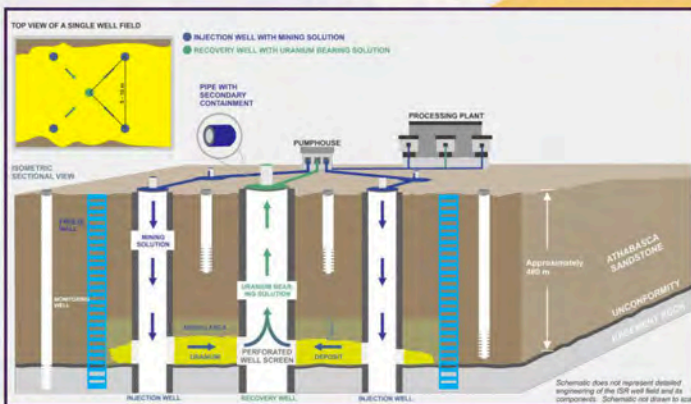
atoskêwin kâ-êsi nakatamihk

animi kihci atoskêwin
apacihcikana astêwa êkota situ
kâwi-miskamihk wâtihkêwin
êkwa osihtâwin wikamik.

êkota SITU kâwi-miskamihk

êkota situ kâwi-miskamihk apacihcikâtêw kisitêk
âpoy ka-otinamihk kaskatêwi asiniya osci askîhk
isi cîstamihk êkwa kâwi mônahipâna. Anima
osihtâwin wikamik astêwa maskimota êkwa
apacihcikana ka-otinamihk kaskatêwi asiniy osci
situ kâwi-miskamihk isi osâwi wihkikasikan.

Denison ka-atâwâkêwak anima osâwi
wihkikasikan ka-apacihtâhk ka-sipwêpitamihk
wâskwatawêwikamikwa, sihtoskâtahkik
okâwiymâw askiy itôtamowina ka-nîkipitamihk
pihcupowi kaskâpahtêwina.



mistakihtêki apacihcikana & atoskêwina waskawêwina

Denison kinwâpahtwak kîkwaya,
isihkâtêki mistakihtêki ispayihowina osci
anima atoskêwin êyikoni kîkwaya.



Wheeler River Project – Denison Mines

Ēłóchëlë Nih Bazi t'áú nih besoídi ha si erit'is.

T'aghá Holnį si diri nih bazi nuhhel kodi hasj.

Diri Wheeler River – Denison Mines nih sēnolye ha si, t'au nih nághįna ha (situ) Yanathē tthe ghą nade ha si.

- Yathē nene diri Saskatchewan k'eyaghē hoʔą si Canada tth'i k'eyaghē.
- Diri t'au tu t'arat'į si senalye ha, t'a ghą nade si konųhełnį ha. Kon/tthe slįnį (Uranium) senalye seráde ha, tulu k'e ts'etai sēlye, yoh tth'i ts'etai sohúde ha. Beyets'et'ali neltła ha tth'i senuhut'a ha. T'aʔu tu t'arat'į si (tu slįnį) sohulye ha. Diri t'aʔu nih t'arat'į si senalye ha hodi sj.
- 'Senahulye de, tu nezų, tthe slįnį t'aʔu senalye ha. Kon bēt'á asi hēt'ěl si, t'ēs tth'i ts'etai sēlye si."
- Ku diri halye ha si, t'áchaghē, tthe t'a bohełtaile si, t'aʔu nih dałdhe nįsi, tu, tujērē-ú, tsą tue-ú, t'aʔu tthe t'arat'į si tu hēł si, sēlye ha. Ku diri asi ghą nade t'a horehth'a si ya bazį tth'ú. T'a tu senalye si eyi tth'i hahodi.
- Diri tthe slįnį (uranium) łes ʔahot'į alye si bēt'á kon hołe, kon heltsi ha. Diri kon uranium t'a holį de, dēhth'agh hile snį.
- Diri nih Senahulye si bónįther de tononą (300) ts'etai sohulye ha si. Łononą- įłk'etoną tth'i Dene ěghádálana ha sj. Diri bónįther de beyets'et'ali t'arat'į ha.
- Diri t'a bēghą Eghalada ha si tóną-įłk'edįghį nene-ú, nake nene ts'etai sohúde ha-ú, sųlaghe nene t'a nuhųt'ą si nanelye ha, Sųlaghe ts'adhel nene ts'etai senahulye ha.

Diri nih senahulye si horelyų net'į, nih-ú, ya-u t'áú besuwidi ha.

T'aʔu nih ts'etai sēlye ha si, t'a Dene yēghą erit'is dałtsi hotié deʔą (engineering), erit'is nédhé bets'į deʔą, t'aʔu nih hotié ts'etai ʔalye ha.

Diri t'aʔu aresį henį, nih nechozē ʔańį sj, įlaisdįghį nih hultsai anįtttha u, kuli horįchoze ʔats'edi sj, T'a ha seráde si tthe slįnį (uranium) halye ha hodi sj łonēną nene ha hodi. Ku diri t'a the slįnį halye hasi, sųlaghe ts'adhel nene tthe nezų halye ha henį. T'át'ú tthe įłk'etaghē limil (łonēną ąnelt'e) ʔaįđdath henį, kuli lota limil tthe hilchu has henį. Kuli sųlaghe ts'ēdel nene anįtttha de nake ts'adhel limil ʔaįđdath the hilchu hasi. Eyi t'a solóną (percent) hoʔąnelt'e tthe hilchu ha henį sj.

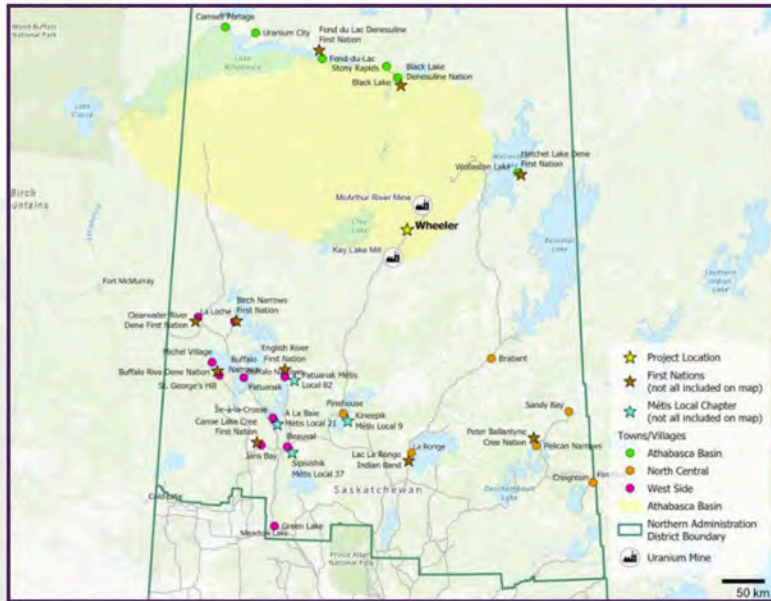
Diri bēt'á Eghalada si t'au nih ts'etai sēlye si, bēhchēnē tth'i la ha-ú, horetth'a t'au, asiʔaldel tth'i ła-ú, tu t'a bēt'á Eghalada si besorįthēn ha la. ʔątu nih, tu-ú, ya ts'en boʔēłta hasą. Kuli yedołnį ha henį.

Diri bēghą Eghalada si, yēghą ěghadálghēna hoyaghē ts'etai sedáhúlye-ú, łue-ú, nųneshe, ěch'ērē, hotié besoídi ha, Dene t'a dághēna. Denesųłine nih t'a dághēna la, nuhhenene theri hoʔą. Nih-u, tu-ú, ya-ú nųhha besudi hoʔą.

Diri t'aʔu nih ghą ěghádálana si hotié bahodi, t'aʔu erit'is holį si hotié déʔą, t'aʔu ts'etai sohúde-ú, t'aʔu ěghádálana-u, t'aʔu nih senalye si hotié déʔą.

Diri t'aghą ěghádálana si hotié nih hodi ha henį, yanįzi t'aʔu nih hesdohołts'į si konalyehaile dųhų henį. T'a tthe nih-u, tu-u, ya-u bēt'á nezųle ni, dųhų tthe slįnį si bēt'á nih-u, tu-u, ya-u hesedowełnį ha henį. T'a tthe nih horįcha nailts'el nį, nih yaghē tth'i dēgharē nih nárałts'ul nį – dųhų kone haile henį.

Dųhų de t'a benenē k'e ěghadálghēna si bedóghelįnį déʔą, hotié t'a ghą ěghadalaida si bełkoridi hoʔą 2016 hots'į. Diri t'a bēghą náide si t'a benenē si beł hoʔą. Nih hodi hoʔą, tu-u, ya-u boghedi ha. Diri t'a erit'is beł'azi (license) si, horelyų sohúde déʔą, diri Canada k'eyaghē tthe slįnį ghą naidi hade.



LOCATION

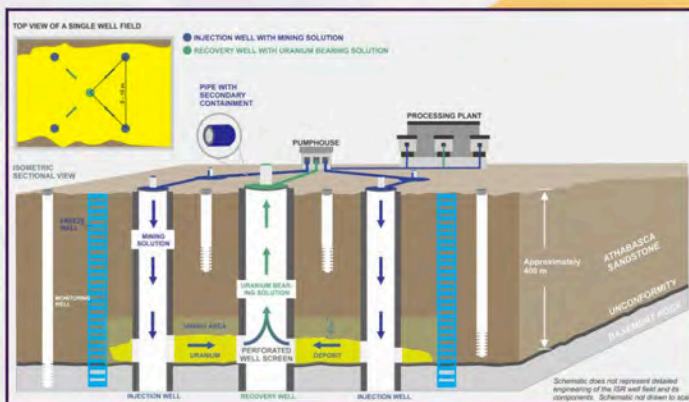
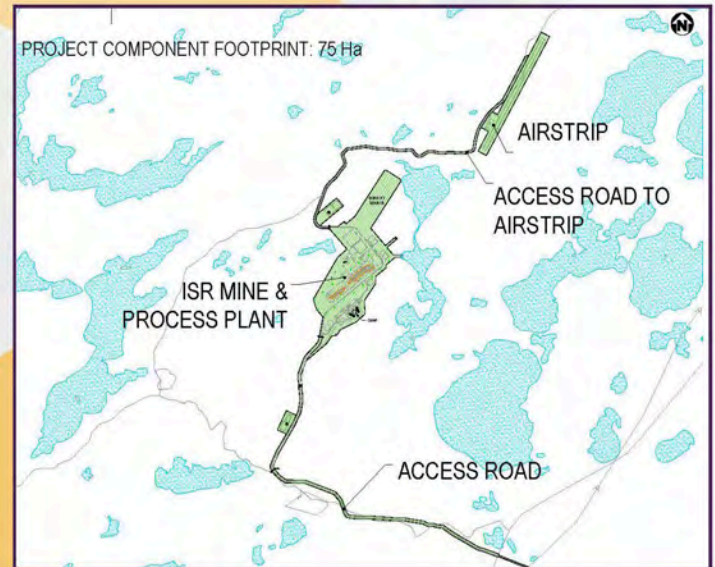
Ku diri k'eyaghē deht'is si t'a
ts'en ēghadálghēna hasi horet'ī –
Dene nenene k'e.

PROJECT FOOTPRINT

Diri t'a yet'a nih ghā nade has si
deht'is sj.

IN SITU RECOVERY

Diri tu het'el t'a tthe slīnī hilchu, horīcha horet'ī
la, t'at'u tthe sēralye si bēt'a les hoē. Ku eyer
hots'ī les bēghā nānī, horelyu nene k'e, t'a
horehtth'a ch'a hodołni sj. Eyi ʔarałnī
Greenhouse Emissions, diri nih k'e náide si
besoıdı ha.



VALUED COMPONENTS & PROJECT INTERACTIONS

T'aʔu nih besoıdı hasi Dene
yek'odarēlya hasā.



Wheeler River Project – Denison Mines

Draft Environmental Impact Statement

Project Overview

The Wheeler River Project (the Project) is Denison's proposed in situ recovery (ISR) uranium mine and processing plant:

- Location: northern Saskatchewan, Canada.
- Project components and activities: the central Project components are the ISR 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: U_3O_8 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.

The environmental assessment (EA) outlined in this environmental impact statement (EIS) was transparent and conservative, following a standard, step-wise 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. Similarly, the annual production for current engineering design is 6 Mlbs U_3O_8 per year over 10 years, but the EIS assumed production of 9 Mlbs U_3O_8 per year over 15 years, with a peak production up to 12 Mlbs U_3O_8 in a given year to allow for operational flexibility. This means that, for example, the EIS assessed inputs needed and outputs generated on an annual basis as being 50% more than expected.

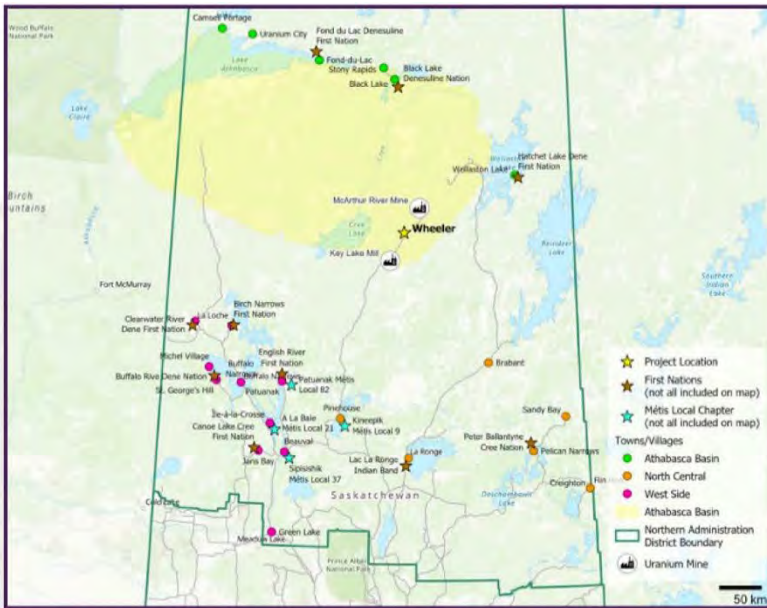
Residual effects remaining after mitigation were largely linked to land clearing, increases in traffic, emissions to air, waste generation, and water management. Residual effects were evaluated for 32 Valued Components (VCs) and significance determined for receptor VCs. The evaluations and conclusions 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.

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.

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.

LOCATION

The Wheeler River Project is located in northern Saskatchewan in the Athabasca Basin.

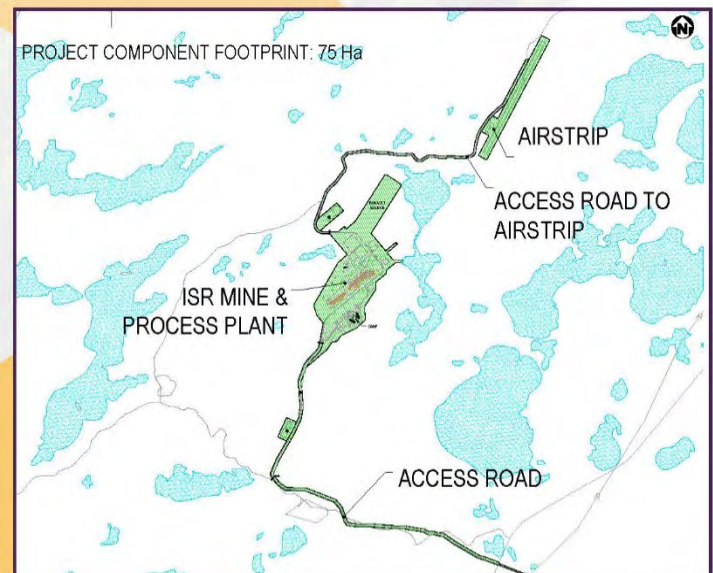


PROJECT FOOTPRINT

The main Project components are the in situ recovery mine and the processing plant.

IN SITU RECOVERY

In situ recovery uses an acidic solution to leach uranium ores from the ground through a series of injection and recovery wells. The processing plant houses the tanks and equipment to process the uranium recovered from in situ recovery into yellowcake. Denison will sell the yellowcake to the market for use in nuclear power plants, supporting global efforts to reduce greenhouse gas emissions.



VALUED COMPONENTS & PROJECT INTERACTIONS

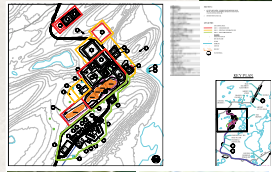
Denison is assessing elements, called valued components, important to people or the environment, and the potential effects of the Project on these elements.



Wheeler River Project Overview

We acknowledge and respect the fact that Denison's flagship Wheeler River Uranium Project is located in northern Saskatchewan within the boundaries of Treaty 10, in the traditional territory of English River First Nation, in the homeland of the Métis and within Nuhené.

Environmental Protection	Resource Protection	Infrastructure Protection	Resource Protection
• Environmental Protection	• Resource Protection	• Infrastructure Protection	• Resource Protection
• Environmental Protection	• Resource Protection	• Infrastructure Protection	• Resource Protection
• Environmental Protection	• Resource Protection	• Infrastructure Protection	• Resource Protection
• Environmental Protection	• Resource Protection	• Infrastructure Protection	• Resource Protection



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Information provided as of May, 2022

Key Advantages of ISR Mining

- Small surface footprint
- No conventional tailings facility
- No underground workings - mining done from surface
- Low energy consumption
- Small volume of treated effluent
- Small volumes of clean waste rock (sandstone drill cores from wellfield drilling)
- Small volume of treated water precipitates
- Small volumes of waste rock (mineralized drill cuttings from wellfield development)

- Introduces opportunity to develop potential mineral deposits not considered economically viable by conventional mining methods

Considerations of ISR Mining

- Protection of surrounding groundwater regime
- Significant evaluation efforts required to confirm ISR mining method is viable for high grade Phoenix deposit

Wheeler River Project Technologies

In Situ Recovery

- Use an acidic or low pH mining solution to leach uranium ores from the ground
- Mining solution is a mixture of sulphuric acid, hydrogen peroxide and ferrous sulphate
- Freshwater obtained from shallow groundwater or surface water
- Mining solution expected to be reused over and over, wherever possible
- Use mud rotary drilling to create wellfield - most common method of well-drilling in Saskatchewan

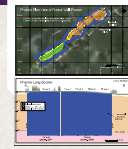
ISR Process Overview



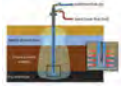
Ground Freezing - Freeze Wall

- Ground freezing used to prevent groundwater in the sandstone from flowing through the uranium deposit
- Uranium deposit will be surrounded by an engineered freeze wall to isolate mining area from groundwater flow
- Freeze wall surrounding deposit from the basement rock to surface
- Use of groundwater wells for monitoring of the mining solution, groundwater level, ground pressure and temperature
- Freeze wall established by +300 freeze holes 6m apart from surface to low permeability basement rock
- Freeze wall holes made using diamond drilling method
- Chilled brine solution (calcium chloride brine) will circulate in the steel encased holes to remove the heat from the ground
- Warm brine solution flows out to surface to be re-chilled in a closed loop system - similar to how a community ice rink is kept frozen
- Commonly used technology at McArthur River and Cigar Lake

Proposed Freeze Wall



Typical Freeze Pipe



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Wheeler River Regulatory Process

Federal Regulators

Lead: Canadian Nuclear Safety Commission

- Reviews and approves Environmental Impact Statement (EIS) and licence applications
- Mandate to protect health, safety and security of Canadians and the environment

Main authorizations granted include:

- Licence to Prepare Site and Construct
- Licence to Operate

Provincial Regulators

Lead: Saskatchewan Ministry of Environment

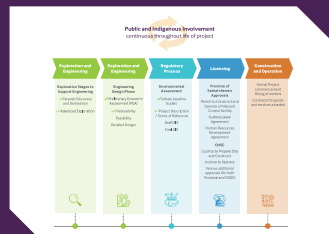
- Understand and evaluate potential environmental impacts of a project before any irreversible decisions are taken that may lead to negative effects on the environment, natural resources, or public health and safety
- Grant regulatory permits or licences
- Review and approve Environmental Impact Statement (EIS)

Main authorizations granted include:

- Permit to Operate a Pollutant Control Facility
- Surface Lease Agreement

Wheeler River Project Process Status

- Environmental baseline studies ongoing since 2012
- Federal and provincial EA process initiated in May 2019 with submission of Project Description
- Environmental studies are completed to inform engineering design and mitigate potential effects of the project on the biophysical and human environments



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Wheeler River Understanding Environmental Assessment (EA)

Valued components

What are VCs?

It stands for Valued components. These are elements that are important to humans or the environment. Because viewpoints can vary, it was important to consult with northern communities to identify appropriate valued components.

When determining VCs, we used input from multiple northern communities:

- English River First Nation,
- Kinepik Métis Local #9,
- Pinehouse Lake,
- Beaver,
- Ile à la Crosse,
- Patawaka, and
- The seven Athabasca Communities represented by the Yá'thi Néná Lands and Resources Office

VCs were determined to be Air, Humans, Indigenous Land and Resource Use, Ground/Terrain/Soil, Vegetation, Water, and Wildlife.

Project Interactions

How will the project impact VCs? The project has several phases and activities that can interact with VCs. These are:

- Preparation
- Operation
- Decommission
- Waste Management
- Water Management

We undertake actions to eliminate or reduce negative project impacts on VCs. These actions are called mitigation measures.



Significance

Can the impacts to VCs be effectively managed?

We study many considerations before making conclusions on whether impacts are significant. Residual adverse effects must be determined. These are the effects left after mitigation measures. Then, we answer questions about the residual adverse effects of each VC:

- Magnitude-How big is the effect?
- Geographic extent-Where do the effects occur?
- Time-When do the effects occur?
- Frequency-How often do the effects occur?
- Duration-How long do the effects last?
- Reversibility-Can the effects be undone?
- Context-Are there environmental or social factors to consider?

Surrounding projects, laws, policies, communities, practices, and land use, reliability of mitigation, multiple sources of knowledge, and many other factors can influence VC conditions. These factors are evaluated, considering the baseline conditions, to make a conclusion on significance.

A conclusion of "not significant" does not mean that an adverse effect won't occur or isn't important relative to people or the environment—it is simply a conclusion that the potential changes can be effectively managed.

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Wheeler River VCs: Vegetation, Ecosystems and Wetlands

Environmental Assessment Considerations

- Abundance of vegetation
- Chemical make-up of the constituents
- Listed Plant Species

Potential Effects

Activities that could reduce or disturb vegetation, listed plant species, and wetlands:

- Introduction of weeds
- Generation and deposition of dust
- Changes to water quality
- Storage, handling, and transport of waste
- Reclamation of disturbed areas

Mitigation Measures

- Limit the area of disturbance
- Use of existing clearings and previously disturbed land
- Cleared bush will be stockpiled and used in progressive reclamation
- Implementation of controls to limit dust generation
- Secondary containment of tanks and pipelines to contain accidental leaks and spills
- Minimize risk of accidental spills through the Fuel Management and Spill Control Plan
- Mining solution and process water will be reused whenever possible to reduce water required for the Project and to reduce treated water released to the environment

Conclusions

Effects are anticipated to be:

- Low magnitude - less than 0.1% of wetlands lost; about 2.9% of habitat types potentially affected in the local area
- Local - limited to areas disturbed by the project
- Long term - throughout the project life cycle
- Not significant - residual effects are not expected to alter vegetation and ecosystems integrity (sustainability)

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Wheeler River Cumulative Effects Assessment

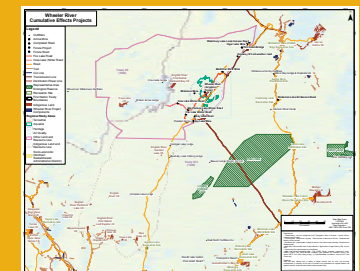
A Cumulative Effects Assessment (CEA) is completed to ensure that the incremental effects from multiple activities in an area (environment, human health, land use, etc.) are considered together. Project activities can interact with Valued Components; when interactions cause Valued Components' conditions to change, it is known as an "effect". The combined effects may be significant even though the effects of each independent activity is not significant.

Cumulative Effects Considerations

- The cumulative effects (overlapping effects) were characterized to inform the CEA
- The significance of the cumulative effect was determined for each Valued Component
- The Cumulative effects for all of the Valued Components were predicted to be Not Significant

Key Points of a CEA

- Completed for each of the selected Valued Components.
- Uses established assessment methods.
- Includes Indigenous, local and scientific knowledge.
- Conducted at the regional level for each Valued Component.
- Baseline conditions of the Valued Components reflect the effects from past and present projects and activities.
- Identifies overlapping residual effects (such as time and space) from the Project, with residual effects from known projects and/or activities from past, present, and future projects and/or activities.
- Considers all known projects and activities, and climate change.



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Wheeler River VCs: Ground, Terrain and Soil

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AND PASSION.**

Environmental Assessment Considerations

- Land stability
- Soil quantity, quality and nutrients

Potential Effects

- Activities that could impact land stability, surface drainage patterns, surface erosion potential, soil quality, and soil quantity:
 - Clearing, grading, and construction
 - Unexpected spills, leaks
 - Release of water to groundwater and/or surface water bodies
- Reclamation of disturbed areas may result in similar Project-related effects, but to a lesser extent.

Mitigation Measures

- Limit the area of disturbance
- Construction strategies to eliminate or reduce impacts
- Use of existing clearings and previously disturbed land
- Reusing disturbed sources of soil nutrients, generated during construction, for the reclamation process
- Installation of sediment/erosion controls and surface water management features
- Monitoring of open-source dust associated with major earthworks and equipment travel
- Fuel Management and Spill Control Plan in place to respond to unexpected leaks, spills, and releases of materials
- Wherever possible, progressive reclamation will be conducted throughout the life of the Project in relation to landscape features (slope, aspect) and surface drainage patterns

Conclusions

- Effects are anticipated to be:
- Low magnitude—within range of natural variations
- Local—limited to areas disturbed by the project
- Medium term—up to, but not including post-decommissioning
- Not significant—residual effects are not expected to alter VCs integrity and sustainability nor their availability to contribute to the environment

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Information provided as of May, 2022

Wheeler River VCs: Wildlife and Birds

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AND PASSION.**

Environmental Assessment Considerations

- Populations and health of wildlife including:
- Ungulates: Moose, Woodland Caribou
- Furbearers: Wolverine, Mink, Muskrat
- Birds: Bald Eagle, Osprey, Common Nighthawk, Short-Eared Owl, Watersnipe, Game Birds, Songbirds, Yellow Rail, Rusty Blackbird, Olive-Sided Flycatcher

Potential Effects

- Activities that could reduce or disturb species of wildlife, birds, or habitats include:
- Vehicles, equipment, and aircraft traffic
- Dust
- Human presence
- Collisions with equipment and vehicles
- Entrapment in facilities
- Exposure to substances in dust
- Release of Project-related treated effluent
- Spills of hazardous materials
- More efficient hunter, trapper, and predator access to the Project area via new access routes

Changes to surface water quality could affect wildlife habitat and health from water management practices.

Decommissioning of Project site may result in a continued alteration of wildlife habitat and/or mortality from vehicle-wildlife collisions.

Mitigation Measures – Wildlife Management Plan

- Limit the area of disturbance
- Use of existing clearings and previously disturbed land
- Site clearing scheduled to avoid times when animal and birds are denning, raising, breeding
- Nesting surveys conducted before clearing to identify and establish measures to protect dens, burrows, lodges, nests, and other habitat
- Measure and practices to reduce the generation of dust
- Secondary containment of tanks and pipelines to contain accidental leaks and spills
- Implementation of Fuel Management and Spill Control Plan
- Fencing and monitoring contaminated areas—waste ponds and pools, landfills
- Implementation of Woodland Caribou Management Plan
- Employees trained to minimize their impact on wildlife, such as no littering, respect for wildlife, etc.
- Implementation of speed limits to reduce risk of collisions with wildlife
- Waste and hazardous materials collected and temporarily stored in wildlife-proof containers

Conclusions

- Effects are anticipated to be:
- Low magnitude—risk of mortality within range of natural variations
- Regional effect on habitat loss—limited to Project area
- Local effect on mortality—direct mortality within Project area from vehicle-wildlife collisions, but indirect mortality could extend beyond Project area
- Medium term for long-term—highest loss of habitat and mortality vehicle-wildlife collisions expected during construction and operation, but may continue during other phases of the project
- Medium to long term for furbearers, raptors and at-risk bird species—loss of habitat and mortality vehicle-wildlife collisions expected during construction and operation
- Long term for woodland caribou and migratory breeding birds—alteration of habitat and mortality vehicle-wildlife collisions expected through all phases of project—highest mortality potential during construction and operation
- Not significant—residual effects not expected to alter habitat integrity nor wildlife and bird regional populations sustainability

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Wheeler River VC: Aquatic Environment

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Environmental Assessment Considerations

- Fish habitat availability and distribution
- Fish survival and reproduction
- Surface water levels and flow
- Concentration of chemicals and metals in surface water
- Concentration of chemical and metals in aquatic sediments
- Distribution and survival of snails, worms, dragonfly larvae, and other benthic invertebrates

Potential Effects

- Activities that could reduce or disturb aquatic environments, species, or habitats:
- Modification of fish habitat from disturbances around surface water
- Erosion and transport of sediments into surface water
- Water withdrawal from Whitefish Lake
- Releasing effluent to Whitefish Lake
- Water management could result in changes to water quality affecting fish, fish habitat, and benthic invertebrates
- Water management could alter stream flow or lake levels required for fish mobility and productivity
- Reclamation of disturbed areas could increase sediments in water and change fish habitat

Mitigation Measures

- Limiting duration of in-water working: conducting work during low-flow periods, and conducting work away from flows when possible
- Avoiding activities in windy or rainy conditions to limit erosion and sedimentation
- Plan activities in waterbodies to limit loss or disturbance to aquatic and sensitive habitat
- Limit shoreline degradation when operating machinery
- Stabilize shorelines to limit erosion and sedimentation by limiting clearing of vegetation and revegetating with native species, wherever possible
- Maintaining routes used for fish passage by designing water intake and treated water discharge locations to protect fish, fish movements, and fish habitats
- Planning to avoid chemicals entering waterways during near-water work
- Implementing an Erosion and Sediment Control Plan

Conclusions

- Effects are anticipated to be:
- Low magnitude—no loss of habitat and fish population
- Local—limited to Project area
- Long term for habitat availability—throughout construction and operation
- Short term for habitat distribution—fish movement protected throughout life of the project
- Not significant—residual effects are not expected to alter local fish populations

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Wheeler River VC: Relationship to the Land

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Environmental Assessment Considerations

- Resources availability
- Land availability
- Suitability of land and resources

Potential Effects

- The presence of the project and its activities may result in changes to:
- Water, vegetation, fish, and wildlife
- Access to the area
- Land area available
- Noise level, traffic, dust, and other disturbances associated with Project activities
- Quality of the experience using resources
- Opportunities for Indigenous land use activities
- Opportunities for non-Indigenous land use

Mitigation Measures

- Implementation of measures to protect plants, fish, and wildlife
- Limit the area of disturbance
- Use of noise reducing equipment
- Reduce dust and air emissions
- Enforce speed limits for traffic
- Implement radiological clearance of equipment before exiting Project site
- Implement progressive reclamation of disturbed areas
- Establish community agreements
- Establish trappers' compensation
- Implement Indigenous People's Policy, including ongoing communication with Indigenous Communities of Interest

Conclusions

- Effects are anticipated to be:
- Low magnitude—no loss of habitat and fish population
- Local—Project area (in and around the local and regional study area)
- Long term—until reclamation is complete
- Not significant—continuous in frequency, low in context, and fully reversible following decommissioning

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Wheeler River VCs: Community, Culture and Economy

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Environmental Assessment Considerations

- Populations, traffic, community infrastructure and services
- Income, employment, training, government revenues, business opportunities
- Community cohesion and traditional economy
- Employment and training (generally delivered through institutions connected to northern Saskatchewan)

Potential Effects

- Activities that could interact with community, culture, and economy:
- Population numbers and population characteristics
- Up to 300 jobs created during construction and more than 100 direct and contract roles during the operation phase
- Supervisory, trades, professional, technical, and foundational (entry level) positions available during operations
- Availability and increased opportunities for business and training
- Participation in traditional economic activities
- Abscense of Traffic
- Increased demand on community infrastructure and services

Mitigation Measures

- Implementation of agreements with communities (support)
- Prioritize Indigenous and non-Indigenous Communities of Interest (employment, training, and business, wherever possible)
- Implement procurement approach focused on communities
- Implementation of education and other support services for workers and in some cases their families
- Planned pick-up points in alignment with employment practices
- Implementation of Emergency Response Plan

Conclusions

- Effects on community well-being, infrastructure, services and economy are currently being assessed, and are anticipated to be:
- Minimal adverse and/or positive
- Low to moderate magnitude—during construction and operation, and low during reclamation
- Local—primarily in the Project area
- Short to medium—based on Project phases
- Not significant—continuous in frequency, moderate in context, and fully reversible following decommissioning

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Wheeler River Risk Assessment

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To evaluate and understand if people, plants, and animals will be exposed to substances at amounts above what is known to be safe after the planned mitigation measures have been applied.

It incorporates the movement of substances through the food chain as well as direct exposure to substances (soil, air, water, etc.) to appropriately capture risk.

Human Health Risk Assessment

People who access the project site are considered in the risk assessment. They include:

- Camp workers
- Seasonal resident/edge operator—seasonal access
- People fishing/hunting/trapping/gathering fireweed/picking berries—traditional and recreational access
- Neighbouring residents fishing/hunting/trapping
- Future permanent residents—access to Project site after its decommissioning

Assessment Results and Mitigation

- Low overall health risk to people using the area
- Expected radiation doses to people below public dose limit
- Low risk of exposure of people to metals in the environment (below benchmarks for metals)
- Ongoing monitoring during all Project phases

Ecological Risk Assessment

Considers ecological receptors such as:

- Terrestrial Mammals—Woodland Caribou, hare, moose, black bear, lynx, etc.
- Riparian Mammals—Muskrat, mink
- Terrestrial Birds—Bald eagle, robin, Canada goose, etc.
- Riparian Birds—Mallard, loon
- Fish—Northern pike, white sucker
- Aquatic Invertebrates—Zooplankton, benthic invertebrates
- Terrestrial Vegetation—Lichen, Blueberry, Labrador tea
- Aquatic Vegetation—Phytoplankton, Macrophyte

These can be exposed to substances through direct exposure in water, sediment, soil, air or through the food chain.

Assessment Results and Mitigation

- Low overall health risk to animals, plants, and invertebrates
- Expected radiation doses to ecological receptors below benchmarks
- No risk of exposure to ecological receptors to non-radionuclides hazards
- Ongoing monitoring during all Project phases

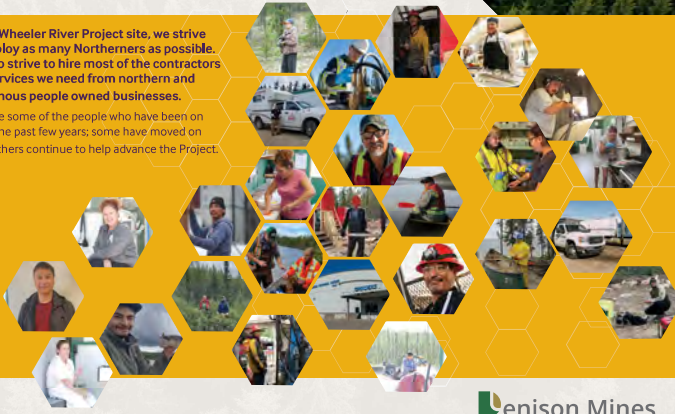
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Wheeler River Project People

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At the Wheeler River Project site, we strive to employ as many Northerners as possible. We also strive to hire most of the contractors and services we need from northern and Indigenous people owned businesses. Here are some of the people who have been on site in the past few years; some have moved on while others continue to help advance the Project.



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Wheeler River Building Relationships

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Denison and the Wheeler River Project team are committed to meaningful engagement with Indigenous people, communities, residents, and organizations with an interest in our Project.

TALKING together. LISTENING to you. RESPONDING to explain.

Engagement With Indigenous and Non-Indigenous Communities of Interest

- English River First Nation
- Kingsley Mills Local 8 (Ponchoal)
- Mills Nation - Saskatchewan
- A La Bale Mills Local 31 (Weila Cross)
- Spokey Mills Local 87 (Beauval)
- Patawaka Mills Local 82 (Patawaka)
- Northern Hamlet of Patawaka
- Northern Village of Pinehouse
- Northern Village of La La Croix
- Northern Village of Beauval

Other communities, organizations and groups of interest:

- Lac la Ponge Indian Band
- Broch Narrows Dene Nation
- Buffalo River Dene Nation
- Hatchet Lake First Nation
- Black Lake First Nation
- Ford du Lac First Nation
- Mills Nation - Saskatchewan
- Yat'yé Néné Land and Resource Office
- Prince Albert Grand Council
- Hudson Lake Tribal Council
- Commercial trappers
- Commercial loggers
- Cabin and lease owners

Thank You, Bobby John

Bobby John lived, trapped, fished and hunted in the Wheeler River Project area long before Denison and its predecessors started exploring the site. Over the years, Bobby John became someone our Project team relied on for insight on the area, for feedback on the Project proposal, for help with tracking wildlife and for assistance for our field teams, cutting through the bush and more. We will not forget Bobby John's contributions.

Since 2016 and every year after, Denison has met with community members and leadership through workshops, site tours, public meetings, and even virtual community meetings to hear concerns, receive knowledge and input, and share Project information. Subjects of workshops and meetings have included:

- Wheeler River Project components:
 - Access road
 - Treated water left/land discharge location
 - Mining method
 - Design change to freezing containment method
- Environmental considerations:
 - Water bodies - fishing
 - Fish habitat
 - Species at risk
 - Land disturbance

Our Support of Communities

Denison's support of communities can take various forms:

- Donations to community organizations
- Sponsorships of community events
- Sponsorships of in-kind support of education and field trips
- Direct agreements with specific Indigenous communities

Here are some examples of Denison's support in 2021:

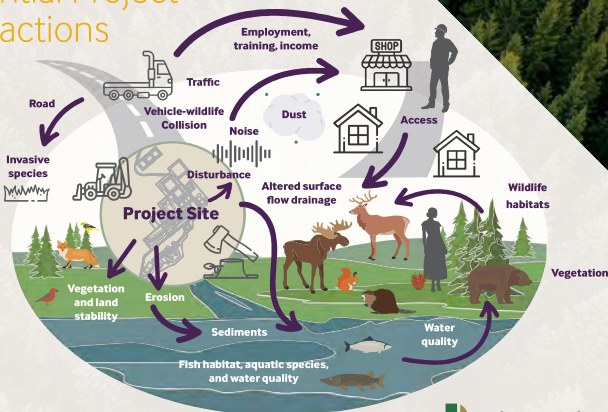
- Entered into an Exploration Agreement with English River First Nation
- Metty Nation Saskatchewan Region 3 South Bay Gathering
- Saskatchewan Group and their market garden initiative
- Pinehouse Lake hockey tournament
- Improvements to the English River First Nation Culture Camp at the Mawbey Reserve at 160km
- Many Christmas initiatives in the region, including those in Beauval, La La Croix, and the Hamlet of Patawaka

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Wheeler River Potential Project Interactions

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