Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 25-H9.1

Date: 2025-08-12

Written Submission from Denison Mines Corporation

Mémoire de Denison Mines Corporation

In the matter of

À l'égard de

Denison Mines Corporation

Denison Mines Corporation

Licence Application to Prepare Site and Construct for Denison Mines' Wheeler River Mine and Mill Project

Demande de permis pour la préparation de l'emplacement et la construction du projet de mine et d'usine de concentration d'uranium Wheeler River de Denison Mines

Commission Public Hearing

Audience publique de la Commission

October 8, 2025

Le 8 octobre 2025

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Canada

August 12, 2025

Denison Mines Corp.

Written Submission

In support of the Wheeler River Project Public Hearing 2025-H-09 on the Environmental Assessment and Application for the Licence to Prepare a Site for and Construct a Uranium Mine and Mill

Denison acknowledges and respects that the Wheeler River Project in northern Saskatchewan lies within the boundaries of Treaty 10, in the Ancestral Lands of English River First Nation, within the Nuhenéné (the Athabasca Denesułiné territory), and in the homeland of the Métis.

Executive Summary

Denison Mines Corp. (Denison) has prepared this Commission Member Document (CMD) to support two regulatory decisions by the Canadian Nuclear Safety Commission (CNSC) regarding its Wheeler River Project in northern Saskatchewan (Wheeler River or the Project):

1. The CNSC's decision with respect to the acceptability of the Environmental Assessment (EA) for the Project.

2. Denison's application for a Licence to Prepare a Site for and Construct a Uranium Mine and Mill under the Nuclear Safety and Control Act (Licence).

About Denison – Leadership, Legacy and Responsibility

Denison is a Canadian uranium exploration and development company with over seven decades of experience in uranium mining, environmental stewardship and regulatory compliance. The company is uniquely positioned to develop and operate Canada's next major uranium mine. With headquarters in Toronto, Ontario, and operational offices in Saskatoon, Saskatchewan and Elliot Lake, Ontario, Denison's primary focus is the Athabasca Basin.

Denison has a proven track record of measured, effective and sustainable operations, supported by expertly qualified leadership and deep technical capabilities, strategic partnerships, transparent relationships with Indigenous nations, a history of respectful engagement with regulators and robust systems and controls, demonstrating its capability as a responsible and competent proponent.

About the Project – Redefining Mining

The Project will make a significant contribution to the global clean-energy transition by providing fuel for nuclear power generation. It will also generate substantial economic benefits through employment and business opportunities, particularly in northern Saskatchewan and Indigenous nations and communities and increased revenue for governments at all levels.

Wheeler River proposes to be Canada's first uranium mine to utilize the in-situ recovery (ISR) mining method. This innovative approach offers significant advantages over conventional mining, including a reduced environmental footprint, no underground excavation or ore handling which enhances worker safety and the elimination of large volumes of waste rock and traditional mill tailings requiring long-term management.

The ISR process, which accounts for over 50% of global uranium production, is well understood and has proven to be a safe and sustainable approach to extract natural resources. The introduction of ISR to Canada's uranium mining industry has potential to unlock other deposits that were not economic to mine using conventional methods, diversifying Canada's sources of uranium supply and further contributing to the stability of the world's nuclear fuel supply.

Environmental Assessment – Integrating Robust Scientific and Indigenous Knowledge

The Wheeler River Project underwent a rigorous five-year environmental assessment and review process, with the final Environmental Impact Statement (EIS) filed with the CNSC in November 2024. The EA, conducted under guidance from both provincial and federal authorities, assessed potential environmental effects across all project phases from site preparation through decommissioning. It incorporates extensive technical analysis, Indigenous and Local Knowledge and community input, and outlines proposed mitigation measures to avoid or minimize effects on people and the environment.

The EA concluded that the Project, including proposed mitigative measures, can be constructed, operated and decommissioned while remaining protective of the biophysical and human environments.

Specifically, the assessment found that potential effects on air quality, groundwater and aquatic and terrestrial environments can be mitigated effectively to maintain the stability of wildlife and fish species. All predicted accident and malfunction scenarios were deemed of low likelihood and low overall risk, with potential effects that could be addressed through design and adoption of best management practices.

Licence to Construct – Capable and Trustworthy Stewardship

Denison's Licence application seeks approval for all elements of the ISR mine development at Wheeler River, including: (a) wellfield development, with the installation of surface and subsurface components of the injection, recovery, monitoring and freeze wells; (b) installation of a freeze wall as a tertiary safeguard for fluid flows underground; (c) construction of the surface processing plant; (d) construction of ancillary infrastructure, including laboratories, fire protection systems, radiation protection, ventilation systems and other associated control systems; (e) waste water treatment and other associated waste storage facilities; and (f) commissioning activities.

Construction activities will adhere to industry best practices to minimize effects on the environment and to keep risks to workers as low as reasonably achievable.

In preparation for construction, commissioning and operations, Denison has developed modern management systems for all aspects of the Project, consisting of 12 programs based on the CNSC's safety and control areas. The system ensures that the project will be safe for people and the environment by promoting a healthy safety culture and continual improvement, demonstrating leadership and accountability, defining clear roles and responsibilities and ensuring that all processes and outcomes meet regulatory requirements.

Engagement Activities – Founded on Principles of Reconciliation

Engagement with Indigenous Nations, communities and other interested parties has been a cornerstone of the Project since 2016, extending beyond regulatory requirements. Denison's approach is grounded in transparency, respect and open communication to build relationships based on trust and mutual respect consistent with the company's Indigenous Peoples Policy as well as the goals of reconciliation and inclusive development.

This engagement shaped the Project's design and the EA, influencing the selection of Valued Components, defining study boundaries, describing the existing environment through Indigenous and Local Knowledge, identifying potential effects and developing mitigation measures and monitoring programs. Several Indigenous nations and communities have been actively involved and have formally consented to the Project on condition that Denison materially fulfills the commitments it has made.

Comprehensive Preparation and Established Capability to Construct Canada's Next Uranium Mine

In conclusion, Denison has applied an industry-leading and rigorous approach to the environmental assessment of the Wheeler River Project, integrating diverse knowledge and proactive engagement. Based on the comprehensive evaluation and in line with accepted EA methodology, Denison has determined that the Project can be constructed, operated and decommissioned in a manner that is not likely to cause significant adverse residual or cumulative effects to people or the environment.

Denison is qualified and well-prepared to undertake the proposed licensed activities, demonstrating its commitment to technical excellence, safety, environmental protection and strong community relationships.

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1 Introduction

1.1 Purpose and Scope of this Commission Member Document

This Commission Member Document (CMD) was prepared to support two regulatory decisions by the Canadian Nuclear Safety Commission (CNSC) with respect to Denison Mines Corp.'s (Denison) Wheeler River Uranium Project (the Project), located in northern Saskatchewan.

First, this CMD provides information to support the Commission's decision on the acceptability of the environmental assessment (EA) for the Project, as recommended by the CNSC staff. The EA, as documented in the Environmental Impact Statement (EIS) in accordance with the Canadian Environmental Assessment Act, 2012 (Government of Canada 2019), assessed potential effects on people and the environment across all phases of the Project from site preparation through decommissioning. It incorporates extensive technical analysis, Indigenous Knowledge and community input, and outlines the mitigation measures proposed to avoid or minimize adverse effects. The EIS, summarized in Section 3, demonstrates that the Project can be carried out in a manner that is protective of the environment and people and is not likely to cause significant adverse effects considering the proposed mitigative measures.

Second, this CMD provides information to support the Commission's decision on Denison's application for a licence to prepare a site for and construct a uranium mine and mill under the Nuclear Safety and Control Act. This includes mining components consisting of the wellfield development (which includes freeze-wall installation and wellfield drilling), and the construction of the surface processing plant, associated waste storage facilities and commissioning activities. Information presented in this document under Section 4 Licence to Prepare a Site and Construct demonstrates that Denison Mines is qualified and will make adequate provisions for the protection of people and the environment when conducting the proposed licensed activities.

Finally, the information presented in this CMD provides a comprehensive summary of Denison's engagement activities in relation to the Project. While significant engagement was undertaken in support of the EA and licensing, Denison's efforts extended to participation in community-led events and outreach. Section 2 provides a summary of engagement activities conducted during the planning and development of the Project including discussions related to project design, regulatory processes and other matters of community interest. Denison's approach to engagement is grounded in transparency, respect and a commitment to open communication with Indigenous Nations, communities and other interested parties. These efforts contribute to the development of relationships based on trust and mutual respect.

1.2 Denison Mines Overview: Leadership, Legacy and Responsibility

Denison is a Canadian uranium exploration and development company with extensive expertise in the uranium industry. As the proponent and operator of the Wheeler River Project, Denison brings over seven decades of experience in uranium mining, environmental stewardship and regulatory compliance to the development of Canada's next uranium project.

Denison is headquartered in Toronto, Ontario, with operational and technical support offices in Saskatoon, Saskatchewan, and Elliot Lake, Ontario. The company's primary focus is the Athabasca Basin in northern Saskatchewan where the Wheeler River Project is located. Consistently, Denison has been recognized as the top Canadian uranium developer, as well as one of the Top 115 companies in Canada,

for corporate governance practices and disclosure in the Globe and Mail's annual "Board Games" assessment.

Denison, including its predecessor companies, has been active in the uranium mining industry in Canada and the United Sates since 1954. In addition to its ownership in the Project, Denison is part owner of the McClean Lake Joint Venture (22.5%), which includes the McClean Lake mill in northern Saskatchewan, and holds extensive experience in mine decommissioning as the current operator of the closed mine projects at Elliot Lake, Ont. Previously, Denison was a licensed operator of multiple uranium mines in the United States and the White Mesa Mill in Utah.

Denison is committed to honest and ethical conduct, with a focus on compliance and transparency with regulators, Indigenous nations, and communities. We operate our facilities and offices in a manner that protects the safety of our workers, the public and the environment. Denison currently holds CNSC licences for its decommissioned uranium mine sites in the Elliot Lake region, and a Nuclear Substances and Radiation Devices Licence for equipment used during Feasibility Field Testing at Wheeler River. Denison also holds an Approval to Operate a Pollutant Control Facility permit from the Government of Saskatchewan required for field testing activities at Wheeler River. Denison is in full compliance with the terms of its current licences and permits.

Denison understands the importance of learning what matters to local communities and collaborating to find solutions. Across northern Saskatchewan, people tell us that they want their communities to benefit from employment and business opportunities related to our activities. We responded with hiring practices that ensure Indigenous peoples participate in our workforce. In 2024, nearly 17% of people working at our work sites and offices self-identify as Indigenous. Denison also spent almost 30% or $14M of its northern Saskatchewan project expenditures with Indigenous or northern-owned businesses in 2024. As the Project advances, Denison will apply rigorous continual improvement standards in these areas in a manner that respects the interests of local communities.

Denison's strong governance practices, integrity, industry experience, technical capabilities and demonstrated environmental and social responsibility uniquely position the company to advance the Wheeler River Project. The company's proven track record, qualified leadership and strategic partnerships make Denison a compelling and qualified proponent to responsibly develop and operate the Wheeler River Project.

1.3 Wheeler River Project Overview

1.3.1 Scope of the Project

The Wheeler River Project is the farthest advanced new uranium mining project in the eastern Athabasca Basin of northern Saskatchewan and will be Canada's first uranium mine to apply the in-situ recovery (ISR) mining method. Denison proposes to mine uranium at Wheeler River by circulating an acidic solution within the underground deposit. The mining solution dissolves the uranium, which is brought to the surface for recovery in a processing plant. The ISR method offers these advantages over conventional mining at all stages of the project:

- The environmental footprint of the project is greatly reduced because the surface facilities required are much smaller than those needed for a conventional open pit or underground mine.

- Minimal requirements for excavation and ore transportation enhance worker safety and radiation protection.
- The process does not generate the large volumes of waste rock from underground and surface development that require extensive management during operations, decommissioning and reclamation.
- There is no need for a traditional tailings management facility to contain and provide safe long-term storage of waste from ore processing.

The ISR mining process currently accounts for over 50% of global uranium production. The process is well understood and has proven to be safe and environmentally sustainable in alignment with federal and provincial goals for sustainable resource development.

The Project is located about 600 km north of Saskatoon between the Key Lake and McArthur River uranium mining operations and is connected to the provincial road network and power grid.

The Project contains an equivalent of approximately 70.5 M lbs triuranium octoxide (U_3O_8) of indicated resources. Proposed mining plans target to extract an equivalent of 56.7 M lbs U_3O_8 of the in-ground resource. The surface footprint for the Project will be approximately 170 hectares.

The Project was assessed for an operation phase lasting up to 15 years with capacity to produce up to an equivalent of 12 M lbs U_3O_8 annually. The Project is expected to create 180 direct jobs and extensive contracting opportunities for individuals and businesses in northern Saskatchewan. If approved, Wheeler River will be Canada's first new large-scale uranium mine project in more than two decades.

1.4 Project History and Timeline

The Wheeler River claims were staked in July 1977. Exploration activities (geophysical surveys, geochemical sampling and drilling) were conducted from 1978 onward by various operators.

Denison became the project operator in November 2004 and acquired majority control, at that time. A high-grade uranium deposit, named Phoenix, was discovered by Denison's exploration drilling in 2008. Delineation drilling from 2008 to 2014 defined the deposit as one of the world's highest-grade undeveloped uranium deposits. This delineation was followed by the completion of a Preliminary Economic Assessment in 2016. As prospects for development continued to improve, Denison committed to identifying an environmentally responsible, technically viable and socially acceptable mining method for the project. More than 32 options were evaluated, including open pit, underground jet boring and surface boring. The evaluation of alternatives was informed by meaningful engagement with Indigenous rightsholders and local communities. Early engagement workshops in 2018 invited feedback on mining methods, with participants expressing interest in approaches that could minimize environmental disruption, water use and long-term land impacts. ISR's small footprint, elimination of long-term conventional tailings storage and reduced water consumption were consistently viewed as advantages with local Indigenous and non-Indigenous communities. Some participants raised questions about ISR's similarity to hydraulic fracturing used in the oil and gas industry. Denison responded with information on how ISR differs substantially as the method does not use high-pressures to "frack" the ground to liberate uranium mineralization but rather uses a specially designed mining solution to dissolve the uranium mineralization in place. Engaging in explanations of these differences and the environmental controls associated with an ISR mine helped shape the Project's design, including the decision to incorporate a freeze wall, which is viewed as an additional environmental safeguard. Denison selected the ISR mining

method in 2018 during early feasibility assessments and has since advanced technical evaluation through additional feasibility and engineering assessments and subsequent detailed design. The ISR method is a modern approach to mining that is low-impact, adaptive and responsive to community interests. As part of Denison's efforts to advance Wheeler River to this point, each project component was scrutinized through the lenses of safety, sustainability and long-term environmental stewardship.

Denison initiated an EA with a project description submitted to federal and provincial regulators in early 2019. As the EA and associated engagement activities advanced, Denison began extensive desktop, laboratory and field studies to advance the project. In 2019, laboratory metallurgical testing was initiated to confirm leaching and processing chemistry. In parallel, a field test confirmed that the hydraulic connectivity and permeability of the deposit were consistent with the results of desktop studies. In a 2021 field test, Denison achieved a viable production flowrate assumed in earlier studies and demonstrated hydraulic control and recovery of a non-reactive tracer solution injected into the deposit via the test wells. A significant milestone was achieved when Denison conducted a Feasibility Field Test (FFT) – a large-scale ISR field test, which was designed to confirm the test results of lab-based metallurgical testing and field-based hydraulic testing by carrying out a controlled in-ground field test with the objective of recovering a small volume of mineralized solution from the deposit. Denison secured all necessary permits to operate the FFT in mid-2022. From the initiation of the FFT to 2024, Denison successfully completed the leaching, neutralization, recovered solutions management and partial decommissioning phases of the FFT.

The FFT involved the utilization of wells in a section of the deposit to test the injection of mining solution and recovery of uranium-bearing solution under near-actual operating conditions. This test successfully demonstrated the ability to move fluids through the ore zone, recover uranium in solution, neutralize as predicted and verify containment of fluids to the mining horizon using an extensive monitoring network. The FFT achieved its objectives, providing critical hydrogeological data and proving that the deposit could be mined using ISR. Denison conducted supporting metallurgical test programs from 2021 through 2023 to define the design criteria for the uranium production and effluent treatment circuits. The effluent treatment tests characterized the treatment process and supported the development of effluent quality parameters for the EA. These efforts, along with the field tests, provided crucial data for the EIS. The laboratory studies demonstrated consistent uranium recovery and achievable effluent quality targets that inform Denison's confidence in the safety and effectiveness of the proposed methods. The EIS was then accepted in late 2024.

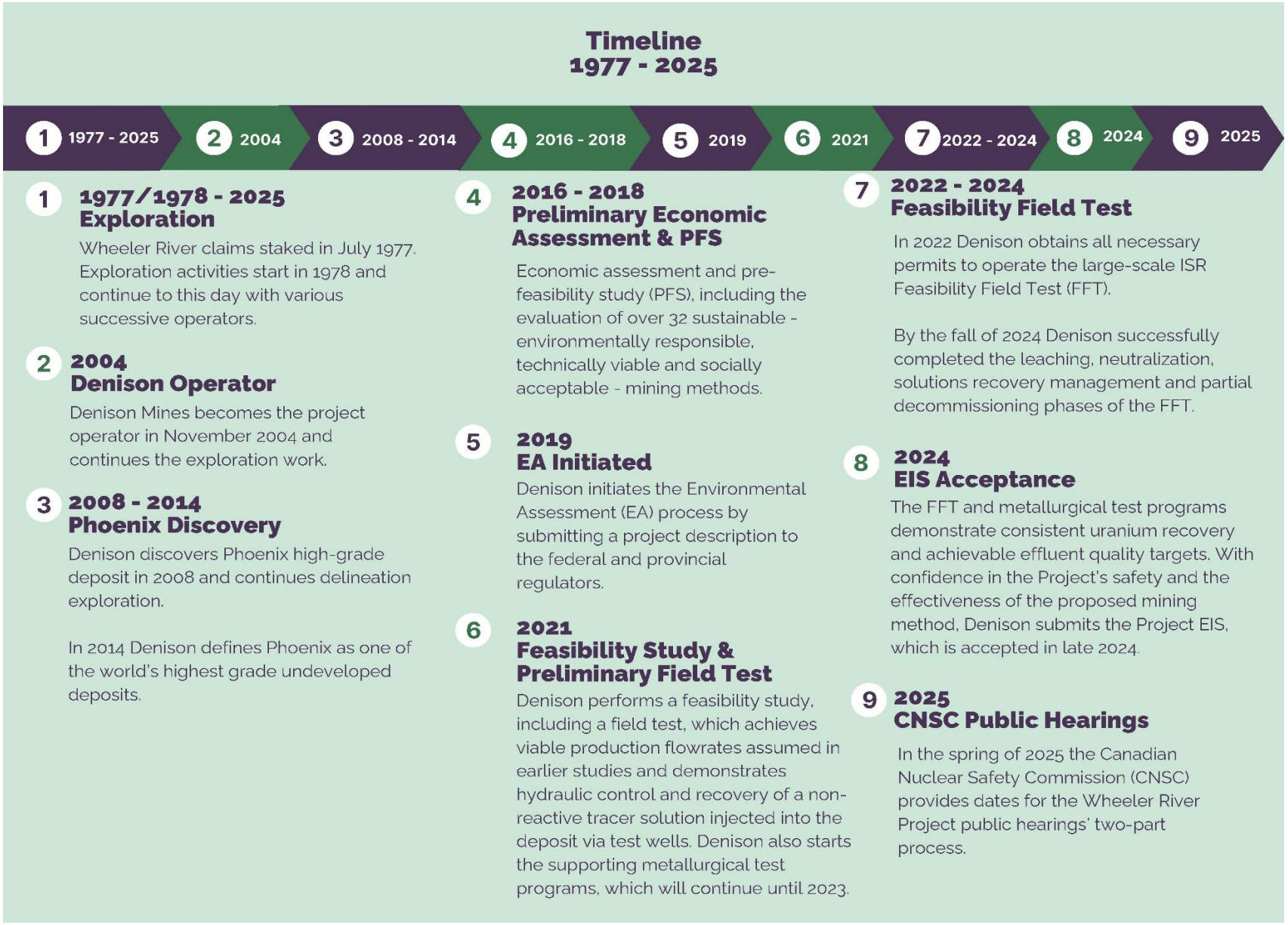


Figure 1-1 Wheeler River Project History and Timeline

1.5 Description of Components

Project components to be considered as part of this CMD are listed below. All project components were assessed through construction, operation and decommissioning as part of the EA to comply with CEAA 2012. However, in alignment with the Nuclear Safety and Control Act (NSCA), not every component assessed in the EA is included in the construction licence application. Please see the list of broad project components below.

- ISR mining**
- uranium processing**
- water management**
- waste management**
- site power and heating
- access roads, air strip and worker transportation
- support facilities including the work camp

Note: ** Indicates a component to be licensed under NSCA as part of a construction licence, in addition to an EA component assessed under CEAA 2012.

A summary description of each Project component is provided below. Additional details are provided in Section 3.4.2 of the EIS.

1.5.1 Site Footprint and Layout

The total footprint of Project components (infrastructure footprint) is anticipated to be 74.8 hectares (ha). By applying a buffer around these components, the maximum footprint of the Project was estimated to be 169.6 ha.

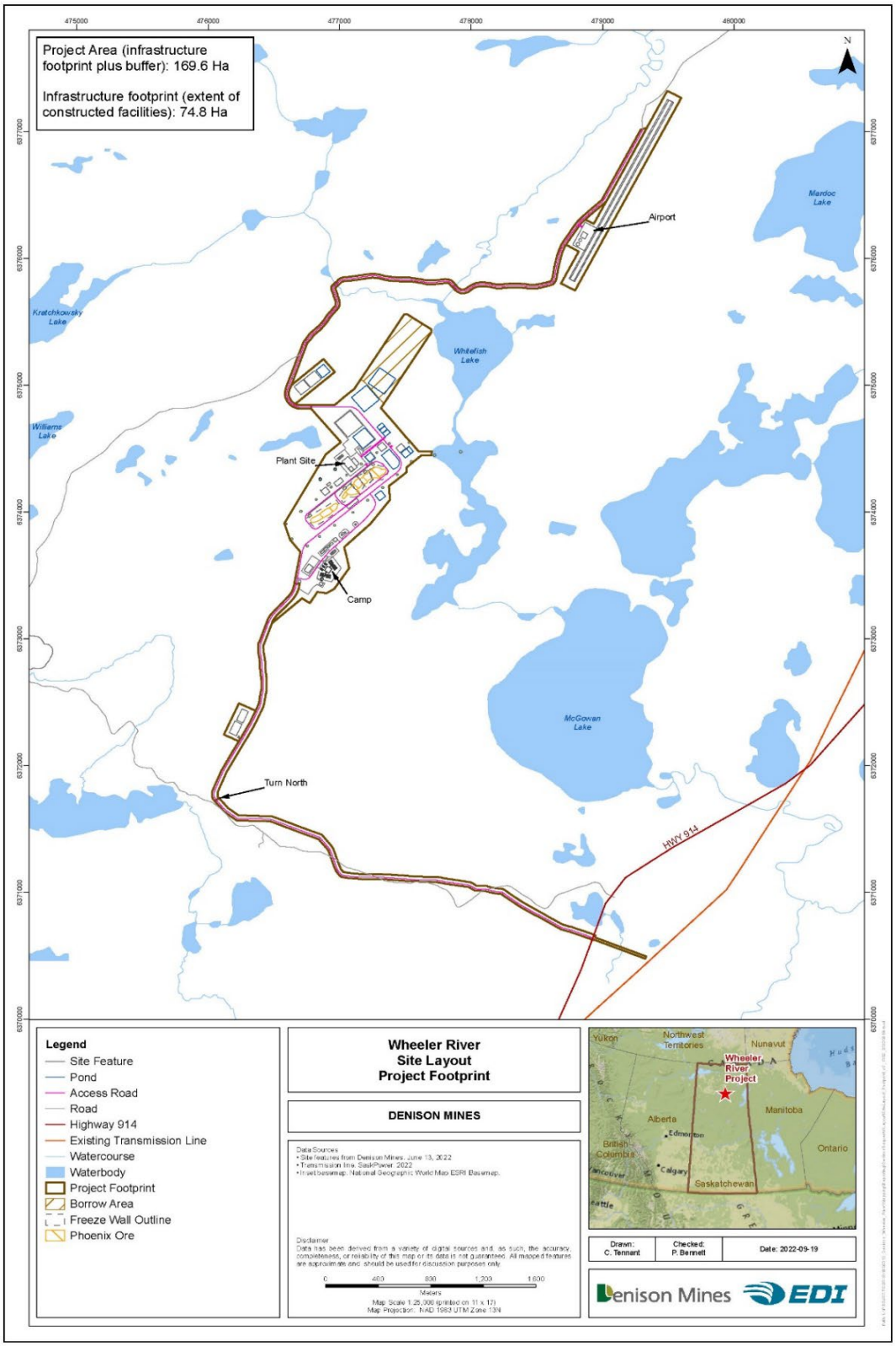


Figure 1-2 Wheeler River Project Area

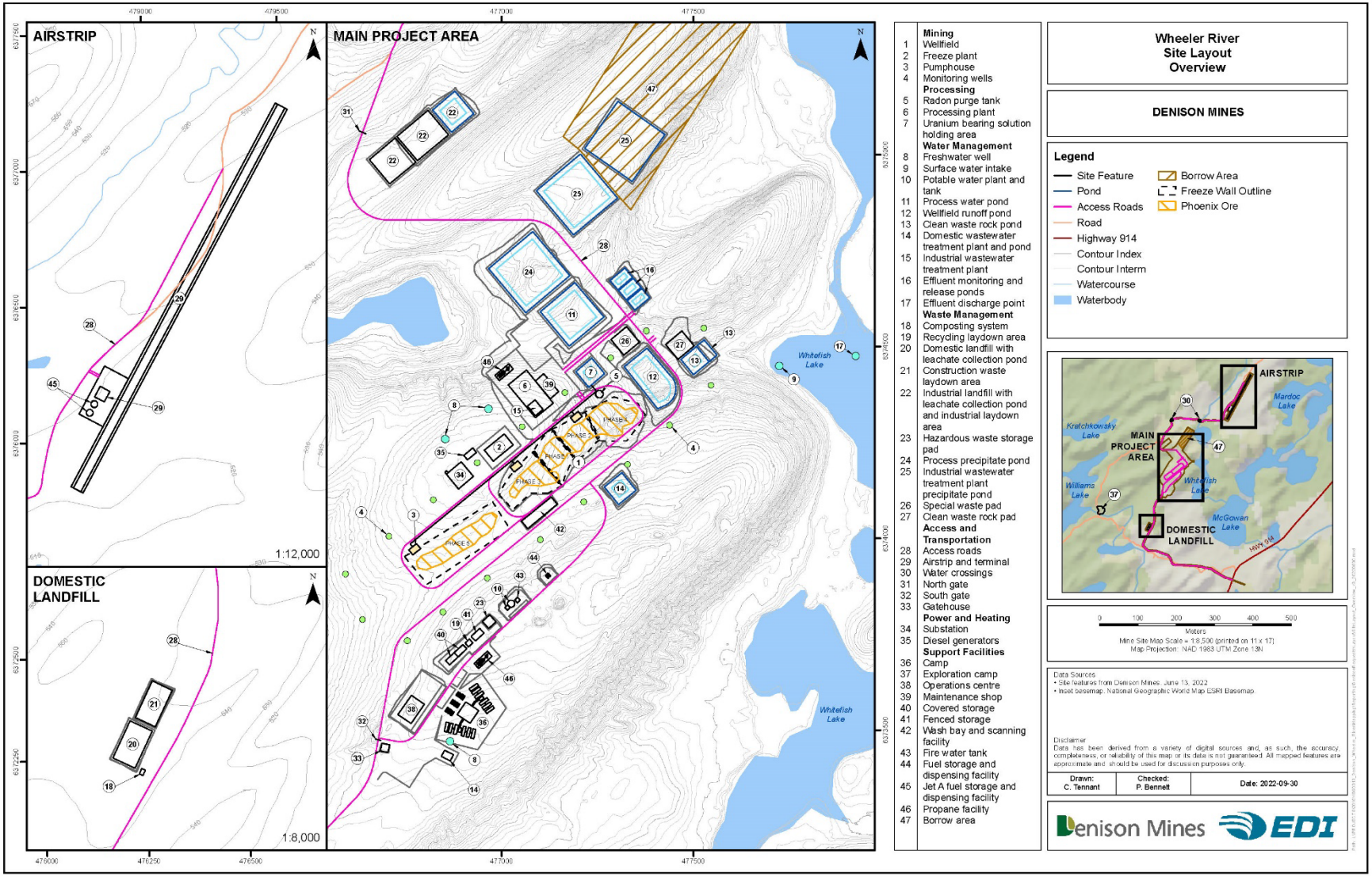


Figure 1-3 Wheeler River Proposed Site Layout Project Area

1.5.2 Mining

The Phoenix uranium deposit is geologically situated at or above the unconformity between the Athabasca Basin sandstone and older basement rocks, approximately 400 m below the surface. The deposit has an average thickness of 5 m and extends approximately 750 m in length. Mining will be completed using an ISR method. An acidic, water-based mining solution is injected from surface pumphouses via a series of injection wells. The mining solution enters the uranium mining area through slotted well screens installed at the base of the injection wells. The mining solution dissolves uranium contained in the host rock as it travels from an injection well toward a recovery well that transports the solution back to the surface.

The mining area for the Project is defined as the area inside the freeze wall (described below) and up to 50 m above the uranium deposit. Natural groundwater flows at the depth of the deposit (~400m below surface) moves at a rate of less than one metre per year.

The overall mining strategy for the Phoenix uranium deposit is that mining will occur in a phased approach. This phased approach is advantageous to Denison and the CNSC, as it will enable the application of experience to a latter-stage wellfield layout and operation.

Development of each phase will begin with the drilling and installation of the freeze holes surrounding the phase, to start the process of establishing the freeze wall. The freeze plant and the associated piping will be built in modular units such that there is sufficient freezing capacity available for operations during the overall life of the mine. While the freeze wall is being established, extraction, injection and monitoring wells associated with the operation of the phase will also be developed.

Infrastructure for mining will be established during the initial construction period except for the wellfield, for Phases 2 to 5 and some pads or landfills that may need to be expanded during operations. Wells will be established on an as-required basis. Prior to entering a new phase, the infrastructure for that phase will need to be constructed and tested.

Specific details may change as the Project advances through engineering design stages. The series of injection and recovery wells constructed as part of the wellfield will be generally arranged with one central recovery well surrounded by four injection wells. The final wellfield is expected to include approximately 300 wells over an area 90 m wide and 750 m long.

The mining solution will be prepared on site by adding reagents (likely sulphuric acid, hydrogen peroxide, and ferric sulphate) to water. Water will be sourced from either shallow groundwater wells or Whitefish Lake. The concentration of reagents required to create the mining solution will be based on previous field and laboratory test work.

The mining solution will be pumped underground to the mining area via an injection well and recovered and pumped to surface as uranium-bearing solution (UBS; i.e., mining solution now containing dissolved uranium) through a series of recovery wells. At surface, UBS will be pumped into the processing plant where the uranium will be removed from the solution. Typical extraction flow rates of the UBS are estimated to range up to 10 L/s and the production capacity is not expected to exceed an equivalent of 12 M lbs of U_3O_8 per year during operation. Mud rotary and diamond drilling, both well-established drilling techniques, are expected to be used to create the injection and recovery wells for mining, along with the holes for various monitoring wells (Figure 1-4).

Figure 1-5 provides an overview of Denison's conceptual well installation sequence.

Containment of the mining solution and UBS within the mining area will be achieved through a defense-in-depth approach with three levels of containment:

1. **Design and operation of the injection and recovery wells**

   The wells are designed with both outside and inside casings to minimize the potential release of mining solution or UBS into the sandstone above the mining area. The wells will be constructed of materials resistant to the mining solution that meet design specifications. Wells will be pressure grouted from the ore zone to the surface and tested for mechanical integrity to confirm they are functioning properly. Operation of the wellfield will allow for monitoring of pressure changes so that any pressure loss can be quickly identified by operators.

2. **Inward hydraulic gradient from wellfield operation**

   A hydraulic gradient will be present in the mining area as the mining solution is pumped from an injection well (area of high pressure) toward a recovery well (area of low pressure). This consistent gradient in pressure causes the solutions to preferentially flow toward the low-pressure areas in a controlled manner. Site-specific hydrogeologic studies and models, coupled with more than six decades of global operational experience, verifies that mining solution within the mining area can be controlled by maintaining an inward hydraulic gradient.

3. **Creation of a freeze wall**

   Denison is proposing a freeze wall for tertiary containment of the mining solution. The engineered freeze wall will extend from the surface down to the low-permeability basement rock below the uranium deposit. The very low-permeability basement rock underlying the uranium deposit serves as a natural aquitard restricting the flow of groundwater. The overlying sandstone hosting the uranium deposit is permeable, allowing groundwater to flow horizontally through the deposit. Ground freezing technology is well established throughout the world. Its use in a mining environment was pioneered in Saskatchewan's potash mining industry for shaft sinking activities and was later adapted for use in Saskatchewan's uranium industry. Ground freezing to prevent groundwater from entering mining areas is a fundamental component of current underground uranium mines operating in the Athabasca Basin. The freeze wall for the Project will be established before mining begins by drilling vertical holes (using common diamond drilling methods) from the surface to the competent basement rock. These holes will be cased and outfitted to circulate a freezing brine solution to gradually reduce the temperature of the ground around the drill hole and ultimately to freeze the water within the rock to create a continuous in-ground freeze wall around the mining area. A total of more than 300 freeze holes are planned for the Project. Once completed, the freeze wall will create a physical barrier around the mining area that will completely isolate it from the surrounding regional groundwater.

   Groundwater monitoring wells will be configured to contain solutions within the mining area and provide early warning of any vertical migration of mining solution or UBS within the perimeter of the freeze wall. Additional monitoring wells will be positioned to monitor groundwater pressures and quality outside of the mining area, including outside the perimeter of the freeze wall. Groundwater movement at the depth of the deposit is extremely slow due to low permeability, further enhancing containment and providing additional response time in the unlikely event of migration. Monitoring groundwater conditions along the freeze wall perimeter also serves to monitor any loss of freeze capacity of the freeze wall.

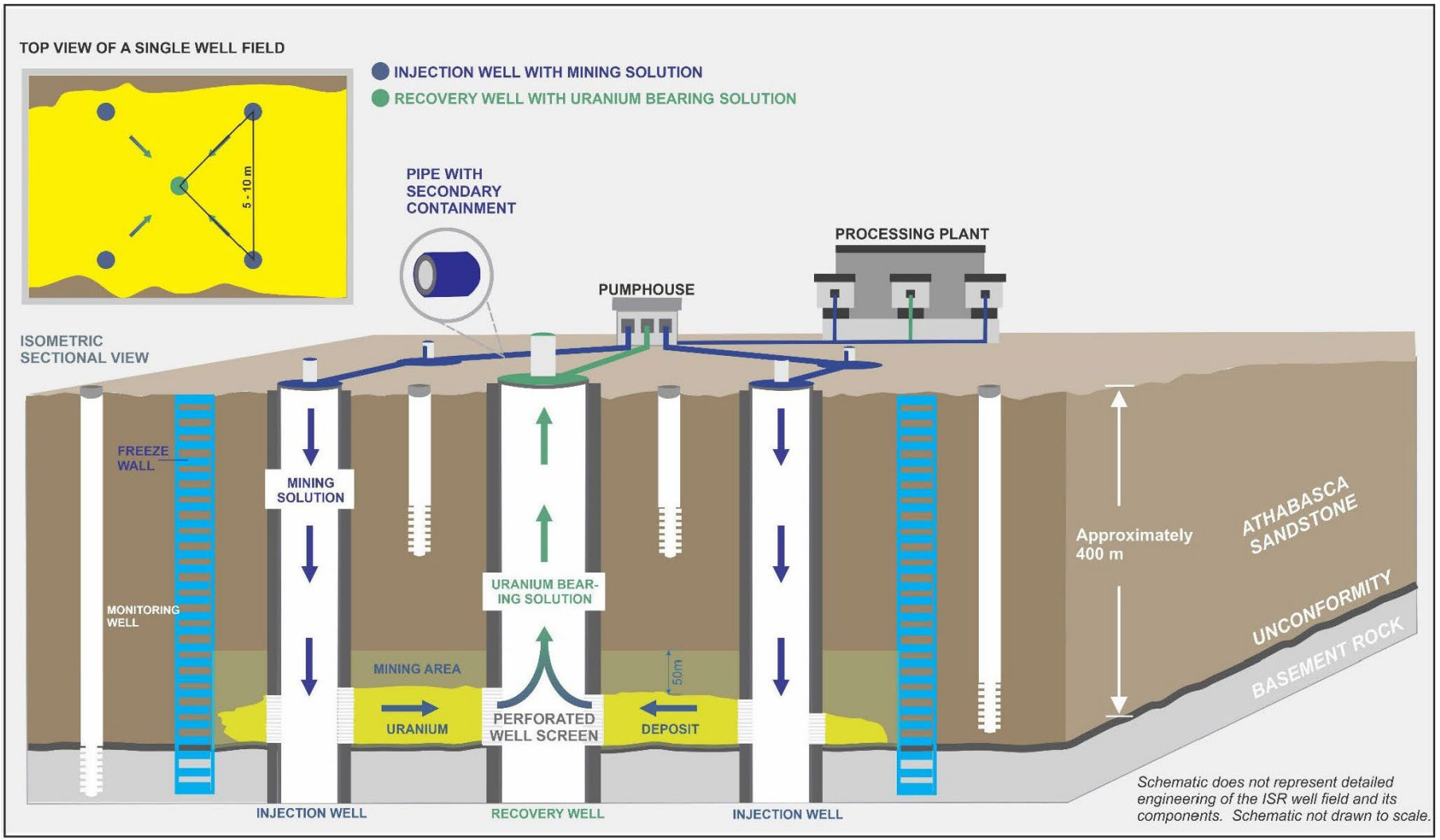


Figure 1-4 Wheeler River Project - Overview of the In-Situ Recovery Process (not to scale)

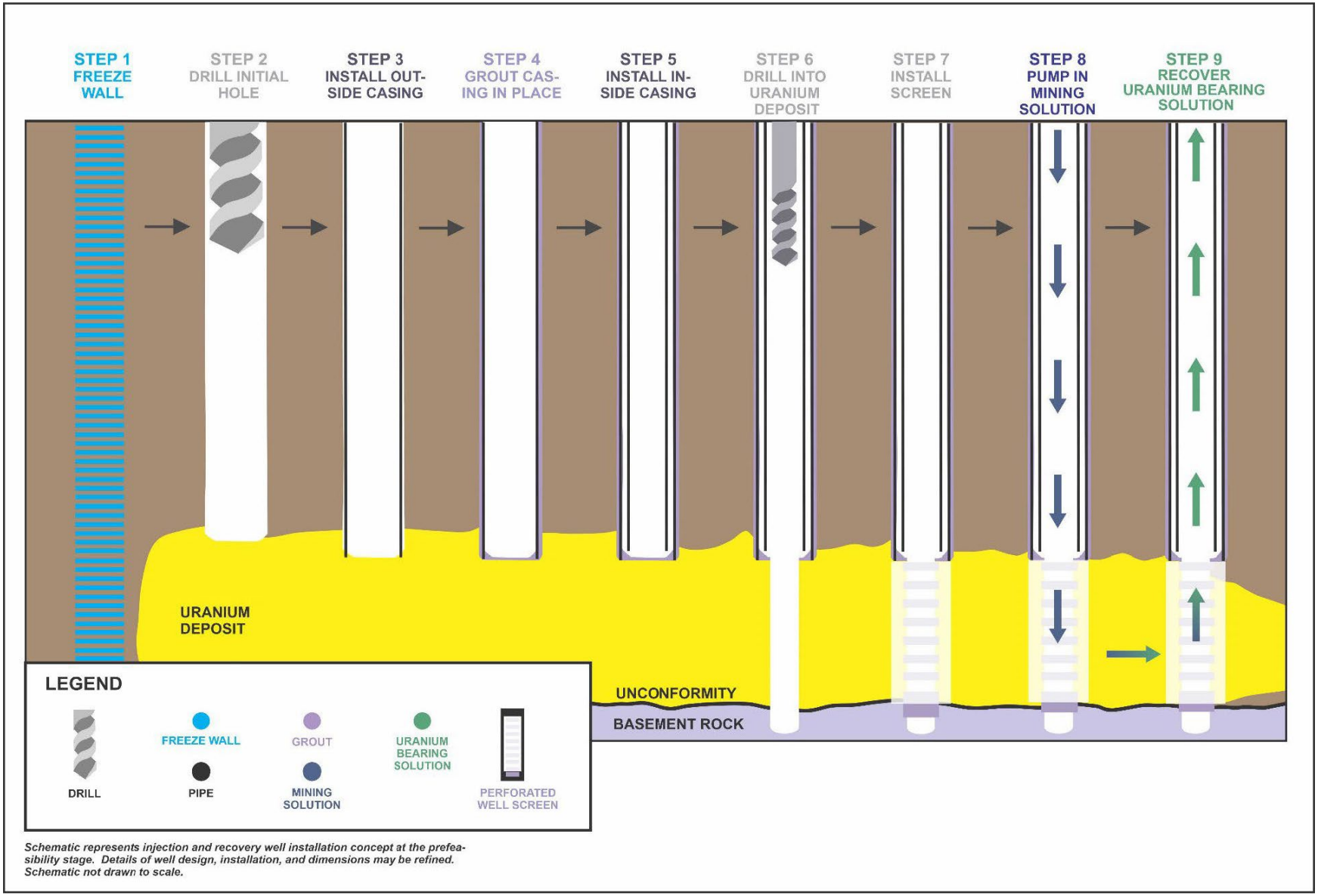


Figure 1-5 Wheeler River Project - Proposed Injection and Recovery Well Installation Sequence (not to scale)

1.5.3 Processing

Processing of the UBS into uranium concentrate will take place in the processing plant. Denison's processing plans are based on metallurgical tests completed as part of preliminary engineering activities and best practices undertaken at existing uranium mines in the Athabasca Basin.

When the UBS comes to the surface, radon gas will naturally migrate out of the solution and into the atmosphere. To manage radiation exposure of process plant workers as low as reasonably achievable (ALARA), a radon purge tank will be used to remove an initial volume of radon before the solution enters the plant. A holding area will be designed to safely store the UBS on the surface prior to processing and to regulate the flow of UBS into the plant.

The processing plant includes a two-stage precipitation circuit. The first process precipitate circuit is designed to remove non-uranium constituents including iron and radium-226 from the UBS. Process precipitates will be radioactive and contain 2% to 3% uranium, which is considered economical as feed for other mills in Saskatchewan. The process precipitates will be safely stored on site for eventual off-site reprocessing and final disposal at an approved facility.

Then, through a series of tanks, clarifiers, filters and centrifuges, and with the addition of reagents, the uranium contained in the UBS is precipitated, dried and packaged via the uranium circuit.

Uranium concentrate, also known as yellowcake, is the final product of the processing plant. It will be packaged in steel drums at the processing plant and transported off site by truck. Water generated in the processing plant will be treated at the industrial wastewater treatment plant to meet regulatory requirements, and be reused either in the wellfield or in the process plant, or released to Whitefish Lake.

An overview of the processing plant is provided in Figure 1-6.

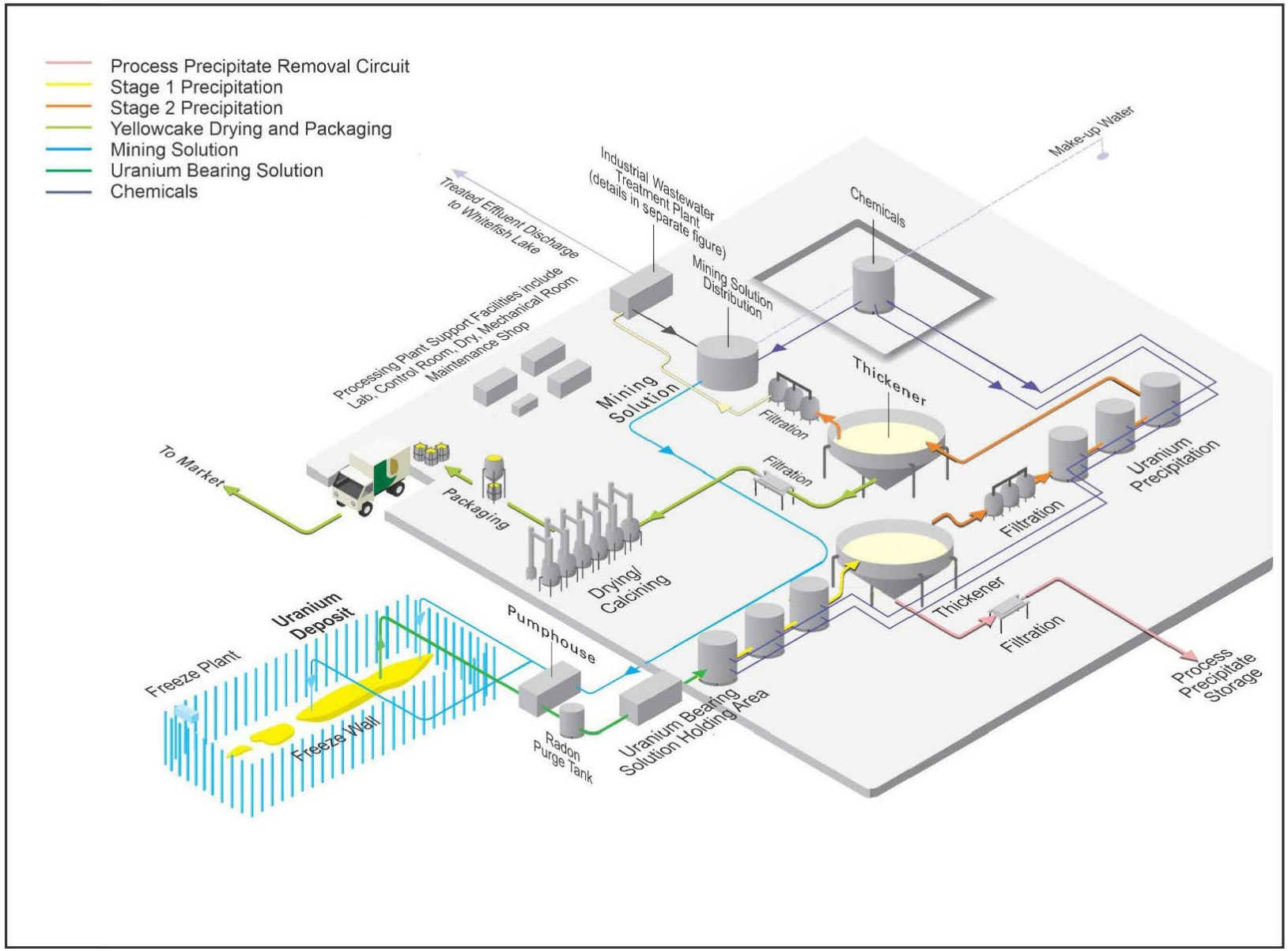


Figure 1-6 Wheeler River Project - Processing Overview

1.5.4 Water Management

Water management for the Project involves the distribution of freshwater, collection of runoff water, recycling and treatment of process water, and collection and treatment of industrial and domestic wastewater. As part of Denison's approach to sustainable mining, the company intends to recycle process water to the greatest extent possible, thereby reducing demand for freshwater and minimizing the volume of treated effluent released to the environment.

A freshwater distribution system will be designed to provide freshwater for the fire water system, the potable water treatment plant (WTP), the processing plant including mining solution preparation, the wash bay, drilling and batch plant operation. Water will be sourced from either a shallow groundwater well or Whitefish Lake.

A process water pond, double-lined with leak detection capabilities, has been designed to capture water from various areas, including the process precipitate storage pad and the special waste pad. The pond will be designed to hold up to 30,000 cubic metres of water and will be located next to the processing plant. The pond will be able to receive water from all site ponds and monitoring wells. If required, water from this pond can be used directly in the processing plant or directed to the industrial wastewater treatment plant (IWWTP), located within the processing plant building.

Domestic wastewater, including greywater (e.g. water drained from sinks, showers, and washing machines), and blackwater (i.e. sewage) generated on site will be piped or trucked to the domestic wastewater treatment plant (DWWTP). Treated effluent from the DWWTP at camp is pumped to the DWWTP pond prior to sending it to the IWWTP and eventually released to the environment.

A three-stage IWWTP will be used to treat potentially contaminated waters produced from the processing plant and other sources (e.g., wash bay sump water, leachate from the industrial landfill and wellfield runoff pond). Two stages of Lime Neutralization will be used to neutralize acidity and to precipitate and remove contaminants. Fluidized zero valent iron (ZVI) column(s) and sand filters will be used in the third stage to remove residual contaminants and to achieve the environmental release targets for treated effluent. Exhausted ZVI media will be disposed of in the IWWTP precipitate (gypsum) pond, or at an appropriate offsite facility.

Denison intends to incorporate treated water (to the extent possible) back into the mining water balance as make-up water in the processing plant to generate additional mining solution. Any excess treated water from the IWWTP will be pumped to the effluent monitoring and release ponds.

Denison plans to construct and operate three effluent monitoring and release ponds which will receive treated water from the IWWTP. There will also be an option to recycle water from these ponds back into the processing plant via the process water pond. Each pond will be operated with the following stages: 1) filling, 2) holding while awaiting quality confirmation, and 3) releasing to Whitefish Lake once water quality is confirmed to meet discharge limits. All effluent released to surface water will meet federal and provincial regulatory discharge criteria.

1.5.5 Waste Management

Conventional waste, radiologically contaminated waste and hazardous waste will be managed at the Project. Denison is committed to conducting thorough waste characterization throughout the Project's life. This includes physical, radiological and chemical characterization to maintain accurate waste

inventories and determine how wastes will be managed through re-use, recycling, temporary storage or permanent disposal (on- or off-site). This includes clearance of waste or materials that meet unconditional release requirements and can be safely removed from the site.

Drilling activities will generate small volumes of two types of waste rock (i.e. drill cuttings): clean waste (drill cuttings from the sandstone) and special waste (drill cuttings from the area close to the uranium deposit). Both waste types will be handled appropriately on the surface, including managing water that may come into contact with them. Clean waste will be used where possible in construction, and special waste will be processed at the plant or properly disposed.

The processing plant and IWWTP will generate two types of precipitates: process precipitates, which contain uranium and are radioactive, and the IWWTP precipitates, which are non-radioactive.

Two waste landfills are included as part of the Project. The design and operation of these facilities are consistent with best management practices at northern Saskatchewan mine sites and comparable jurisdictions. The two landfills are the:

- Domestic waste landfill.
- Industrial waste landfill.

The domestic landfill will feature a composite liner system with leachate collection capabilities. The landfill will be fenced and contoured to direct runoff away from the facility and managed to prevent attracting wildlife and birds.

The industrial landfill will have a double geosynthetic composite liner system. An associated leachate collection pond will be located immediately north of the industrial landfill, featuring a double liner system with leak detection capabilities. Radioactive material from operational activities that cannot be cleaned to meet radiological clearance (e.g. used wellfield piping, laboratory waste) will be disposed of in the industrial landfill.

Additionally, a small pad designated for temporary storage of hazardous waste including paints, solvents, hydrocarbons and used oil will be required to support the Project. The temporary storage pad will have a composite liner system. Hazardous wastes will be stored temporarily on this pad before being taken off site by waste management service providers for proper recycling or disposal.

1.5.6 Access and Transportation

Land access to the site will be via Highway 914. A 7 km section of road will be constructed from the highway to the Project site, and a 5 km road will be constructed from the Project site to the proposed airstrip. Additional site roads will include a service loop to the camp.

As a proposed fly-in, fly-out operation, the Project will require an airstrip to bring personnel to and from the site. A 1,600-metre airstrip is proposed to be positioned in a natural and relatively flat valley northeast of the Project site.

North and south security gates will control access to the Project area. The main, south gate will be located near the operations centre and staffed as required. The north gate will be a simple locked gate.

1.5.7 Power

Electrical service to the Project will be provided via an approximate 5 km extension tap from the existing 138 kV overhead transmission line that runs along Highway 914. The transmission line owned and operated by SaskPower will terminate at an on-site electrical substation. Optimization of the precise line route will be completed as the Project advances.

Power transmission to the site (e.g. assessment, obtaining necessary permits, and construction) will be led by SaskPower. Diesel generators will be installed to provide power to the site and maintain essential functions in the event of a power outage.

1.5.8 Support Facilities

The following support facilities will be constructed on the Project site (see Figure 1-3):

- Camp
- Operations centre
- Covered and fenced storage
- Wash bay and radiological clearance scanning area
- Fire water system
- Facilities to support hazardous substances management
- Fuel storage and dispensing facility
- Propane facility
- Borrow area.

2 Engagement Activities: Meeting Regulatory Requirements and Advancing Best Practices

Denison's comprehensive engagement strategy was initiated in 2016 before the environmental assessment and licensing processes began. Building on northern Saskatchewan's long experience with uranium mining and existing public information programs, Denison identified potentially interested parties and initiated engagement with the goal of building respectful relationships grounded in trust, good faith and transparency. To date, engagement has covered all Project aspects in communities across the north through a comprehensive environmental assessment that generated 580 comments during public review of the draft Environmental Impact Statement (EIS); 560 were responded to by Denison and 20 were responded to by the CNSC. Northern Saskatchewan residents value and expect diligent engagement on resource projects. Respondents to a 2025 survey highlighted the importance of transparent communication, regular community engagement and involving Indigenous communities as key factors in project success. The same survey identified strong and growing support for the Project among northern Saskatchewan residents at 66%.

A cornerstone of Denison's approach is its Indigenous Peoples Policy (IPP), adopted in 2021, which guides interactions with Indigenous communities by emphasizing a process to achieve free, prior and informed consent where appropriate. This policy underscores Denison's commitment to reconciliation, influencing actions across Engagement, Environment, Empowerment, Employment and Education. Denison's engagement strategy is principle-based, adapting to new information while remaining firmly grounded in best practices and current case law, often exceeding regulatory requirements. This strategic and responsive engagement has resulted in Denison securing consent and support from several Indigenous and non-Indigenous communities near the Project.

2.1 Engagement Approach and Methodology

Denison defines engagement as the sharing and gathering of project-related information in good faith with the goal of developing mutually acceptable solutions to issues. The development of relationships with interested parties (IPs) is considered fundamental to the Project’s success.

Denison understands the importance of engaging with local and Indigenous communities, businesses, land users and regulatory authorities. These groups are collectively referred to as IPs, which Denison defines as any person or organization that can affect, be affected by, perceives itself to be affected by or is interested in a decision or an activity related to a project. Denison’s approach since 2016 has been to engage with IPs to develop meaningful relationships and to foster a collaborative approach to the Project. Denison has developed and implemented a Wheeler River engagement plan to guide these activities.

The approach to engagement has considered relevant guidance, specifically:

- REGDOC-3.2.1, Public Information and Disclosure (CNSC 2018).
- REGDOC-3.2.2, Indigenous Engagement (CNSC 2022).
- Public and Indigenous Engagement – Indigenous Engagement (CNSC 2022).
- Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted Under the Canadian Environmental Assessment Act, 2012 (Government of Canada 2015).

2.1.1 Indigenous Engagement Principles

Denison's IPP recognizes the role Canadian businesses can play in reconciliation with Indigenous Peoples. The policy was developed based on Denison's experience working with Indigenous communities and reflects guidance received from Indigenous communities with whom Denison has engaged. This approach was designed to ensure the IPP reflects a mutual vision for reconciliation. The IPP requires Denison to undertake action in five key areas of commitment – engagement, environment, empowerment, employment and education – and to report regularly to its board of directors on progress. Denison is committed to meaningful engagement with Indigenous communities and organizations potentially affected by the Project and to building long-term relationships with them. From the outset of engagement for the Project, Denison adopted the principles of:

- **Early Identification** – Engagement employed various methods, making every effort to identify and include all relevant IPs through an iterative process.
- **Respecting Regional Experiences** – We recognize the historical and regional context of uranium development in Saskatchewan's north and apply consistent criteria to identify Indigenous communities for engagement based on their demonstrated interests in and connections to the project area.
- **Authentic Relationships** – We build and maintain respectful relationships grounded in trust, good faith and transparency.
- **Cultural Accessibility** – We share relevant information in formats and language that respect cultural norms, local traditions, resources and decision-making processes.
- **Interest-Based Dialogue** – We use information shared by IPs to understand their priorities, listen actively and respond to their interests.
- **Proactive Adjustment** – We adjust initial project plans, where necessary, to reduce potential adverse effects and accommodate the rights and interests of IPs.
- **Understanding and Addressing Impacts** – We understand how the Project may affect Indigenous and/or Treaty Rights and work collaboratively to avoid, mitigate or offset those effects while identifying opportunities for positive outcomes.
- **Material Issue Resolution** – We make an active and good-faith effort to resolve all material issues.
- **Respectful Development** – We commence development of the Project (if appropriate and permitted) in a way that respects community interests.

2.1.2 Denison's Engagement Approach Incorporates the Standards and Principles of UNDRIP

The IPP formalizes Denison's commitment to collaborating with Indigenous Peoples and communities to build long term, respectful, trusting and mutually beneficial relationships. Denison's IPP reflects the standards and principles articulated by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The primary objective stated in the policy 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." Denison's approach to engagement also aligns with standards adopted by the CNSC as set out in REGDOC–3.2.2, *Indigenous Engagement.*

During engagement activities, Denison aims to follow a process that satisfies the goals of reconciliation and respects the rights of Indigenous communities to work towards reaching consensus and agreement in respect of the Wheeler River Project.

2.2 Early Engagement Activities Prior to Commencement of Regulatory Process for the Project

The Project is located within Saskatchewan's Northern Administrative District (NAD). The NAD covers approximately 250,000 km^2 or about 44% of Saskatchewan's area and is home to 36,000 people (Statistics Canada 2021). Most live in 45 communities, which include incorporated municipalities (such as towns, villages, hamlets and settlements), First Nations reserves and unincorporated areas. More than 80% of people living in northern Saskatchewan self-identify as Indigenous.

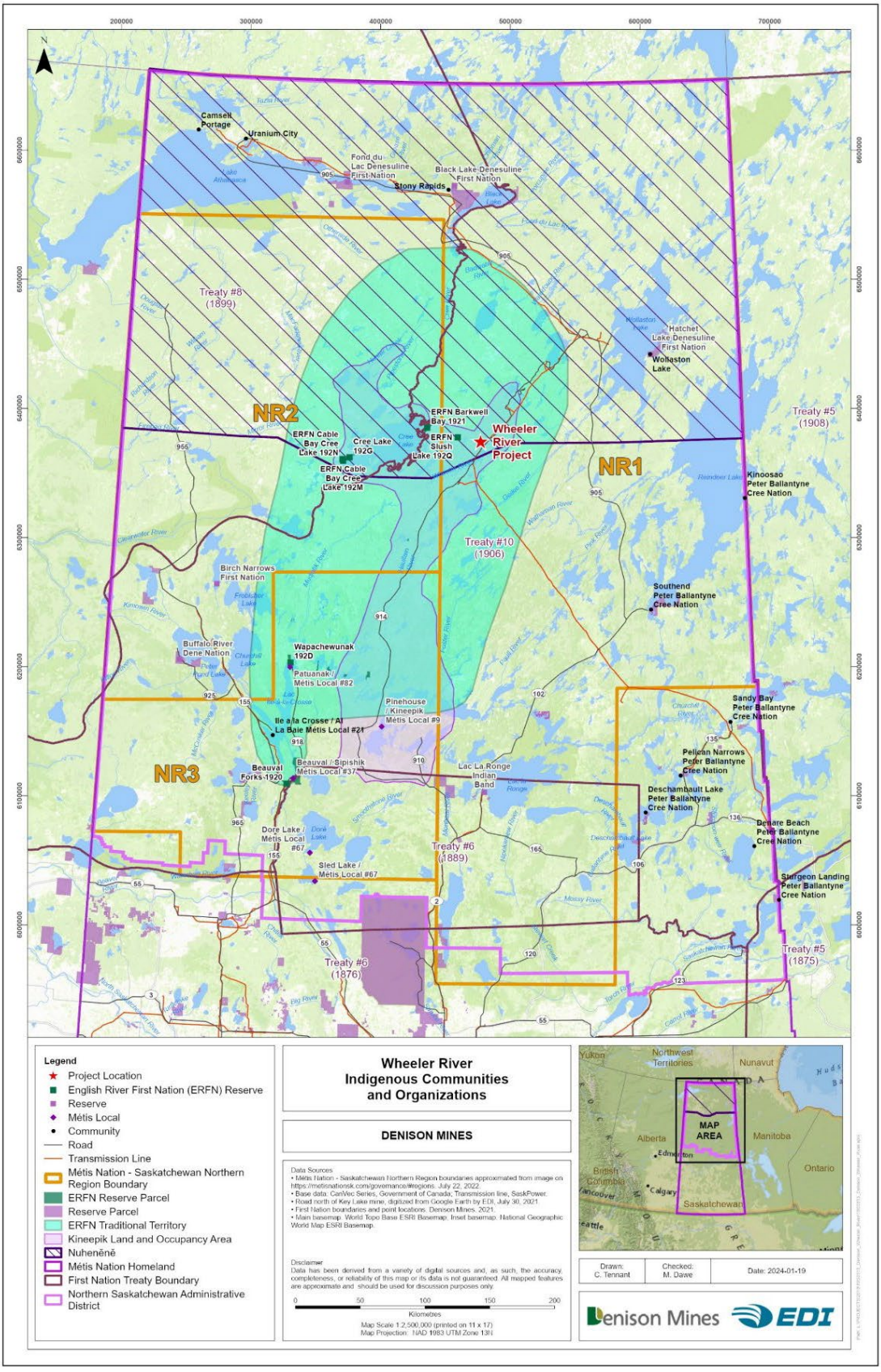


Figure 2-1 Indigenous and Municipal Communities in Northern Saskatchewan

Consistent with the history associated with other uranium mining projects located within Saskatchewan's NAD, many Indigenous and non-Indigenous communities within the NAD typically have an interest in uranium activities, but an approach based on appropriate criteria to determine those included in the engagement program is required.

Denison has been working on the Wheeler River property for more than 24 years. During that time, the company has become familiar with local land use near and around the site, including the activities of the ERFN trapper, local cabin owners and licensed commercial operators. Entry to the Wheeler River location requires passing through a controlled gate, limiting unplanned or informal access. Denison has worked with the ERFN Trapper to ensure his traditional knowledge, knowledge of the site and associated land use activities were understood, and reflected in regulatory submissions, as appropriate. At the request of the ERFN Trapper, Denison changed the generic reference of a local lake to Whitefish Lake. Denison understands the ERFN Trapper held the only commercial fishing licence for the lakes in the area, including Russell Lake, until his passing in 2022 – and understands that the licence is now held by a relative of the same ERFN Trapper. From working with ERFN, Denison understands that the activities undertaken by the ERFN Trapper are representative of the broader connection to the land for ERFN Members and its future use.

As part of early engagement activities related to the Project, Denison undertook a careful review of regulatory proceedings with respect to the McArthur River and Key Lake operations over the previous decade. This review helped Denison gain an understanding of existing relationships to the local area, existing local relationships with the CNSC and issues and concerns raised by interested Indigenous and non-Indigenous communities in relation to nearby operations. This exercise was also informed by Denison's experiences in obtaining authorizations from the Province of Saskatchewan to conduct exploration activities associated with Wheeler River. As part of those regulatory processes, the Province of SK routinely and consistently facilitated Duty to Consult and information-sharing processes with Indigenous and non-Indigenous communities. Denison understood the Province's approach to such processes was based on the information available to the Province regarding the potential for exploration activities to adversely impact Indigenous and / or Treaty Rights.

Based on its experience working on the Project, the above information and available guidance from the CNSC, Denison began engaging with the Indigenous and non-Indigenous communities of:

- English River First Nation.
- Metis Local #82 (Patuanak) and the northern Hamlet of Patuanak.
- Kineepik Metis Local #9 and the northern Village of Pinehouse Lake.
- Sipishik Metis Local #37 and the northern Village of Beauval.
- A La Baie Metis Local #21 and the northern Village of Ile a la Crosse.

From 2016 until the start of the environmental assessment in May 2019, Denison engaged with these communities through a range of activities including:

- Regular meetings with leadership representatives to discuss the Project, including the outcomes of exploration activities, the preliminary economic assessment and pre-feasibility findings.
- Memorandums of understanding (MOUs) signed with several parties to formalize their intention to work together in a spirit of mutual respect and cooperation and to identify practical means to avoid or mitigate potential effects on Indigenous rights, Treaty Rights and other interests.

- Workshops to address elements of the Project design, including the treated effluent discharge location, the road connecting the Project site to Highway 914 and the mining method. The outcomes of these workshops were considered in the Project design process.
- capacity support to review historical and current land use within its traditional territory.

In October 2019, Denison was advised that several Métis Locals delegated their duty to consult to the Métis Nation – Saskatchewan, which is recognized by the Government of Canada as the representative of the Métis Nation in Saskatchewan. Since that time, Denison has carried out its engagement activities with the Métis Nation – Saskatchewan on behalf of those Métis Locals it represents.

All details pertaining to these early engagement activities are available in Chapter 4 of the EIS and in the Indigenous Engagement Report (IER) for Wheeler River.

2.3 Engagement Activities to Support the Regulatory Process

2.3.1 Approach to Identifying Indigenous Communities of Interest and Engagement Approach Using Key Factor Criteria

Prior to the filing of the Project Description in May 2019, Denison used information gathered during early engagement activities to develop the key factors to be used to identify Indigenous communities of interest (COIs) and other interested Indigenous communities. This determination has informed the extent of engagement activities undertaken by Denison. It is important to note that the engagement program has been and may continue to be adapted as circumstances change and as new information regarding Indigenous rights has become available.

The process Denison used to identify the Indigenous COIs applied guidance from CNSC REGDOC-3.2.2, which lays out the expectations for licensees on engagement with Indigenous communities where the Crown's duty to consult may be triggered. As Denison's engagement activities may be considered by the Crown in assessing whether it has fulfilled the duty to consult, Denison has followed and implemented Federal and CNSC Guidance regarding engagement and consultation activities. Our approach has also been supported by information from and interactions with representatives of CNSC and the Saskatchewan Ministry of Environment (SK MOE). Denison worked to ensure a systematic and consistent approach was taken to identify Indigenous communities which may experience serious adverse impacts resulting from the Project. Table 2-1 provides a summary of the key factors identified by the CNSC, along with how Denison has interpreted and applied those factors in determining its engagement approach.

Table 2-1 Key Factor Criteria for Determining Indigenous COIs

REGDOC 3.2.2 Indigenous Engagement, Version 1.2		Denison Key Factors for Indigenous Communities of Interest
CNSC Licensee Requirements and Guidance for Indigenous Engagement: Key Factors to Consider When Determining Which Indigenous Groups to Engage	CNSC Appendix A: Considerations for Indigenous Engagement – Identifying Potential Adverse Impacts	
Historic or modern treaties in the region of the regulated facility	Are there any First Nations reserve lands, treaty lands, or Indigenous communities located near the regulated facility?	Treaty 10 signatory (Treaty in which the Project is located)
Potential impacts to the health and safety of the public, the environment and any potential or established Indigenous and / or Treaty Rights and regulated interests	Does the activity described in the licence application have likely or potential impacts on land, water and resources? Are these changes significant? What is the spatial extent of the potential impacts? Are there potential impacts beyond the immediate footprint of the regulated facility?	Potential or established Indigenous and/or Treaty Rights within the Project area
Proximity of the regulated facility to Indigenous communities	Are there any First Nations reserve lands, treaty lands, or Indigenous communities located near the regulated facility?	Geographic proximity of community and/or reserve land to the Project
Traditional territories	Are there any Indigenous groups that claim traditional territory that encompasses the location of the regulated facility?	Known traditional territory in and around the Project site
Existing relationships between Indigenous groups and licensees or the CNSC	Have any environmental or other assessments of the regulated facility been carried out? Have any environmental or other assessments been undertaken for similar activities in the vicinity of the regulated facility? If so, what adverse impacts on rights and/or related interests, if any, are revealed by these assessments? Are there any other activities occurring in the same area? Is the activity described in the licence application likely to have any cumulative effects in combination with other activities in the same or surrounding area?	History of relationship with operating companies, the CNSC, and the Province in relation to other projects located near the Project (McArthur River, Key Lake, Millennium)
Traditional and current use of lands	Are there any Indigenous groups that claim traditional territory that encompasses the location of the regulated facility?	The potential for collective exercising of Indigenous and/or Treaty Rights in proximity to the Project site
Settled or ongoing land claims	Does the activity described in the licence application involve lands or resources that are currently the subject of land claim negotiations or are part of existing comprehensive land claim agreements or self-government agreements?	Not initially identified by Denison as part of its criteria but has been considered and adapted into the overall engagement program as new information has arisen
Settled or ongoing litigation related to a potentially impacted group		Not initially identified by Denison as part of its criteria but has been considered and adapted into the overall engagement program as new information has arisen
Membership in a broader Indigenous collective, tribal council or Indigenous umbrella group		Not initially identified by Denison as part of its criteria but has been considered and adapted into the overall engagement program as new information has arisen

It is important to note that the above factors were considered *together*, rather than singularly, to identify the Indigenous COIs, other Indigenous communities and Indigenous organizations to be engaged in respect of the Project (see below). These factors, along with the CNSC guidance found in the below consultation activity spectrum (Table 2-2) were used to determine the appropriate type and level or scope of engagement activities conducted with each Indigenous community.

Table 2-2 CNSC Consultation Activity Spectrum

Potential for Adverse Impacts to Indigenous and/or Treaty Rights	
Weak Claim – No serious adverse impacts	**Strong Claim – Potential for serious adverse impacts**
• Provision of adequate notice • Disclosure of relevant information • Discussion of issues raised in response to notice	• Exchange of information • Correspondence • Meetings • Site Visits • Research / Studies • Opportunity to make submission to the decision maker • Determination of accommodation, where appropriate: Seek to adjust the Project, develop mitigating measures, consider changing proposed activity, attaching terms and conditions to permit or authorization and consider rejecting a project, etc.

2.3.1.1 Identification of Communities for Engagement: Indigenous Communities of Interest

Denison identified Indigenous COIs by applying the factors in Table 2-1 and based on publicly available information, Denison's research and experience in the Athabasca region, information from the CNSC and SK MOE and information shared by Indigenous communities during engagement. This initial assessment was confirmed through ongoing engagement with Indigenous groups and with input from regulators. As Denison's understanding of land use and occupancy around Wheeler River has deepened through ongoing engagement since 2016, the list of COIs was refined to those with demonstrated potential to experience adverse impacts from Wheeler River, using the process set out in CNSC REGDOC-3.2.2. The final identified Indigenous COIs include:

- English River First Nation (ERFN)
- Kineepik Métis Local #9 (KML)
- Sipishik Métis Local #37 (SML)
- Patuanak Métis Local #82 (PML)
- Hatchet Lake First Nation.

2.3.1.2 Identification of Communities for Engagement: Indigenous Organizations

Indigenous organizations can provide a single point of contact for Denison to engage with multiple Indigenous communities and their leadership. In many cases, these Indigenous organizations have been delegated the right to represent an Indigenous community or group of Indigenous communities in connection with a project. These organizations can also provide specific information regarding their members and the interests of their members or citizens. Denison has identified the Indigenous organizations of the:

- Métis Nation-Saskatchewan (MN-S), the elected government of the Métis people of Saskatchewan, which asserts it is the appropriate Métis entity for Denison and the Crown to engage with related to the Project. Sipishik Métis Local #37 (SML) and Patuanak Métis Local #82 (PML) were identified by Denison as Indigenous COIs and have delegated the duty to consult to the MN-S.

- Ya'thi Néné Lands and Resource Office (YNLR), which provides a single point of contact between industry, government and the Athabasca Basin communities of Hatchet Lake First Nation, Black Lake First Nation, Fond du Lac First Nation, Camsell Portage, Stony Rapids, Uranium City and Wollaston Post. YNLR holds the duty to consult for its three First Nations member communities. Hatchet Lake First Nation is a Treaty 10 signatory and has been identified as an Indigenous COI. Wheeler River is located within the Nuhenéné (the Athabasca Denesųłiné territory).

2.3.1.3 Identification of Communities for Engagement: Other Indigenous Communities

Denison recognizes that other Indigenous communities have a potential interest in the Project, including those identified by regulatory agencies. These other Indigenous communities are A La Baie Métis Local #21 (ALBML, represented by MN-S), Birch Narrows Dene Nation (BNDN), Black Lake First Nation (represented by YNLR), Buffalo River Dene Nation (BRDN), Dore/Sled Lake Métis Local #67 (represented by MN-S), Fond du Lac First Nation (represented by YNLR), Lac La Ronge Indian Band (LLRIB) and Peter Ballantyne Cree Nation (PBCN). Denison has engaged with these communities at a level consistent with communities facing a low potential for adverse impacts resulting from the Project (i.e., provision of notice, disclosure of relevant information and discussion of issues raised by the community in response to notice).

2.3.1.4 Identification of Communities for Engagement: Other Indigenous Organizations

The CNSC identified the Meadow Lake Tribal Council and Prince Albert Grand Council as organizations with a potential interest in the Project in 2019. These councils represent numerous First Nations, some of which have territories overlapping the Project. Denison has engaged with these organizations at a level consistent with communities facing low potential for adverse impacts resulting from the Project (i.e., provision of notice of key Project activities and response to comments on the draft EIS).

2.3.2 Scope of Engagement Activities

The following table outlines the engagement activities Denison has conducted in alignment with the CNSC guidance. Activities undertaken by Denison that go beyond the CNSC guidance are described after the table.

Table 2-3 Engagement Activities and CNSC REGDOC Requirements

CNSC REGDOC Requirements	Denison Engagement Activities
Provision of adequate notice	Phone calls, emails and letters to provide notification of regulatory processes being undertaken with reference to regulatory contacts, funding processes and / or deadlines or other matters
Disclosure of relevant information	Phone calls, emails and letters including information about the Project Meetings to share relevant information about the Project, including the involvement of technical experts where appropriate General advertising / raising awareness of Denison website displaying relevant information
Discussion of issues raised in response to notice	Phone calls, emails and letters responding to technical comments raised during processes or made during responses to notice (i.e., public reviews of Project Description and draft EIS) Meetings to discuss comments, issues and concerns in relation to the Project
Exchange of information / correspondence	Phone calls, emails and letters from Denison including: • Information about the Project. • Responses to technical comments raised during the process or made during responses to notice (i.e., public reviews of Project Description and draft EIS), either through correspondence, meetings or both. • Regular ongoing correspondence about other matters regarding the Project, as they arise.
Meetings	Leadership meetings, focus group sessions and community meetings (open houses or presentation-style)
Site visits	Visits to the Project site
Research / studies	Surveys (online or paper) Facilitating the development of studies or research in relation to the Project (e.g.: land-use studies, knowledge studies and socio-economic studies.)
Determination of accommodation, where appropriate: seek to adjust Project, develop mitigation measures, consider changing proposed activity, etc.	Adapting project features in early stages of project design in response to data collected through engagement activities Advance review of Project information prior to finalization of relevant sections in the EIS Identifying mitigation measures pertinent to comments, issues and concerns raised by interested parties

2.3.2.1 Beyond Scope: Enhanced Denison Engagement Elements

Denison has implemented several enhanced engagement elements that reflect the company's broader commitments, including those under its IPP and its goal of advancing reconciliation. These elements may exceed the requirements of the regulatory process and are designed to build long-term relationships, support community capacity and strengthen the integration of Indigenous and local knowledge into all aspects of the Project. The following describes key elements of the enhanced engagement elements:

- **Capacity Support**: Denison has provided capacity funding or support to enhance the ability of Indigenous communities to effectively participate in and contribute to decision-making processes related to projects or initiatives that affect them. Such capacity support contributes to long-term partnerships with IPs that extend beyond the regulatory processes to enhance sustainability. Denison's engagement approach has included, where appropriate, capacity funding for:
    - Costs associated with travel, accommodation and subject matter experts.
    - Community workshops and information sessions.
    - Research with potential to enhance the environmental assessment or other regulatory processes.
- **Process for Reaching Consensus and Agreement on the Project**: As identified earlier, Denison's approach to engaging Indigenous peoples is set out in its IPP. The IPP outlines the commitment by Denison to advance reconciliation through a process of engagement, understanding and action. In designing the IPP, Denison carefully considered the standards and principles articulated by the UNDRIP. Denison aims to follow a process and path forward that satisfies the goals of reconciliation and respects the rights of Indigenous communities to work toward reaching consensus and agreement on Wheeler River, which in some circumstances has involved a more formalized process aimed at reaching consent.
- **Integration of Engagement Data Throughout the EIS:** Denison has undertaken several unique initiatives to broaden the information used in the environmental assessment and documentation process. An important element is the structured integration of engagement data throughout the EIS. For each of the engagement methods described above, perspectives shared with Denison were recorded and consolidated into a single Project engagement database. The database was used to generate unique reports for individual subject matter specialists to support various activities. This action resulted in the inclusion of engagement materials (comments, issues, concerns and questions) throughout the entire EIS to ensure that those who participated in the process were represented and comments considered appropriately.
- **Integration of scientific and engagement best practices in relation to ecological restoration of the Project site**: Denison has worked through a partnership between NWC Environmental Services and the University of Saskatchewan to proactively enhance ecological restoration for the Project site through a project known as the Developing Eco-Restoration Together (DERT). This unique partnership has focused on the site-specific requirements for effective and appropriate site restoration techniques, while at the same time working with communities to better understand the values and objectives of meaningful engagement during restoration activities. The project is rooted in respect for the land and aims to weave together Indigenous wisdom and science to care for and heal the land. DERT also supports the desire of many community members to get involved early in the restoration process, fostering potential training programs and employment opportunities for local people to carry out this work in the future. The overall objective is to deploy the learnings gained through this program into action at the Project site, as site remediation begins during progressive reclamation.

DERT demonstrates Denison's commitment to move beyond regulatory requirements to build genuine relationships with northern Saskatchewan communities.

2.3.3 Engagement Highlights and Outcomes

Denison conducted extensive engagement with interested parties including Indigenous COIs, other interested Indigenous communities and non-Indigenous communities. This process resulted in meaningful dialogue, resolution of numerous issues and concerns and the consent of multiple Indigenous COIs. The following summaries reflect key outcomes of this engagement. Comprehensive detail on Denison's engagement is additionally available in the Indigenous Engagement Report.

2.3.3.1 English River First Nation

English River First Nation (ERFN) is categorized as an Indigenous COI for the Project based on the key factors assessment set out in CNSC REGDOC-3.2.2 and **Table 2-1**, including that:

- ERFN is a Treaty 10 signatory with established historical and current collective Indigenous/Treaty Rights exercised in the Project area.
- ERFN's Slush Lake and Barkwell Bay reserves are located approximately 16 km and 39 km respectively from the Project site.
- The Project site is within ERFN's known and defined traditional territory.
- ERFN members exercise Indigenous and/or Treaty Rights in proximity to the Project and have knowledge of the land and wildlife near the Project.
- ERFN has relationships with operating companies, the CNSC and the Government of Saskatchewan related to other projects in the area.

Summary of Engagement: English River First Nation

Provision of Adequate Notice Denison provided notice to ERFN regarding regulatory processes and Project activities. This notice included initiating contact by letters and emails to notify ERFN about formal regulatory processes, such as the Public Review period for the Technical Proposal and Project Description, the commencement of the public review of the EIS, the opportunities for Participant Funding, the acceptance of the EIS and the establishment of the decision-making Hearing, while offering opportunities for questions and concerns. Denison sent formal correspondence to ERFN leadership providing updates on Project activities and details for upcoming community workshops. Information-sharing extended to providing updates on the temporary suspension and restart of the Environmental Assessment (EA) because of COVID-19. Furthermore, Denison distributed comprehensive project update packages, including FAQs and project descriptions in English, Cree and Dene to the ERFN leadership and members regularly, ensuring accessibility and transparency. Broader community awareness was also fostered through publicly advertised open house meetings on local radio stations, Facebook pages and TV channels, with posters also being used.

Disclosure of Relevant Information Denison has consistently provided detailed Project information to ERFN for review, including EA-related documents on a range of subjects. In 2018, Denison and ERFN entered into a Memorandum of Understanding (MOU) to formalize the parties' intent to work together with respect to the Project. Specific sections of the draft EIS (3,11,12,13,16) were shared with ERFN. To

communicate EA findings and Project details, Denison developed visual aids including models depicting the ore body and surface infrastructure and informational poster boards used at community meetings. Denison also has maintained a Project website including Frequently Asked Questions (FAQs) and links to regulatory websites.

Discussion of Issues Raised in Response to Notice Denison has actively engaged in discussions and responded to issues raised by ERFN following notices and information disclosure. Examples include a workshop in May 2018 to gather feedback on Project alternatives including road alignment, treated effluent discharge location and mining methods. ERFN's review of draft EIS sections prior to filing identified concerns about geographic boundaries, Indigenous Knowledge (IK), potential effects of uranium mining and employment/business opportunities. Denison addressed these issues in detailed responses leading to updates to the EIS. ERFN's review of the draft EIS after filing resulted in 271 technical comments which were summarized into 15 key areas of concern. In November 2023 Denison provided a technical memo responding to these concerns, which was accepted by ERFN.

Exchange of Information / Correspondence Denison has maintained a consistent and ongoing exchange of information and correspondence with ERFN beyond formal notices and disclosures. General Project updates and discussions have taken place during drop-in meetings, emails and phone calls. Denison has also engaged in regular correspondence regarding EA-related engagement activities and ongoing discussions about the Project.

Meetings Denison has employed various types of meetings to engage with ERFN leadership and community members. This included numerous leadership meetings including introductory meetings with the Chief in July 2016, subsequent meetings to discuss Project updates and schedules, and formal collaboration such as the (MOU). Community meetings, including open houses and presentation-style sessions, were held regularly. Denison also held focused advisory committee meetings including Nuhtsiye-kwi Benéne (Ancestral Lands Committee) meetings to discuss specific aspects of the Project, including geotechnical programs and feasibility field testing.

Site Visits Denison has conducted site visits to give ERFN members a clear understanding of Project components and activities. An initial site tour hosted in August 2019 included the ERFN Chief, Elders and the local ERFN trapper. A subsequent site tour was held in June 2023. Denison hosted 25 ERFN members, including youth and Elders to provide an overview of work to date and EA outcomes. The tour began with a pivotal moment where the Project site was blessed by two Elders with family connections to the land.

Research / Studies Denison supported several studies related to the Project, including traditional land use and socio-economic studies. Early discussions in November 2016 focused on methods for obtaining and incorporating ERFN traditional knowledge (TK) into baseline data collection for the Project, leading to a meeting in March 2017 where ERFN shared its TK map. Denison also collaborated on the development of socio-economic and wellness assessments, providing a draft community baseline socio-economic profile and discussing methodologies with ERFN consultants. Notably, ERFN prepared independent contributions to the EIS, including *Summary of Health and Socio-Economic Study Results* and *Summary of Traditional Knowledge Study Results*. These ERFN-authored reports directly informed the EIS, particularly in sections related to Land and Resource Use, Quality of Life and Economics, including the development of a standalone assessment of the Traditional Economy.

Determination of Accommodation, Where Appropriate: Seek to Adjust Denison accommodated ERFN by adjusting Project features and developing mitigation measures in response to the community's input and concerns. Feedback from community members at workshops and through a review of draft EIS sections

resulted in adaptations to the Project design and the EIS. ERFN formally expressed its consent and support for the Project to the CNSC and the Government of Saskatchewan in September 2023, contingent on Denison materially fulfilling its commitments. As part of making appropriate adjustments to the Project in response to concerns, Denison has committed to specific measures regarding traffic in relation to ERFN cultural camps. Denison will require truck traffic to slow to 40 km/hr for a minimum of 2.5 km on either side of the ERFN cultural camps.

Process for Consensus and Agreement: English River First Nation

Denison's comprehensive engagement process has resulted in effective collaboration with ERFN and a positive relationship with the Nation. The process featured a variety of engagement methods, culturally appropriate delivery of information, respect for ERFN's interests and integrating the community's perspectives into Project decisions and solutions. An MOU was signed in 2018 to formalize the commitments of ERFN and Denison to work together to identify ways to avoid, mitigate or address potential project effects on Indigenous and Treaty Rights and interests.

ERFN provided a formal letter of consent for the Project to the CNSC and the Government of Saskatchewan in September 2023, subject to Denison materially fulfilling commitments made to ERFN.

2.3.3.2 Kineepik Métis Local #9

Kineepik Métis Local #9 (KML) is categorized as an Indigenous COI based on key factors set out in CNSC REGDOC-3.2.2 and Table 2-1. KML met key criteria for this classification because:

- KML's local community of Pinehouse is located approximately 270 km by road from the Project site.
- The Project site is located within its known traditional territory where they historically and currently practice Indigenous rights.
- KML has relationships with operating companies, the CNSC and the Government of Saskatchewan in relation to other uranium projects in the area and has outlined its Indigenous rights and interests in relation to these operations, which are proximally located near Wheeler River.

These factors indicated a potential for the Project to have adverse effects on KML's Indigenous rights, leading to its classification as an Indigenous COI.

Summary of Engagement: Kineepik Métis Local #9

Provision of Adequate Notice Denison consistently has provided notice to KML regarding regulatory processes and Project activities. This notice has included notifying KML of the commencement of the public review of the EIS, the opportunities for Participant Funding, the acceptance of the EIS and the scheduling of the decision-making Hearing, while offering opportunities for questions and concerns.

Disclosure of Relevant Information Denison disclosed relevant information to KML by consistently providing Project updates information. This practice began with an introductory community meeting in

2016. Denison followed up with regular updates and open house and leadership meetings in the community, during which Denison developed and displayed visual aids including information boards, models, and booklets to communicate Project details, EA findings, proposed mitigation measures and preliminary EIS conclusions. Denison also maintained a Project website containing Project information, including frequently asked questions and links to regulatory websites.

Discussion of Issues Raised in Response to Notice Denison has actively engaged in discussions with and responded to issues raised by KML following notices and information disclosure. For example, a workshop held in 2018 gathered input from KML members on project alternatives including road alignment, treated effluent discharge locations and mining methods. Feedback was collected and incorporated into the final design. KML consistently expressed interest in economic opportunities related to the Project and had questions regarding ISR mining, which Denison addressed. Following KML's submission of 11 technical comments on the draft EIS in February 2023, Denison provided responses to the technical comments, and in December 2023 KML advised Denison that the community's comments and concerns about the draft EIS and the Project had been resolved.

Exchange of Information / Correspondence Denison has maintained an ongoing exchange of information and correspondence with KML beyond formal notices and disclosures. This continuous dialogue included emails, phone calls and meetings related to the Project covering topics such as socio-economic interests and Project updates.

Meetings Various types of meetings were the main tool for engagement with KML leadership and community members. This engagement included numerous leadership meetings, community meetings, open houses, presentation-style sessions and focused workshops to gather feedback on specific issues including project alternatives and other areas of interest and concern.

Site Visits Denison conducted site visits to provide KML members with a clear understanding of Project components and activities. An initial site tour hosted in August 2019 was attended by the KML president and executive director. During a subsequent site tour in 2023 (which was attended by 21 KML representatives, including youth and Elders), Denison provided an overview of work to date, discussed the results of the 2022 and 2023 feasibility field tests and discussed the EA outcomes and next steps. Denison hosted a site visit for Pinehouse high school students in May 2024 in coordination with KML.

Research / Studies Denison has supported studies and research in relation to the Project, including traditional land use and knowledge and socio-economic studies. In response to discussions with community members and leaders, Denison agreed in 2018 to work with KML on supporting traditional land use mapping, which was subsequently incorporated into the EA. KML provided a pre-EIS report in June 2022 which considered valued ecosystem components, mitigation measures and predicted effects related to the Project. Denison incorporated this report into relevant sections of the EIS.

Determination of Accommodation, Where Appropriate: Seek to Adjust Denison adjusted Project features and developed mitigation measures in response to KML's input and concerns. Early in the Project design, KML members provided feedback on road alignment options, treated effluent discharge locations and mining methods. This feedback was incorporated into the final design. KML formally provided its consent and support for the Project to the CNSC and the Government of Saskatchewan in August 2024, contingent on Denison materially fulfilling its commitments, signifying that Denison's adjustments and commitments were deemed satisfactory by KML. Notably, as part of making appropriate adjustments to

Wheeler River in response to concerns, Denison has committed to specific measures regarding traffic in relation to KML cultural camps. Denison will require truck traffic to slow to 40 km/hr for a minimum of 2.5 km on either side of the KML cultural camps.

Process for Consensus and Agreement: Kineepik Métis Local #9

Denison initiated engagement with KML in 2016 to develop positive relationships and a mutual commitment to collaborate on the Project. This process was guided by key principles, including conducting diverse engagement activities, fostering relationships, providing culturally appropriate information, understanding KML's interests and priorities, integrating KML perspectives into project decisions and collaborating on solutions to concerns raised by KML. To formalize this working relationship, Denison, KML and the Village of Pinehouse Lake signed an MOU in 2017 outlining our intention to work together respectfully to address potential effects on KML's Indigenous rights and interests.

Following this early engagement, KML participated in the regulatory process, contributed to Denison's environmental understanding of the Project, and provided its perspectives on valued components for EIS development. In October 2019, KML delegated its duty to consult to the MN-S. Denison adjusted its approach to consultation and thereafter engaged directly with the MN-S on behalf of KML. In November 2021, when Denison was informed that KML revoked its duty to consult from the MN-S, Denison resumed its direct engagement with KML.

Denison's engagement with KML has included a variety of activities to ensure KML's active involvement. These methods included introductory meetings, leadership meetings, community gatherings, workshops on infrastructure options, site visits involving KML leadership and online surveys. Denison has also committed to providing economic opportunities, equitable access to jobs and training for KML members and supporting KML's vision for building local capacity in areas like emergency response and waste management. This comprehensive engagement, which KML described as a best practice process, culminated in KML submitting public comments on the draft EIS in February 2023. After Denison provided specific responses to these comments, KML confirmed in December 2023 that its concerns had been resolved.

On August 1, 2024, KML provided a letter of consent and support for the Project to the CNSC and the Government of Saskatchewan, subject to Denison materially fulfilling its commitments.

2.3.3.3 Métis Nation – Saskatchewan

The Métis Nation-Saskatchewan (MN–S) is the elected government for the Métis people in Saskatchewan and represents the political, socio-economic, cultural and educational interests of its citizens. Denison identified Sipishik Métis Local #37 and Patuanak Métis Local #82 as Indigenous COIs and have delegated their Duty to Consult to MN-S. Additionally, A La Baie Métis Local #21 and Dore/Sled Lake Métis Local #67 were identified by Denison as other Indigenous communities which have delegated their Duty to Consult to MN-S. Denison engaged directly with MN-S both in its capacity as the provincial representative for the Métis Nation, as well as directly with the MN-S on behalf of these Locals.

Summary of Engagement: Métis Nation–Saskatchewan

Provision of Adequate Notice Denison has consistently provided notice to MN-S regarding regulatory processes and Project activities. This practice has included notifying MN-S about formal regulatory processes including the commencement of the public review of the EIS, the opportunities for participant funding and acceptance of the EIS and the establishment of the decision-making Hearing, while offering opportunities for questions and concerns. Denison informed MN-S of such Project developments as the postponement of planned engagement workshops and the temporary suspension of the EA because of COVID-19. Updates were also provided on the recommencement of the EA process and requests for MN-S participating in discussions.

Disclosure of Relevant Information Denison has disclosed relevant Project-related information to MN-S through various channels. Critical EA-related documents provided for MN-S's review included a copy of the draft EIS with specific sections informed by the Métis Knowledge Study (conducted by MN-S with financial support from Denison). Denison has also maintained a website specific to the Project which contains relevant information including FAQs and links to regulatory websites. Denison has presented overviews of the Project and the draft EIS at meetings, supporting MN-S's Métis Knowledge Study efforts.

Discussion of Issues Raised in Response to Notice Denison has actively engaged in discussions and responded to issues raised by MN-S following notices and information disclosure. Denison has provided detailed responses to MN-S's 125 public comments on the draft EIS, including concerns about engagement, Métis land use, Métis knowledge, economics and environmental monitoring and mitigation. Denison updated the EIS with pertinent information from the Métis Knowledge Study.

Exchange of Information / Correspondence Denison has maintained a consistent and ongoing exchange of information and correspondence with MN-S beyond formal notices and disclosures. This dialogue includes discussions on how MN-S prefers to work with Denison. More recently, correspondence has related to the establishment and refinement of a joint working group and a protocol for consent-based discussions (signed in November 2024).

Meetings Denison has utilized various types of meetings as its primary method of engaging MN-S leadership and Citizens. This engagement included initial introductory meetings in July 2019 with the MN-S President, CEO and executive assistant to provide a Project overview. Denison held meetings in November 2019 with MN-S representatives and Métis Local presidents to discuss the Project and Métis interests. Virtual meetings were held in 2020 and 2021 to discuss next steps for engagement and to develop a path forward. Focused meetings discussed specific aspects including municipal engagement, implementation of agreed processes and updates on the Métis Knowledge Study. During meetings in February 2023, Denison provided an overview of the Project, the EA process, valued components and EA outcomes to MN-S and leadership of Northern Region 1 and Northern Region 3, with Government of Saskatchewan and CNSC staff present. More recently, Denison and MN-S held a Joint Working Group meeting focused on discussing and resolving MN-S's outstanding technical comments and concerns about the EIS (April 2025).

Site Visits Denison has facilitated visits to the Project site to provide MN-S members with a clear understanding of Project components and activities. An initial site tour hosted in August 2019 included the MN-S President, the MN-S Minister of Environment/Region 3 President and presidents of Métis Locals, as well as representatives from the CNSC and SK MOE. While subsequent discussions about site tours have occurred, further site visits have yet to take place.

Research / Studies Denison has actively supported Métis studies and research in relation to the Project, including those supporting traditional land use, knowledge and socio-economic information. Denison has supported MN-S's work on the Métis Knowledge Study for the Project through funding and presentations. The MN-S provided Denison with the completed Métis Knowledge Study in October 2023. Denison incorporated information from the study into relevant sections of the EIS, confirming with the MN-S that confidentiality provisions have been appropriately maintained. Since providing the Métis Knowledge Study to Denison, the MN-S has provided Denison with updated information related to land use and activities which Denison has reviewed and incorporated into the EA findings.

Determination of Accommodation, Where Appropriate: Seek to Adjust Denison has accommodated MN-S by adjusting project features and developing mitigation measures in response to its input and concerns, including potential stigma with respect to the Project, perceptions of potential contamination from the Project and potential basement rock permeability. Denison provided capacity funding for MN-S's Métis Knowledge Study and later for MN-S's EIS review. Denison has provided fulsome and complete technical responses to MN-S's 125 comments on the draft EIS and updated the EIS with pertinent Métis Knowledge Study information.

Addressing Issues and Concerns: Métis Nation – Saskatchewan

MN-S has raised several key concerns throughout Denison's engagement process. A primary concern was the comprehensive inclusion of Métis Knowledge from relevant land areas in the EIS. Socio-economic concerns included the need for Métis-specific considerations in employment and training, with a particular emphasis on support for obtaining Grade 12 education. MN-S requested specific information about opportunities for Métis businesses. Concerns were voiced regarding the potential negative impacts of the fly-in work schedule on family and community cohesion and traditional activities. MN-S also sought detailed information on closure planning and how traditional economic activities could be integrated into the decommissioning phase.

Denison took several actions to address concerns raised by MN-S. To address the Métis Knowledge concerns, Denison supported the Métis Knowledge Study, which was completed by MN-S and received by Denison in October 2023. Relevant information from this study was integrated into various sections of the EIS. Denison also updated the EIS to emphasize collaboration with IK holders to develop solutions when knowledge systems diverge. Regarding employment and training, Denison's Human Resource Development Plan prioritizes Indigenous employment and training opportunities, including on-the-job training and career counseling. For business opportunities, Denison committed to establishing a procurement approach that prioritizes businesses within COIs and Saskatchewan's NAD. To mitigate the impacts of the commuter schedule, Denison committed to working with Indigenous COIs to understand culturally important periods, to adjust work schedules and to implement an Employee and Family Assistance Program. For closure planning, Denison has committed to engage MN-S about integrating traditional economic activities as the decommissioning plan evolves, with the ultimate goal of returning the land to Provincial control for unrestricted surface use post-closure.

MN-S also raised environmental and long-term planning concerns, including:

- The Métis input on the selection of valued components for the EA.
- The terrestrial Regional Study Area size in relation to the SK1 caribou population.
- Post-mining activities after the freeze wall has been removed.

- The MN-s' active involvement in the development of monitoring and follow-up programs.

Denison has confirmed that no new Valued Components were identified through discussions, noting that Métis Knowledge Study input on the human environment was integrated into the EIS. Denison concluded the Project would result in no significant adverse effects on caribou and developed a Conceptual Caribou Mitigation Plan. Denison provided a technical memo on freeze-wall integrity and affirmed that wastewater would be treated to meet discharge limits. Denison affirmed that the EA was comprehensive and committed to developing appropriate mitigations for geology and groundwater. Denison also committed to preparing specific follow-up and monitoring plans in consultation with Indigenous groups, assuring MN-S that it would remain informed and have the opportunity to be involved in program design and implementation. Denison has also committed to providing plain language summaries of monitoring results through community meetings. Additional commitments include implementing a Workplace Violence & Harassment Policy, traffic mitigation around cultural camps and acknowledging the Métis Homeland in the Project executive summary.

Outstanding Issues and Concerns: Métis Nation – Saskatchewan

MN-S outlined five primary outstanding concerns related to the Project. Denison and the MN-S have recently met about these concerns and have exchanged additional information about these areas of interest.

MN-S is concerned about the stigma, potential contamination and residual impacts of uranium mining, noting historical avoidance of harvesting and trapping in affected areas. MN-S requested funding from the Province of Saskatchewan to conduct a study to investigate these effects and options to minimize the stigma. In response, Denison reported that extensive studies predict no significant adverse effects to the environment or human health, with contaminant concentrations remaining at levels that pose no environmental risk. Denison has committed to providing MN-S with monitoring data outcomes related to groundwater, surface water and radioactive waste disposal, and has offered to collaborate on defining accessible methods for sharing this information.

MN-S continues to express concern regarding Denison's conclusion that the basement rock under the mining area is impermeable and that mining solutions will be contained by the freeze wall. It has proposed community meetings to gather Métis Knowledge about basement rock permeability and to explore alternatives such as freezing under the ore body. Denison explained that the freeze wall design extends into dense, impermeable basement rock and has offered to coordinate a meeting with MN-S and a freeze wall subject matter expert. Denison has also invited MN-S to share relevant Métis knowledge for consideration.

MN-S remains concerned that the Project will significantly and adversely affect Métis land claims. MN-S has requested support from the Province of Saskatchewan to conduct studies to quantify the lost socio-economic value in the Project area, including the financial value of the uranium resource itself. Denison's response noted that the MN-S socio-economic study referenced in the EIS found that Métis communities would benefit from the project. Denison is participating in negotiations toward a consent-based agreement for the purpose of accommodating Métis rights and interests, including Métis economic interests.

MN-S continues to express concern about adverse effects on animals, land and water, citing the effective extinguishment of nearby Métis commercial fishing rights, the release of contaminants into waterways

and ongoing obstacles to caribou population rehabilitation. MN-S has requested discussions on specific mitigation measures. Denison has engaged in discussions with MN-S regarding these concerns. Denison's assessment has identified no significant adverse effects on Whitefish Lake or Russell Lake, or on woodland caribou populations. Denison has committed to offsetting caribou habitat as appropriate and is developing a management plan with the Government of Saskatchewan. Denison encourages MN-S to participate in the Province's caribou advisory committee to help develop the mitigation framework.

MN-S seeks robust involvement in Project oversight and monitoring in all phases. Denison has affirmed the importance of transparent monitoring and has committed to the collaborative development of an effective communication process to bridge scientific and Métis perspectives.

Process for Consensus and Agreement: Métis Nation - Saskatchewan

Denison has engaged deeply with the MN-S since 2019 to work toward reaching consensus and agreement on the Project. Throughout this time, Denison has supported the MN-S's meaningful participation in the Project's environmental assessment and has sought the free, prior and informed consent (FPIC) of the MN-S to Wheeler River.

Denison's process to seek MN-S consent for the Project began in June 2019 with initial engagement that focused on establishing appropriate processes, deliverables and budgets to support MN-S's participation in the EA. In October 2019, several Métis Locals, delegated their duty to consult for the Project to the MN-S, a status that has continued with the exception of KML. Denison has since consulted with MN-S on behalf of those Métis Locals, consistently seeking both direction from MN-S to advance engagement activities and feedback regarding Métis interests and/or concerns.

Denison has provided support to MN-S in the areas it considers important. One example is Denison's support for the Métis Knowledge Study which was completed in 2023 and included in the EIS. Denison has also supported engagement activities including meetings focused on valued components and preliminary effects for the EA, and ensuring the MN-S has been able to review the draft EIS in a manner it deems acceptable.

Denison has engaged extensively with MN-S since 2019 to reach consensus and agreement with respect to the Project. On November 21, 2024, Denison and MN-S entered a negotiation protocol to establish a process for negotiating a consent-based agreement for the Project, and to provide funding to support MN-S in those negotiations. Denison continues to work collaboratively with MN-S to address its outstanding concerns and to seek the FPIC of MN-S to the Project, and the parties are actively working toward reaching mutually agreeable terms to achieve that goal. Denison continues to work collaboratively with MN-S to resolve outstanding issues.

2.3.3.4 Ya'thi Néné Lands and Resources Office

The Ya'thi Néné Lands and Resources Office (YNLR) acts as a single point of contact for the communities of Hatchet Lake First Nation, Black Lake First Nation, Fond du Lac First Nation and the northern hamlets/settlements of Stony Rapids, Wollaston Post, Uranium City and Camsell Portage. YNLR's mission is to protect the lands and waters of the Athabasca Basin for the long-term benefit of its Denesųłiné First Nations and Athabasca communities. YNLR explicitly holds the duty to consult for the three First Nations represented by YNLR. Denison identified Hatchet Lake First Nation as an Indigenous COI, while the Black

Lake First Nation and Fond du Lac First Nation are considered other Indigenous communities. Denison engages with Hatchet Lake First Nation, Black Lake First Nation and Fond du Lac First Nation through YNLR.

2.3.3.4.1 Summary of Engagement: Ya'thi Néné Lands and Resources Office

Provision of Adequate Notice Denison has provided notice to YNLR regarding regulatory processes and Project activities. Denison contacted YNLR through letters and emails about formal regulatory processes including the public review period for the technical proposal and the project description, the commencement of the public review of the EIS, opportunities for participant funding, the acceptance of the EIS and the establishment of the decision-making hearing, while offering opportunities to address questions and concerns. Denison also informed YNLR about the temporary postponement and subsequent restart of the EA because of COVID-19. Correspondence also referenced regulatory contacts, funding processes and deadlines.

Disclosure of Relevant Information Denison has disclosed relevant information to YNLR by consistently providing detailed Project-related information. Denison has provided detailed overviews of the Project during meetings with YNLR staff, executive and chiefs. Key EA-related documents provided for review include draft sections of the EIS. Visual aids were developed for use in community meetings and Denison has maintained a website containing Project information, FAQs, and regulatory links. Presentations and notes from meetings were also shared by YNLR. Updates on general activities, the EA restart and changes to elements of the Project design, such as the freeze wall configuration, were also provided.

Discussion of Issues Raised in Response to Notice Denison engaged in discussions with YNLR and responded to issues raised following notices and information disclosure. This included phone calls, emails, meetings and letters responding to technical comments brought up during public review of the project description and on the draft EIS. YNLR provided 64 technical comments on draft EIS sections, and Denison has regularly met and engaged with YNLR since that time to discuss YNLR comments and agree on a path forward for resolution. This process has included meetings with technical experts, the provision of follow up information, and the development of formal responses by Denison (April 2024). In December 2024, YNLR advised that a substantial majority of the comments made were resolved.

Exchange of Information / Correspondence Denison has maintained a consistent exchange of information and correspondence with YNLR beyond formal notices and disclosures. This dialogue has addressed matters related to the Project as they arose through the scheduling of leadership and technical meetings, sharing meeting notes, promotional materials and a draft land-use memo for YNLR's review and comment. The draft memo was part of an agreed-upon approach for YNLR's participation in the EIS process. Denison and YNLR have exchanged materials in advance of technical meetings.

Meetings Denison has utilized various types of meetings as a primary mechanism for engagement with YNLR leadership and community members. Detailed overviews of the Project were presented to Chiefs, executive board members and staff during leadership meetings. Community meetings (open houses or presentation-style sessions) were held, often jointly coordinated with YNLR to provide Project updates and share information on mitigation, monitoring and opportunities. These have included virtual and in-person meetings. In January 2023, in-person community meetings were held in Black Lake First Nation, Uranium City, Fond du Lac First Nation and Hatchet Lake First Nation. A second set of community meetings were held in June 2024 in the same communities as well as Stony Rapids. Focused technical meetings were also held on specific topics including management and monitoring plans and cumulative effects.

Site Visits Denison has facilitated site visits to provide YNLR members with a clear understanding of Project components and activities. A site tour was conducted in November 2023 with YNLR staff members to provide an overview of Project work to date, including the feasibility field test.

Research / Studies Denison has actively supported studies and research in relation to the Project, including land use, TK and socio-economic studies. Denison entered an agreement in 2022 to support YNLR in drafting a report entitled, *An Exploration of Recorded Athabasca Denesųłiné Traditional Knowledge, Land Use and Occupancy Information in the Vicinity of Denison Mines Wheeler River Project,* which was integrated into the EIS. YNLR reviewed pertinent EIS sections prior to submission and reviewed a land use memorandum prepared by Denison on land use activities associated with the Project.

Determination of Accommodation, Where Appropriate: Seek to Adjust Denison accommodated YNLR by developing mitigation measures in response to YNLR's input and concerns and by exploring options to adjust Project features where appropriate. Denison provided draft EIS sections to YNLR for review prior to submission. Following YNLR's feedback on these sections, Denison reclassified Hatchet Lake First Nation as an Indigenous COI.

2.3.3.4.2 Addressing Issues and Concerns: Ya'thi Néné Lands and Resources Office

YNLR has raised concerns during the engagement process about the Project's long-term environmental impacts on land and traditional ways of life, and sought equitable employment, training and procurement opportunities for Athabasca Basin residents. Denison understands the nature of these concerns and has committed to prioritizing Indigenous employment and procurement. Denison has also committed to restoring the land for unrestricted surface use as part of decommissioning.

YNLR has brought forward environmental and procedural concerns related to the Project. YNLR sought significant offsets for woodland caribou habitat impacts, particularly those connected with the proposed Highway 914 extension. Denison has responded by noting that the Highway 914 extension is not directly tied to the Project but is part of a future project considered in the cumulative effects assessment. The Highway 914 proponent would be responsible for such offsetting, if required. Denison has developed a Conceptual Caribou Mitigation Plan following discussions with the SK MOE, which will be refined in consultation with SK MOE and local communities. Denison has shared this Conceptual Caribou Mitigation Plan with YNLR for its review and comment.

YNLR disputes Denison's positive conclusions on cumulative and residual effects, citing concerns over spatial boundaries and the omission of existing linear disturbances like seismic cut lines in the assessment. In response, Denison has engaged with YNLR and shared information from the Project's cumulative effects assessment, to explain the comprehensiveness of the approach and to clarify the methodology. This methodology includes a description of how disturbances were mapped and considered in terrestrial assessments in accordance with best practice approach. YNLR also raised concerns about the source, quantity and release of Project water and associated contaminants from the Project, emphasizing the value of clean water, and requested a communication plan for any releases. Denison has engaged with YNLR to provide context in support of its water quality assessment which predicted no contamination or health risks associated with water quality. Denison also committed to robust groundwater monitoring and to sharing information with YNLR regarding water usage.

YNLR has indicated a desire for collaborative involvement in the design and development of monitoring programs. Denison has reaffirmed its commitment to sharing information about monitoring plans as they

evolve through the permitting and licensing processes. Denison has also provided YNLR with detailed information on monitoring and has offered opportunities for discussions on plans and programs.

2.3.3.4.3 Outstanding Issues and Concerns: Ya'thi Néné Lands and Resources Office

YNLR has indicated its interest in collaborative and continued involvement in monitoring plans and programs related to the Project including the environmental monitoring plan, the biodiversity management plan and the environmental management program. YNLR has expressed optimism that a process by which it can review and comment on preliminary monitoring plans and programs could resolve outstanding issues and concerns in the foreseeable future. Denison has committed to the process that YNLR has requested and anticipates that the remaining issues and concerns will be resolved.

2.3.3.4.4 Process for Consensus and Agreement: Ya'thi Néné Lands and Resources Office

Denison's comprehensive engagement process has resulted in effective collaboration and a positive relationship with YNLR. To facilitate YNLR's participation in the EA process, Denison has entered two arrangements related to the mutual planning and coordination of engagement activities, along with a process for YNLR to develop a report for Denison to consider and include in the EIS. YNLR also has had an opportunity to review and comment on sections of the EIS related to its report. YNLR's full report is included in the appendix of the EIS.

Denison has engaged extensively with YNLR since 2019 with the goal of reaching consensus and agreement on the Project. Throughout this period, Denison has supported YNLR's participation in the Project's environmental assessment.

In October 2023, Denison and YNLR entered into a process agreement to establish a framework for negotiating a consent-based agreement regarding Denison's mining activities in the Athabasca Basin, and to provide funding to support YNLR's participation in those negotiations. That agreement was amended in November 2024. At the date of writing, Denison continues to work collaboratively with YNLR and to seek the FPIC of YNLR to the Project. The Parties are actively working toward mutually agreeable terms to fulfill that goal.

2.3.3.5 Birch Narrows Dene Nation

Birch Narrows Dene Nation (BNDN) is a signatory to Treaty 10 and a member of the Meadow Lake Tribal Council with traditional territories including Turnor Lake and Churchill Lake. BNDN is located 570 km from the Project site.

2.3.3.5.1 Summary of Engagement: Birch Narrows Dene Nation

Based on Denison's assessment of the key factors set out by the CNSC and the Federal Government (see Table 2-1), BNDN is classified as an Other Indigenous Community with an interest in the Project. Although information to date suggests that BNDN has a low potential for serious adverse impacts from the Project, Denison has undertaken engagement activities with BNDN that include provision of notice, disclosure of relevant information, discussion of issues raised by BNDN in meetings with technical experts and through

detailed correspondence and other engagement activities as they have arisen. Below we provide examples of such engagement.

- Denison has provided BNDN with notice of the Project through letters and emails regarding formal regulatory processes including the commencement of public review of the EIS, opportunities for participant funding, acceptance of the EIS and the establishment of the decision-making hearing, while offering opportunities to ask questions and express concerns.
- Correspondence in 2019 provided information about the Project and highlighting Denison's interest in understanding BNDN's potential Indigenous and/or Treaty Rights present in the Project area. This correspondence also provided an initial Project overview and expressed Denison's interest in discussing the EA process, valued components, technologies and the proposed Project schedule.
- Denison has consistently shared such Project information with BNDN, as a comprehensive overview of the Project, the EA, valued components, technologies and schedule. Following each meeting with BNDN, Denison has provided presentation slides and meeting notes to BNDN. Denison has also maintained its Project website as a single source of information available to BNDN to access updated information.
- Denison has engaged in discussions and responded to concerns raised by BNDN. After BNDN expressed concern in 2023 that the Project could affect its Indigenous and/or Treaty Rights, Denison held meetings with BNDN and requested specific information about BNDN's activities in the Project area to better understand potential impacts.
- A significant part of this engagement has involved BNDN's submission of 88 technical comments on the draft EIS made during the public review process in 2023. Following receipt of these comments, Denison and technical experts met with BNDN to discuss the comments in an effort to provide appropriate responses. In November 2023, Denison provided responses to all the technical comments and to general comments from the Chief of BNDN during a meeting in July 2023.
- In January 2024, BNDN sent a letter to Denison stating that Denison's responses adequately addressed the questions raised by BNDN about the Project. In March 2025, BNDN sent a letter to Denison rescinding its previous position. BNDN articulated its 78 outstanding concerns in respect of the Project in May 2025.
- In May and July 2025, Denison sent letters to BNDN responding to each of BNDN's outstanding concerns.
- Throughout the assessment, Denison has continued to express its willingness to discuss issues raised by BNDN in relation to the Project, to keep BNDN informed about the Project, and to remain responsive to BNDN's interests.

2.3.3.5.2 Addressing Issues and Concerns: Birch Narrows Dene Nation

Denison has addressed all 88 public comments on the EIS submitted by BNDN. Denison provided detailed responses to these comments, which included concerns related to potential impacts on water quality and quantity, effluent release, water taking and the adequacy of predictive modeling. Specifically, BNDN questioned Denison's conclusions about the mobility of contaminants in groundwater after decommissioning and the accuracy of the solutions required for the decommissioning phase. In response, Denison clarified the assessment's findings and affirmed its view that the Project could be operated safely with appropriate measures.

BNDN expressed concerns related to potential impacts to groundwater resources and woodland caribou and requested additional background sampling sites for aquatic monitoring. BNDN has also expressed concern that the EIS lacks detailed information about spill prevention programs, emergency management procedures and monitoring and remediation programs for accidents and malfunctions. In response, Denison maintained that water quality assessments are robust, predicting no adverse effects on human or ecological health. Denison also referenced the development of a Conceptual Caribou Mitigation Plan which will be updated in consultation with SK MOE as the provincial woodland caribou protection plan evolves.

BNDN noted community members have ongoing land use in the region, particularly in the Cree Lake area that lacks road access approximately 44 km west of the Project site. Cree Lake is upstream of the Project. Over the course of engagement, Denison has requested specific information regarding BNDN land use in the region to better understand the potential for adverse effects. BNDN has not shared any such information with Denison. In its responses to the technical review questions, Denison has indicated that land and resource use will be unaffected, even for the most intensive resource users considered for the EA.

Socio-economic issues are also a concern for BNDN, specifically employment, training and procurement opportunities for the community's members and businesses. In addressing these concerns, Denison has affirmed its socioeconomic commitments as set out in the company's IPP. Denison also noted that communities within the local study area will be prioritized for employment and business opportunities, followed by residents and businesses within Saskatchewan's NAD.

Denison has consistently committed to ongoing dialogue and transparency with BNDN and specifically committed to informing the community on Project progress and to including it in engagement related to monitoring plans.

2.3.3.5.3 Process Moving Forward on Outstanding Issues and Concerns

Denison received correspondence from the BNDN in January 2024 advising that Denison's responses to the community's technical EIS comments were adequate. BNDN changed its position in a letter to Denison in March 2025. In response, Denison noted that BNDN's correspondence provided no details of why the acceptance was withdrawn but nonetheless offered to meet with BNDN to discuss the matter. BNDN did not respond to this correspondence. In May 2025, Denison and the CNSC received further correspondence indicating that some of Denison's responses to issues raised by BNDN during the technical review process were not adequate. In July 2025, Denison again offered to meet with BNDN to discuss any remaining issues and concerns and responded to each of BNDN's 78 outstanding concerns. To date, Denison has not received a reply to this offer.

Denison has continually engaged with BNDN, recognizing it as an Other Indigenous Community, with the primary objective of fostering positive relationships and working toward mutually acceptable resolutions. This engagement approach is founded on principles of building relationships based on trust, good faith and transparency, and providing meaningful and relevant information in a mutually agreeable manner. Denison has demonstrated transparency and flexibility in its engagement with BNDN through the company's responses to BNDN's technical questions about the EIS. Denison remains committed to engaging with BNDN on remaining issues of concern in an appropriate and mutually agreeable manner.

Denison continues to correspond with BNDN and is maintaining its commitment to keep the community informed about the Project and to respond to concerns in a mutually agreeable manner.

2.3.3.6 Lac La Ronge Indian Band

The Lac La Ronge Indian Band, Saskatchewan's largest First Nation, has several reserves including Hall Lake, Stanley Mission and Grandmothers' Bay and is a signatory to Treaty 6. LLRIB's administrative centre at La Ronge, SK, is about 480 km by road from the Project site.

2.3.3.6.1 Summary of Engagement: Lac La Ronge Indian Band

Based on Denison's assessment of the key factors set out by the CNSC and the Federal Government (see Table 2-1), LLRIB is classified as an Other Indigenous Community with an interest in the Project. Although information to date suggests that LLRIB has a low potential for serious adverse impacts from the Project, Denison has undertaken engagement activities with LLRIB that include provision of notice, disclosure of relevant information, discussion of issues raised by LLRIB in meetings with technical experts and through detailed correspondence and other engagement activities as issues have arisen. Below we provide examples of such engagement.

- Denison has provided LLRIB with notice. LLRIB was notified by letter and email of formal regulatory processes including the commencement of the public review of the EIS, opportunities for participant funding, acceptance of the EIS and the establishment of the decision-making hearing while offering opportunities for questions and concerns.
- Denison initiated engagement with LLRIB in 2019 with a letter to the Chief providing information about the Project and emphasizing Denison's interest in understanding LLRIB's potential Indigenous and/or Treaty Rights undertaken in the Project area.
- Denison met with the LLRIB Lands and Resources Subcommittee as a follow-up to the 2019 correspondence.
- Denison provided LLRIB with Project information through various channels including presentations, meetings and ongoing correspondence. Denison has also maintained its Project website as a single source of information available to LLRIB to access updated information. LLRIB submitted public comments on the draft EIS.
- Denison has since met with LLRIB twice (in 2023 and 2024) to discuss the comments made in relation to socio-economic interests, along with general commentary related to the Project in relation to LLRIB's traditional territory. Denison has expressed its willingness to discuss issues raised by LLRIB in relation to the Project, to keep LLRIB informed about the Project, and to remain responsive to LLRIB's interests.

2.3.3.6.2 Addressing Issues and Concerns: Lac La Ronge Indian Band

Denison has addressed concerns raised by LLRIB, particularly those submitted as public comments on the draft EIS. LLRIB emphasized socio-economic considerations such as ensuring opportunities for LLRIB-owned businesses including Canada North Environmental Services and Northern Resource Trucking. Denison noted its awareness of and extensive work with these companies. Denison expressed its commitment to supporting northern Saskatchewan businesses and to responding to any concerns or areas of interest identified by LLRIB. Denison has acknowledged LLRIB's statement that the Project lies within

its traditional territory. Denison has not been provided any information from LLRIB describing land use near the Project and the EA has identified no significant adverse residual effects to land users from the Project.

2.3.3.6.3 Process Moving Forward on Outstanding Issues and Concerns

LLRIB has not deemed Denison's responses to remaining issues of concern satisfactory. Denison remains committed to continuing to engage with LLRIB in an appropriate and mutually agreeable manner. Denison continues to correspond with LLRIB, maintaining its commitment to keep LLRIB informed about the Project and concerns and meaningfully responding to their areas of interest.

2.3.3.7 Peter Ballantyne Cree Nation

Peter Ballantyne Cree Nation (PBCN), a signatory of Treaty 6, is a Woodland Cree First Nation in northern Saskatchewan. PBCN is comprised of eight communities, including Amisk Lake (Denare Beach), Deschaumbault Lake, Kinoosao, Pelican Narrows, Prince Albert, Sandy Bay, Southend and Sturgeon Landing. These communities vary in distance from the Project. The closest community is Deschambault Lake, SK, which is 650 km by road from the Project site, while the furthest community is Kinoosao, which is 1,520 km by road from the Project site.

2.3.3.7.1 Summary of Engagement: Peter Ballantyne Cree Nation

Based on Denison's assessment of the key factors set out by the CNSC and the Federal Government (see Table 2-1), PBCN is classified as an Other Indigenous Community with an interest in the Project. Although the information to date suggests that PBCN has a low potential for serious adverse impacts from the Project, Denison has undertaken engagement activities with PBCN that include provision of notice, disclosure of relevant information, discussion of issues raised by PBCN in meetings with technical experts and through detailed correspondence and other engagement activities as they have arisen. Below we provide examples of such engagement.

- Since becoming aware of PBCN's interest in the Project through the EA process in early 2023, Denison has provided PBCN with notice by letters and email of formal regulatory processes including opportunities for participant funding, the acceptance of the EIS and the establishment of the decision-making hearing while offering opportunities for questions and concerns.
- Denison has provided PBCN with Project information through various means including presentations, meetings and ongoing correspondence by letter and email. Denison has also maintained its Project website as a single source of information available to PBCN to access updated information. Denison has responded to PBCN's public comments on the draft EIS.
- Denison has actively engaged in discussions with and responded to concerns raised by PBCN. A significant part of Denison's engagement with PBCN has been related to its comments about the draft EIS made during the public review process. Denison and its technical experts met with PBCN to discuss the public comments and Denison subsequently provided responses to all of PBCN's technical comments.
- Denison and PBCN have continued their efforts toward better understanding PBCN's interests in the Project in relation to potential land use activities undertaken in the area.

2.3.3.7.2 Addressing Issues and Concerns: Peter Ballantyne Cree Nation

PBCN formally submitted public comments on the draft EIS. These concerns relate to potential adverse environmental, cultural and socio-economic impacts on PBCN members and land use including hunting, fishing and gathering in all seasons. Denison has since acknowledged PBCN's interest in the Project and expressed willingness to continue discussions and share information.

In response to PBCN's concern regarding its initial exclusion from engagement activities, Denison outlined its approach to the identification of Indigenous communities with a potential interest in the Project, which followed criteria outlined in CNSC REGDOC 3.2.2 (see Table 2-1) and incorporated various sources of information, such as publicly available descriptions of traditional territories, including the traditional territory of PBCN. Despite repeated requests, PBCN has not provided any information to Denison regarding land use in the Project area.

Another area of concern highlighted by PBCN related to potential adverse environmental and traditional land use impacts. Denison shared information regarding these issues and affirmed that the EA concluded there would be no significant adverse impacts to the lands and resources (plants, fish, wildlife) which support these activities. Denison also communicated that Project effects on Indigenous land and resource use have been mitigated for the most intensive resource user(s) irrespective of their affiliation to a particular Indigenous community.

PBCN also expressed concerns related to socio-economic impacts and meaningful participation in monitoring programs. Denison informed PBCN of the company's internal procurement approach which requires that Denison prioritize employment and business opportunities for people and businesses within the Local Study Area, followed by residents and businesses within Saskatchewan's NAD through all phases of the Project. Denison has committed to supporting PBCN in relation to its interest in environmental monitoring in its traditional territory and remains committed to providing information regarding the outcomes of Denison's monitoring programs.

2.3.3.7.3 Process Moving Forward on Outstanding Issues and Concerns

Denison has engaged with PBCN in an ongoing and evolving process aimed at building positive relationships and working toward consensus and agreement on the Project In July and August, 2025, Denison and PBCN collaborated to develop a process and deliverable that would address PBCN's broad issues and concerns in relation to protection of water quality in their traditional territory, access to monitoring data, and participation in environmental monitoring initiatives, which were the key areas of interest identified by PBCN in respect of the Project.

Denison is committed to continuing engagement with PBCN in respect of their interests in the Project.

2.3.3.8 Meadow Lake Tribal Council and Prince Albert Grand Council

Potential interests of the Meadow Lake Tribal Council (MLTC) and Prince Albert Grand Council (PAGC) in the Project were identified by the CNSC in 2019. In response, Denison initiated correspondence with both parties providing information about the Project and later informing them of the temporary suspension and subsequent restart of the EA because of COVID-19. As of July 2025, Denison has not been contacted directly by either organization with respect to the project.

PAGC submitted public comments on the draft EIS to the CNSC in March 2023. PAGC's concerns related to consideration and incorporation of Indigenous perspectives and IK throughout the EIS in terms of the terrestrial environment, particularly in relation to caribou. PAGC identified traffic and noise from the proposed Project as concerns affecting caribou and highlighted general concerns regarding socio-economic factors, human health, ecosystems and sustainability. Denison provided a direct response to the PAGC comments and has not received further correspondence.

Denison will continue to provide information about the Project and will be responsive to future interests brought forward by MLTC and PAGC.

2.3.3.9 Buffalo River Dene Nation

A potential interest of the Buffalo River Dene Nation (BRDN) in the Project was identified by the CNSC in 2019. Denison has since shared information with BRDN about the Project and offered to meet and exchange information. Engagement efforts were suspended, along with the EA, in March 2020 because of the COVID-19 pandemic. In 2021, Denison advised BRDN about the EA restart. As of July 2025, Denison has not received any correspondence from BRDN.

2.3.3.10 General Public

As part of its broader engagement program, Denison has engaged with members of the general public who may have an interest in or be affected by the Project. This engagement includes outreach to non-Indigenous COIs, other non-Indigenous communities, and nearby land users. These groups were included in the engagement because they may experience socio-economic effects. Nearby land users including commercial trappers and fishers, cabin/lease owners and commercial outfitters in the vicinity of the Project may also be affected.

Denison's engagement with the general public included:

- **Non-Indigenous Communities of Interest:** These include the Northern Village of Pinehouse, the Northern Village of Beauval and the Northern Hamlet of Patuanak. These communities are located near existing or planned transportation infrastructure and have been identified as having the potential to participate in Project-related employment, training and procurement opportunities, as well as to experience socio-economic changes resulting from the Project.
- **Other Non-Indigenous Communities:** These include the Northern Village of Île-à-la-Crosse, the Northern Hamlet of Stony Rapids, the Northern Hamlet of Uranium City, the Northern Hamlet of Camsell Portage and the Northern Settlement of Wollaston Lake. While these communities are not expected to experience direct effects from the Project, Denison has sought to ensure transparency and awareness through information sharing.
- **Nearby Land Users:** These include commercially licensed trappers and fishers, lease holders, cabin owners and commercially operated lodges in the vicinity of the Project. These land users may experience changes in access or use of land and resources in the Project area.

The purpose of public engagement has been to provide information on the Project, to identify any questions or concerns and to ensure that local and regional residents were informed of potential opportunities to participate in or benefit from the Project. Engagement activities have been conducted in

a manner consistent with Denison's broader approach to public engagement — emphasizing openness, responsiveness and the sharing of technical information in a clear and respectful way.

2.3.3.10.1 Engagement with Non-Indigenous Communities of Interest

Engagement with non-Indigenous COIs included Pinehouse, Beauval and Patuanak.

Summary of Engagement: Non-Indigenous Communities of Interest

Denison's engagement with Pinehouse, Beauval and Patuanak focused on providing information about the Project including the ISR mining method, understanding community interests and priorities, discussing potential participation in employment, training and business opportunities and inputs into the environmental assessment process. These communities were engaged because of their proximity to the Project's transportation routes and their influence on regional socio-economic dynamics. Engagement activities with Pinehouse and Beauval began before the filing of the Project Description in 2016. Since then, engagement activities have included in-person and virtual meetings, open houses, surveys, workshops, site visits and other targeted outreach activities. Engagement began with Patuanak in 2019. Engagement activities included meetings with municipal representatives and community leadership, as well as targeted outreach to economic development officers and interested residents. Denison's approach has emphasized relationship-building and open dialogue, ensuring that Project information has been communicated clearly and that questions have been addressed respectfully and responsively. As a result of these efforts, in March 2024 Denison entered into an agreement with Pinehouse and Beauval which secured the communities' support for the Project.

Key themes raised in discussions with the communities included:

- Employment opportunities, particularly for youth and entry-level workers.
- Training and skills development in advance of Project construction.
- Contracting opportunities for local businesses.

Denison also received questions about the fly-in work schedule and how community members can participate without relocating.

Denison heard consistent interest in receiving Project updates, particularly as timelines for key decisions and hiring processes become more defined. Feedback received during engagement have informed the development of socio-economic and engagement strategies, including the importance of providing accessible application processes and early communication about the Project.

Addressing Issues and Concerns: Non-Indigenous Communities of Interest

Through engagement activities with the non-Indigenous Communities of Interest, Denison recorded a range of questions, interests and concerns. These responses were documented and have informed ongoing development of the Project and its socio-economic and environmental assessments in the EIS, including input into valued components, preliminary effects and mitigation. Key themes raised included employment and training opportunities, access to lands and resources and the perceived suitability of harvested resources.

- **Employment and Training Opportunities**: Residents and leadership from each community have expressed a desire for employment, training and economic opportunities associated with the Project. In response, Denison has emphasized its commitment to prioritize hiring and procurement from residents of Saskatchewan's north and communities of interest, and to continue engaging communities to identify local training needs. Denison has also shared information about the types of employment anticipated during different Project phases, the proposed fly-in work schedule, and how this model could accommodate workers residing in these communities.
- **Access to Lands and Resources**: Community members have sought information about how the Project may affect access to lands and resource-harvesting areas. Denison has responded by explaining that land use monitoring would be implemented. Denison has also clarified that recreational access to the Project site would be restricted, with rules in place to minimize natural resource use by people working at the site.
- **Perceived Suitability of Harvested Resources:** Concerns have been raised regarding the potential for environmental contamination, particularly in relation to water quality and the perceived suitability of harvested resources. Denison has provided information about its planned environmental protection measures and monitoring programs. Community members also have been informed of the human health and ecological risk assessments included in the EIS, which concluded that risks to health and safety, including from waterborne contaminants, were low and manageable with mitigation.

Process Moving Forward

Both Pinehouse and Beauval have expressed their support for the Project. Denison remains committed to continued engagement as the Project advances. Future engagement will focus on sharing updates on progress and topics of interest related to the Project, while continuing to respond to questions and concerns as they arise.

2.3.3.10.2 Engagement with Other Non-Indigenous Communities

Denison has engaged with other non-Indigenous communities in northern Saskatchewan that, while not anticipated to experience direct environmental effects, have expressed interest in learning about the Project and have remained part of Denison's broader engagement effort. These communities include Île-à-la-Crosse, Stony Rapids, Uranium City, Camsell Portage and Wollaston Lake. These communities have been included in Denison's engagement program based on their potential socio-economic interest and on the value of open communication across northern Saskatchewan. Île-à-la-Crosse has been identified as having a strong Indigenous presence and a historical connection to the region, and participated in several detailed engagement activities including workshops, surveys and open houses. The other four communities engaged primarily through the Athabasca working group (Ya' thi Néné Land and Resource Office).

Summary of Engagement: Other Non-Indigenous Communities

Engagement with Île-à-la-Crosse began in 2016 and has included in-person and virtual meetings, a site tour, a community workshop and an online survey. These activities have focused on sharing information about the Project and the environmental assessment process, seeking feedback on valued components

and discussing potential economic opportunities and community interests. Denison has met with both leadership and residents and adapted engagement methods based on community preferences. Early engagement reflected concerns that overlap with those of A La Baie Métis Local #21 which were resolved in 2019. In 2023, Denison hosted an in-person open house at Île-à-la-Crosse to present environmental assessment findings and to discuss the Project licensing process. A report and video summarizing what was heard were made publicly available.

Engagement with Stony Rapids, Uranium City, Camsell Portage and Wollaston Lake have occurred primarily through participation in regional engagement processes facilitated by the Yathi Néné Land and Resource Office. These efforts have included information-sharing meetings and opportunities for feedback. While these communities are geographically distant from the Project by road, Denison's outreach efforts have aimed to maintain transparency and to respect regional interest in uranium development and environmental stewardship.

Addressing Issues and Concerns: Other Non-Indigenous Communities

Through engagement with the other non-Indigenous communities, Denison has identified a range of questions and concerns that have informed Project planning and the environmental assessment process. These include matters related to employment and training opportunities, environmental protection and decommissioning.

- **Employment, Training, and Economic Opportunities**: Île-à-la-Crosse residents have highlighted the importance of long-term employment and skills development. Interest was also expressed in opportunities for local businesses to participate in procurement. Denison has emphasized its intent to prioritize hiring and contracting in northern Saskatchewan and has discussed opportunities for involvement in environmental monitoring. The importance of education, accessible job application processes and early communication of opportunities also has been acknowledged.
- **Environmental Protection and Monitoring**: Île-à-la-Crosse residents have expressed interest in understanding the ISR mining method, containment and water treatment systems, management of potential spills or incidents and the monitoring plans in place during operation and closure. Questions were raised regarding groundwater protection, freeze wall integrity, and potential effects on critical habitats and traditional resource areas. Denison has responded with technical briefings, environmental assessment summaries, and visuals to demonstrate how environmental risks would be managed. Participants also have been directed to the human and ecological health risk assessment outcomes, which concluded that potential risks would be low and manageable with mitigation.
- **Decommissioning Concerns**: Questions were raised about decommissioning effects. Denison has responded by sharing details of the environmental assessments conclusions and follow-up monitoring commitments, including how the licensing process would ensure oversight. These concerns were considered in the design of monitoring programs and in planning future engagement activities.
- **Feedback from Broader Regional Communities**: In Stony Rapids, Uranium City, Camsell Portage and Wollaston Lake, engagement conducted through YNLR has provided forums for residents to ask questions and receive updates. While these communities are more geographically distant, concerns raised were generally in aligned with those heard elsewhere, particularly regarding environmental protection and potential economic opportunities.

Process Moving Forward

Île-à-la-Crosse, Pinehouse and Beauval have expressed their support for the Project. Denison remains committed to maintaining open and respectful communication with the other non-Indigenous communities. As the Project advances, Denison will continue to share updates and provide opportunities for these communities to ask questions and offer feedback.

2.3.3.10.3 Engagement with Nearby Land Users

As part of its broader engagement with the public, Denison has engaged individuals, businesses and organizations that use or represent interests associated with the lands and waters near the Project. These nearby land users include a commercially licensed trapper and fisher (the ERFN Trapper), recreational and traditional cabin/lease owners and commercial lodges. Within a 20 km radius of the Project site there are 10 known recreational cabin owners/lease holders, one known traditional cabin owner/lease holder and two known commercial lodges. While these individuals and groups may not reside within potentially affected communities, they may experience or represent interests that could be influenced by changes in access, land use, economic interests or environmental conditions associated with the Project.

Summary of Engagement: Nearby Land Users

Engagement with the ERFN Trapper, who passed away in 2022, focused on the collection of detailed land and resource use information, as well as feedback on Project planning. This trapper, who was also a member of ERFN, maintained multiple cabins in the region and provided input through meetings, site tours and a full-day on-site interview. This information informed several components of the EIS, including mitigation planning and baseline descriptions. The late ERFN Trapper is understood to be representative of broader current and future ERFN land users. ERFN anticipates continued use of the area in a similar manner through subsequent generations. Denison also has engaged the chairperson of the N-18/N-16 fur block to share Project information relevant to commercial trapping.

Engagement with cabin owners, lease holders and a commercially operated lodge (the Wheeler River Lodge) was initiated following the submission of the Project Description in 2019. In early 2020, Denison conducted a mail-out survey to known leaseholders to gather information about their land use patterns, seasonal activities and concerns. Six responses were received. Updated materials have since been regularly shared with this group to ensure continued access to updated and transparent Project information. Denison also has maintained contact with the operator of Wheeler River Lodge, who has identified recreational and commercial use of the area and has expressed specific concerns related to access.

Addressing Issues and Concerns: Nearby Land Users

Denison has recorded a range of issues and concerns raised by nearby land users during engagement activities, including the ERFN Trapper, cabin and leaseholders and a commercial lodge. These inputs were used to inform the environmental and socio-economic assessment and have contributed to mitigation planning and communication.

- **Access and Land Use**: Maintaining existing controlled access was a central concern for many land users. Cabin and lease owners, as well as the operator of Wheeler River Lodge, expressed strong interest in preserving the gated access at Key Lake to prevent vandalism, theft and unregulated land use. Concerns also have been raised about increased traffic along Highway 914 and the pressure that increased access could place on hunting, fishing and outdoor recreation activities. Denison has acknowledged these concerns and has committed to allowing controlled site access and implementing worker conduct guidelines to minimize effects on nearby land users and their operations.
- **Effects on Land and Resource Use**: Nearby land users have raised concerns about how the Project may affect land and resource use, particularly in relation to recreational fishing, hunting, and boating. The operator of the Wheeler River Lodge noted potential impacts to business operations stemming from reduced quality or availability of recreational opportunities. In response, Denison has committed to implementing environmental protection measures and ongoing communication to ensure users are informed about Project timelines, activities and mitigation.

Process Moving Forward

Denison will continue to engage with nearby land users including trappers, fishers, leaseholders and lodge operators as the Project advances. Ongoing engagement will focus on maintaining open lines of communication, providing timely updates on Project activities and responding to questions or concerns as they arise. Denison remains committed to ensuring that the interests and knowledge of nearby land users are reflected in mitigation planning, access management and monitoring programs.

2.3.4 Future Engagement Activities

Denison believes that the development of positive and effective working relationships with Interested Parties will not conclude with the completion of the assessment and licensing process. Denison believes that there is considerable value in sustaining opportunities for engagement with Indigenous communities and organizations, the public and regulatory agencies. Denison is committed to ongoing engagement throughout the entire Project lifespan and to ensuring regulatory requirements are adequately fulfilled.

- **Future Indigenous Engagement Activities:** Denison's adoption of the IPP in 2021 underscores its commitment to advancing reconciliation with Indigenous peoples in Canada. Through its focus on engagement, empowerment, environment, employment and education, Denison continues to implement its evolving Reconciliation Action Program, with ongoing, meaningful engagement embedded as a foundational principle across all areas of operations. Just as the Project engagement process has evolved to date, specific activities will be identified in collaboration with Indigenous IPs to ensure they align with specific areas of interest or concern. These may include follow-up on specific feedback about the EIS and identified areas of concern, the implementation of benefit agreements and the ongoing implementation of working groups, monitoring and other commitments.
- **Future Public Engagement Activities:** Engagement activities will continue after the submission of the EIS and completion of the EA process. Specific activities will be developed in discussion with interested public parties to ensure, among other things, that potential effects continue to be minimized and that Project benefits have an opportunity to be maximized. Denison expects that opportunities to share information on Project status and to receive information on issues and concerns will include activities that focus on communication (website and newsletters) and direct interaction (e.g., workshops,

youth/elder sessions, meetings with community leadership and ongoing discussion with resource harvesters).

- **Future Regulatory Engagement Activities:** Engagement activities following the submission of the EIS include reviewing initial EA results, responding to questions and concerns that may be identified and identifying and considering regulatory or assessment areas of interest that had not been previously defined or addressed. Engagement with IPs will continue, as appropriate, through subsequently permitting processes.

3 The Environmental Assessment (EA)

3.1 EA Overview

The overview of the environmental assessment (EA) for the Wheeler River Project provided below outlines the applicable regulatory framework, the environmental assessment process that Denison follows and the scope of the environmental assessment and its temporal and spatial boundaries. Denison considers the EA a planning and decision-making tool. Through the EA process, Denison has carefully assessed the potential effects of the Project in a precautionary manner and identified mitigation measures that can be designed and applied to reduce or eliminate these effects. As such, the EA process identified the Project's potential interactions with the biophysical and human environment, predicted adverse effects, identified mitigation measures and evaluated residual and cumulative effects remaining after mitigation. The EA also identified the monitoring and reporting processes necessary to verifying compliance and the required follow-up to assess the accuracy and effectiveness of predictions and mitigation measures.

3.1.1 Regulatory Framework

The Project is subject to separate, parallel provincial and federal EA processes. The Project is subject to provincial requirements outlined in The Environmental Assessment Act (Saskatchewan) that require ministerial approval under Section 15 of The Environmental Assessment Act, as well as a permit to construct and operate a pollutant control facility under The Environmental Management and Protection Act, 2010, before the start of construction. In addition, the Project is a designated project as set out in Section 31 of the Regulations Designating Physical Activities (Government of Canada 2014) and was therefore subject to a federal EA. The CNSC is the federal authority responsible for conducting the federal EA process and is the Responsible Authority on this designated nuclear project, leading the technical review of Denison's EIS. The EIS was prepared to comply with the federal requirements of the Canadian Environmental Assessment Act, 2012 (Government of Canada 2019).

Despite the separate and distinct federal and provincial processes, efforts to advance the EA were coordinated, to the extent possible, following the spirit of the Canada-Saskatchewan Agreement on Environmental Assessment Cooperation (2005; Government of Canada 2016) that allowed for cooperation in the assessment of projects that require regulation by both levels of government[1]. The cooperation agreement created an opportunity for a single EIS that meets the requirements of both levels of government, allowing each to make an independent Project approval decision. Accordingly, and in keeping with the spirit of the agreement, Denison prepared a single EIS that was accepted as final by the provincial and federal governments independently on November 9, 2024, and December 24, 2024, respectively. For reference, a timeline associated with the federal EA process for the Project is highlighted in Table 3-1 that captures key milestones and activities since the process was initiated in 2019.

[1] Canada-Saskatchewan Agreement on Environmental Assessment Cooperation (2005) expired with the promulgation of the Canadian Environmental Assessment Act, 2012 (Government of Canada 2019). Nevertheless, activities are coordinated where possible utilizing established protocols and milestones for projects with joint federal and provincial jurisdiction.

Table 3-1 Wheeler River Environmental Assessment Process Timeline

Responsibility	Activity
CNSC	May 31, 2019: Notice of commencement of the EA
CNSC	December 20, 2019: Record of determination *Seven months post notice of commencement of the EA*
Denison	**October 21, 2022: Submission of draft EIS** *Thirty-seven months post record of determination*
CNSC	March 20, 2023: First technical review complete – 238 Information Requirements (IRs) remain *Five months post submission of draft EIS*
Denison	August 18, 2023: IR responses submitted *Five months post first technical review*
CNSC	December 5, 2023: Second technical review complete – 144 IRs remain *Four months post IR response submission*
Denison	February 10, 2024: IR responses submitted *Two months post second technical review*
CNSC	May 31, 2024: Extension of technical review (draft) complete – 24 IRs remain *Four months post IR response submission*
Denison	July 8, 2024: IR responses submitted *One month post third technical review*
CNSC	October 11, 2024: Third technical review complete – Six IRs remain *Three months post IR response submission*
Denison	October 18, 2024: IR responses submitted *One week post fourth technical review*
CNSC	November 20, 2024: EA Technical review complete *One month post IR response submission*
Denison	**November 22, 2024: Submission of Final EIS** *Two days post EA technical review completion*
CNSC	December 24, 2024: Final EIS accepted *One month post submission of final EIS*
CNSC/Denison	October 8, 2025: Hearing Part 1 *Ten months post final EIS acceptance*
CNSC/Denison	December 8 to December 12, 2025: Hearing Part 2 *Two months post Hearing Part 1*
CNSC	EA Decision Statement *Date to be determined*

The Project is subject to licensing in addition to the environmental assessment process. The CNSC is responsible for regulating and licensing uranium mining and milling operations in Canada, per the requirements of the Nuclear Safety and Control Act (NSCA; Government of Canada 2017) and its associated regulations. The CNSC's licensing process for uranium mines and mills follows the stages outlined in the Uranium Mines and Mills Regulations, proceeding from site preparation and construction, through operating, decommissioning and abandonment (or release from licensing) phases. The CNSC issues licences for all phases in the lifecycle of a uranium mine and mill. Project-specific licensing information for the Wheeler River Project is provided in Section 4.

3.1.2 Scope of the Environmental Assessment

Section 1 describes the Project components that are planned to proceed through construction, operation, decommissioning and post-decommissioning phases. All Project components and activities through each phase were assessed within the EA to determine the effects on people and the environment. The table below lists the main activities occurring during each phase of the Project.

Table 3-2 Wheeler River Phases and Main Activities

Phase	Main activities
Construction	Site preparation and earthworks Installation of electrical infrastructure Initial wellfield construction (including drilling and freeze wall) Construction of surface infrastructure Initial surface water and waste management
Operation	Operation of the ISR wellfield, processing plant and freeze wall Surface water management, water withdrawal, treatment and discharge Domestic, industrial and hazardous waste management Handling, packaging and transport of nuclear substances Surface water management and waste management Staff air transport Continued wellfield construction (including drilling and freeze wall)
Decommissioning	Mining zone remediation Decommissioning of wellfield (including drilling and freeze wall) and related infrastructure Decommissioning of landfills and waste and hazardous materials management Site water management, treatment and release Removal of infrastructure
Post-Decommissioning	Environmental monitoring and site inspections

Biophysical and Human Environments

The EA for the Project was comprised of two broad areas of assessment: the biophysical environment and the human environment.

The biophysical environment was defined in terms of the following attributes:

- Atmospheric and acoustic environment
- Geology and groundwater
- Aquatic environment
- Terrestrial environment

The human environment was defined in terms of the following attributes:

- Human health
- Land and resource use
- Quality of life
- Economics

3.1.2.1 Valued Components, Key Indicators and Measurable Endpoints

Valued components (VCs) are aspects of environmental, health, social and economic conditions that are valued by the public, Indigenous peoples and government agencies that may be affected by a project.

The VC concept has been applied in environmental assessments in Canada and elsewhere for many years. Denison defined the VCs for the Project with direction and input from Indigenous groups, government agencies and the public. The Project VCs are described as intermediate and receptor VCs. An intermediate VC typically represents an environmental pathway from the Project to a receptor VC. A change in an intermediate VC may lead to an effect on a receptor VC. Significance determination is focused on the characterization and evaluation of residual effects on receptor VCs.

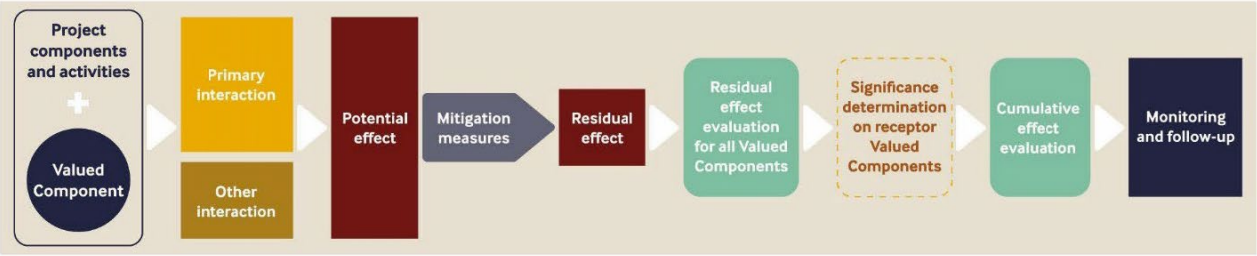


Figure 3-1 Environmental Assessment Process for the Wheeler River Project

The key indicator (KI) is an important component or aspect of the VC that may be changed because of the Project. For example, the KIs may comprise a subset of the VC (e.g., soil quality VC – chemical soil properties KI). Certain aspects that indicate potential effects on the VC may also be intermediate VCs. The measured parameter (MP) is a metric associated with the KI that can be used to detect and measure Project-related changes. For example, an MP may be expressed as the amount of habitat altered, a change in levels of contaminants of concern or a change in regional unemployment rates.

The VCs and associated KIs and MPs that have been used to assess potential Project-specific and cumulative effects are described in Sections 3.4 and 3.5, respectively, for the biophysical and human environments.

3.1.2.2 Description of the Existing Environment

A comprehensive characterization of the current conditions of the biophysical and human environments at site and regional scales was undertaken to support the EA process. The characterization of existing conditions is a snapshot representing past and current human and natural activities that have shaped the biophysical and human environments. The existing environment provides the basis on which potential change was measured as the result of Project-specific or cumulative effects. The existing environment was characterized based on information from various sources, including data gathered through engagement activities, environmental baseline studies and existing studies.

EIS Sections 6.0 through 13.0, as well as numerous technical documents appended to the EIS, provide a thorough description of the existing biophysical and human environments. An overview of this information is provided in Section 3.4 and Section 3.5.

3.1.2.3 Temporal Scale of the Environmental Assessment

The assessed duration of the Project is 37 years, divided into four primary phases: construction, operation, decommissioning, and post-decommissioning. The temporal scale of the Project is shown in Figure 3-2.

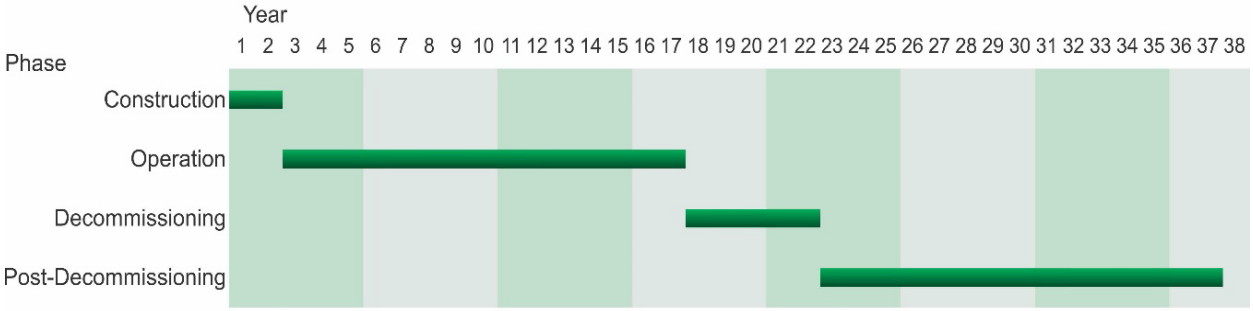


Figure 3-2 Temporal Scale and Phases of the Project

In addition to the four primary project phases, a future centuries scenario was considered in the EIS. This scenario was included to evaluate groundwater restoration targets over a sufficiently long period, allowing for the modeling of groundwater transport from the mining zone and potential interactions with surface water.

3.1.3 Spatial Scale of Environmental Assessment

Spatial boundaries for the EA were defined at three levels, allowing the assessment of potential Project-related and cumulative effects. The spatial boundaries were informed by:

- Indigenous knowledge (IK), local knowledge (LK, and engagement.
- Information on current land and resource use by Indigenous groups.
- Other pertinent ecological, technical, social and cultural considerations (e.g., watersheds, ecozones).
- Input from federal and provincial regulators and the public.
- Professional expertise of Denison and the EIS third-party consultants.

The three study areas used in the EA are described below:

- Project Area (Project Area): the area within which the Project and all components and activities are located (i.e. the Project footprint; the area of maximum physical disturbance). This study area is consistent for all VCs used in the EA.
- Local Study Area (LSA): the area surrounding the Project Area where both direct and indirect effects can be measured. The LSA is established to assess the potential, largely direct effects of the Project and represents the extent to which there is a reasonable potential for the Project to affect the VC.
- Regional Study Area (RSA): the area that surrounds and includes the LSA, established to assess the potential, largely indirect effects of the Project 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 Project Area is described in Section 1.5.1. The VC-specific LSAs and RSAs are presented in Section 3.4 (for Biophysical Environment VCs) and Section 3.5 (for Human Environment VCs).

3.2 EA Methodology and Approach

Denison applied an industry-standard approach to implement the EA process for the Project, consistent with guidance provided by both the provincial and federal governments under The Environmental Assessment Act (Government of Saskatchewan, 2018) and the Canadian Environmental Assessment Act, 2012 (Government of Canada, 2019). This approach provided for a rigorous evaluation of potential Project and cumulative effects. Moreover, Denison engaged with local and Indigenous communities, residents, businesses organizations and land users (collectively referred to as Interested Parties (IPs)) to develop meaningful relationships and to ensure that IK and LK were included and considered in the assessment.

Key components of the assessment include:

1. Evaluation of Project-specific effects (Section 3.2.1).
2. Evaluation of cumulative effects (Section 3.2.2).
3. Evaluation of integrated EA topics (Section 3.2.3) including postulated accident and malfunction scenarios (Section 3.2.3.1).
4. Evaluation of effects that environmental factors unrelated to the Project could have on the implementation of the Project (Section 3.2.3.2).

The approach to assessing each of these four components is described below. Detailed information can be referenced in Part 5.0 of the Wheeler River Project EIS.

3.2.1 Project-Specific Effects

The approach to assessing potential Project-specific effects involves overlaying the Project (footprint, components and activities) onto the existing environment to determine whether, how and to what degree aspects of the biophysical and human environments could change because of the Project. Potential changes to the environment are considered within the context of factors that could mitigate (reduce or eliminate) the change. Changes remaining after mitigation are residual effects. Residual effects are graded based on pre-defined significance thresholds.

Key aspects of the step-by-step approach and associated methodologies used to complete the environmental assessment of the Project are provided below for reference in Figure 3-3. This approach is applied to aspects of both the biophysical and the human environments and is considered for both potential Project-specific and cumulative effects.

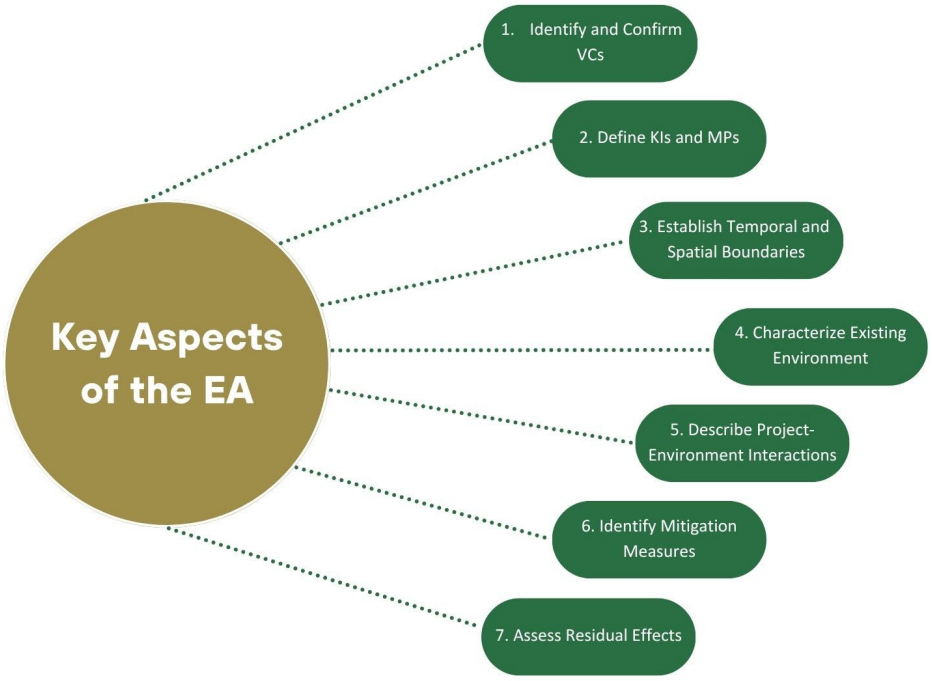


Figure 3-3 Key Aspects of the Environmental Assessment Approach

3.2.2 Cumulative Effects Assessment Approach

The cumulative effects assessment (CEA) considers whether residual adverse effects on a given VC in combination with other past, present and reasonably foreseeable projects or activities will result in a cumulative effect. The CEA presented in the EIS followed the standard methodology as per provincial and federal legislation under which the environmental assessment process was completed.

For a Project-specific residual effect on a VC to be considered in the CEA, the qualifying criteria include:

- Identifying the potential for a Project-specific residual adverse effect on a VC.
- The Project-specific residual adverse effect is demonstrated to act cumulatively with similar effects from other projects or activities.
- There are reasonably foreseeable projects or activities that overlap the Project-specific residual adverse effect in space and time.
- A cumulative effect is likely to occur.

If a Project-specific residual effect on a VC meets the above criteria, the CEA considers cumulative changes that could occur for the same VCs using the same residual effect attributes and significance thresholds applied in the Project-specific effects assessment[2].

The term reasonably foreseeable is a key concept within the CEA and its application is described further for clarity. According to the Canadian Environmental Assessment Agency's (CEAA's) Interim Technical Guidance (CEAA 2018), a future project (or physical activity) could be considered reasonably foreseeable based on the criteria that:

- A proponent officially announces the intent to proceed.
- 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 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.

Using the criteria above as a guide, Denison identified reasonably foreseeable projects and activities through a literature review, database review (e.g. Saskatchewan – EA Projects), discussion with Indigenous groups, discussion with local communities and consideration of the SMEs on the combined Project-Denison EIS team. The reasonably foreseeable projects and activities identified for inclusion in the Project CEA broadly fall into the following categories: Indigenous and other land use activities, exploration and mining activities, infrastructure use and maintenance activities and recreational activities.

3.2.3 Integrated EA Topics

The evaluation of integrated EA topics includes assessment of potential accident and malfunction scenarios and the effects that environmental factors unrelated to the Project could have on its implementation.

[2] For cumulative effects, this step involves evaluating the combined residual effects of all spatially and temporally overlapping activities, and the Project's contribution to the effect.

3.2.3.1 Accidents and Malfunctions

An assessment of potential accident and malfunction scenarios is detailed in Section 14 of the EIS, as well as in the accidents and malfunctions Technical Supporting Document (see EIS Appendix 14-A; Ecometrix, 2023).

The objective of the assessment was to evaluate the potential effects on human health and/or the biophysical environment resulting from radiological and conventional accidents and malfunctions, considering proposed environmental protection measures. The assessment considered all Project phases, focusing on the Project site, access roads and specific off-site locations including the provincial highway system.

The assessment of accidents and malfunctions employed a risk assessment approach to characterize the potential effects of non-routine events on human health and/or the biophysical environment. Residual effects for accidents and malfunctions and transportation-related events were defined in terms of the likelihood and severity of the potential effects on human health or the biophysical environment using a risk matrix approach where likelihood and consequence severity are defined as follows:

Likelihood is defined as:

- Highly unlikely: ≤1 occurrence in 1,000 years.
- Unlikely: ≤1 occurrence in 100 years and >1 occurrence in 1,000 years.
- Likely: ≤1 occurrence in 10 years and >1 occurrence in 100 years.
- Very likely: ≤1 occurrence in 1 year and >1 occurrence in 10 years.
- Almost certain: >1 occurrence in 1 year

Consequence severity is defined as:

- None: no human health or biophysical environmental consequences
- Minor: short-term (less than one month) effect on a small area, or injuries to workers that require first aid but not medical treatment and/or that result in no lost work time
- Moderate: reversible or repairable effect (less than one year) off-site, or reversible injuries to workers with lost work time
- Major: extended-range, long-term effect off-site (e.g., 10 years) or severe injuries with long-lasting effects and/or disability
- Catastrophic: long-lasting with long-lasting or irreversible environmental effects, fatalities or multiple disabilities.

Denison developed a comprehensive list of Project-specific hazard scenarios with the potential to harm human health or the biophysical environment. This list was then screened qualitatively using a risk matrix approach based on likelihood and severity to determine the overall risk level. Bounding scenarios were then selected from this list of hazard scenarios. Subsequent analysis focused on evaluating the hypothetical effects associated with each scenario. A revised risk evaluation was then completed for each bounding scenario. An overview of the risk analysis approach for the accidents and malfunctions assessment is provided in Figure 3-4 .

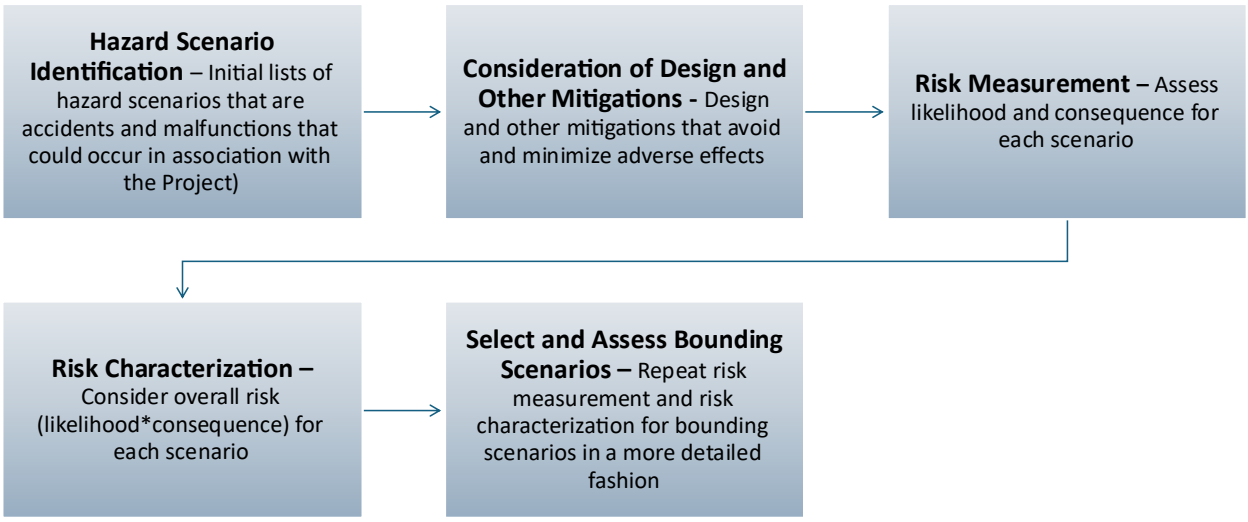


Figure 3-4 Risk Analysis Approach for Accidents and Malfunctions Assessment

3.2.3.2 Effects of the Environment on the Project

The Project's environmental setting can affect its design, construction, operation and decommissioning. EIS Section 15, Effects of the Environment on the Project, provides information on these environmental considerations. From a regulatory perspective, the analysis of the effects of the environment was completed to satisfy Section 19(1)(h) of the Canadian Environmental Assessment Act, 2012 (Government of Canada 2019) and followed the guidance provided by Section 9.4.2 of the Generic Guidelines for the Preparation of an Environmental Impact Statement – Pursuant to the Canadian Environmental Assessment Act, 2012 (CNSC 2021).

Several steps were taken to identify and evaluate potential effects of natural hazards on the Project, including:

- Identifying and describing the existing environmental conditions relating to natural hazards that may affect the Project.
- Describing the implications that a natural hazard may have on the environmental consequences of the Project.
- Selecting appropriate mitigation measures to address reasonable risks through the adaptive management process.

A natural hazard was considered to have a potential effect on the Project if it could result in one or more of the following effects:

- Modification to the Project design
- Harm to workers or the public
- Substantial delay in construction (i.e., more than one season)
- Interruption in the mining process (i.e., more than one week)
- Damage to Project infrastructure
- Threat to public safety

- Damage to infrastructure to the extent that repair is not economically or technically feasible.

Given the above criteria, the natural hazards that either affected Project design or have the potential to affect construction, operation and decommissioning and that were considered in the EIS included:

- Seismic events (e.g., earthquakes).
- Forest fires.
- Extreme weather short-term events (i.e., major precipitation events and drought; atypically high or low temperatures; atypically high winds).
- Climate change (long-term changes).

3.3 EA Engagement Activities

Denison's general approach to engagement for the Project is long-term, collaborative and relationship-focused. This approach is characterized by using a variety of methods, building authentic relationships, providing meaningful and culturally appropriate information, actively listening to interests, integrating perspectives into decision-making, collaborating on solutions and adjusting initial plans as necessary.

Engagement activities related to the Project involved entering into formal agreements with Indigenous groups to provide capacity funding, facilitating participation, supporting community-led studies and proactively integrating Indigenous and LK into various aspects of the Project. This strategy involves addressing potential divergence between knowledge systems through collaboration and a commitment to ongoing engagement throughout the Project's life cycle.

The primary objective of engagement specific to the EA was gathering and sharing Project-related information and collaborating to develop mutually acceptable resolutions to identified issues. This process significantly influenced the Project and the EA process itself. IK, LK and engagement were integral to the EA methodology, influencing various aspects.

Engagement specifically informed the EA in many ways, including:

- Selecting VCs and KIs.
- Defining spatial and temporal boundaries for the assessment based in part on IK and LK, and information on traditional land use.
- Describing the existing environment by incorporating IK and LK to provide context and guide data collection. For example, traditional land use maps informed the selection of air quality reception points and multi-generational trapping history informed the commercial trapping section.
- Identifying and evaluating potential Project effects. Community feedback on concerns related to groundwater quality, noise levels and potential effects on water quality at discharge locations was incorporated into technical assessments.
- Developing mitigation measures and monitoring programs. Feedback influenced decisions, such as the incorporation of a freeze wall for tertiary containment, outlining noise-control measures even when guideline limits were not predicted to be exceeded at leased properties and influencing mitigation and enhancement measures for the economy based on identified priorities of local communities. The location of roads and the treated effluent discharge point was also informed by feedback.
- Incorporating community-authored reports on topics including Indigenous knowledge, health and socio-economic study results, and VCs directly into the EIS appendices and relevant sections.
- Providing opportunities for review and comment on draft EIS sections prior to formal submission.

Denison documented engagement activities and the resulting feedback in an engagement database. The EIS shows where specific information influenced the assessment. Appendices also contain summaries of interests, issues and concerns gathered.

Engagement related to the EIS involved various formats, including meetings with leadership, community meetings, workshops, site visits, surveys, virtual presentations and specific processes developed with individual groups. CNSC staff and SK MOE were also engaged throughout the development of the EIS, including through technical meetings and reviews of draft materials.

Denison is committed to ongoing engagement as part of the project. Engagement began before the initiation of the EA and has been instrumental in shaping the EIS, integrating diverse knowledge, identifying potential effects and developing mitigation strategies.

3.4 The Wheeler River Project is Protective of the Biophysical Environment

The following describes the assessment of Project-specific and cumulative effects on biophysical environment components by the areas of interest defined in Section 3.1.2, including atmospheric and acoustic environment, geology and groundwater, aquatic environment and terrestrial environment. The information presented has been taken from the corresponding sections of the EIS and supporting documents as informed by review of the provincial and federal governments and IPs. For clarity, a summary of the key aspects of the assessment for each primary biophysical environment component is provided at the beginning of each subsection. The summaries highlight areas of particular interest that were explored in the effects assessment, including but not limited to, key Project-environment interactions, questions that were raised by Interested Parties during engagement and interaction with provincial and federal government staff during the EIS review.

3.4.1 Atmospheric and Acoustic Environment

The VCs Air Quality and Noise represented the atmospheric and acoustic environments. Key Project-environment interactions and the basis of the effects assessment included emissions to air and noise generated by Project components and activities including site clearing, construction, drilling, fuel combustion and operation of the ISR wellfield and the processing plant. Predictive modelling based on conservative assumptions was used to estimate the Project's contributions to incremental changes in air quality and noise at the Project site and at increasing distances from the site, within the local and regional contexts as appropriate. Additionally, given the remoteness of the Project site relative to communities in the region, the assessment of potential Project-specific effects considered changes in air quality and noise levels at locations where such changes could affect people (e.g., workers, traditional land users or seasonal camp residents outside the Project Study Area) or ecological receptors such as wildlife and birds, or at sensitive receptor locations which are discussed within the context of ecological or human health risks in other section of this report. Potential cumulative effects were considered on a regional scale, considering other air quality and noise sources and the potential for overlap with Project sources.

Modelled air quality and noise predictions were compared to provincial and federal air quality and noise standards to assess potential effects at the sensitive receptor locations. In most cases, modelled air quality and noise predictions were below their respective guideline levels. Select parameters were modelled at concentrations greater than their respective standards, but such conditions were of short duration,

sporadic and limited in geographical extent. No unique, overlapping air and noise sources were identified that were not already accounted for within existing baseline conditions. Therefore, no cumulative changes in air quality and noise from the Project and other reasonably foreseeable activities are anticipated. As air quality and noise are considered Intermediate VCs (i.e., they represent pathways to Receptor VCs), significance determination was not conducted. Instead, the significance determination was completed on the associated Receptor VC within the Human Health and Environmental Risk Assessment (HHERA).

Air quality and noise management measures and monitoring plans have been proposed and will be developed as part of the permitting and licensing process. A framework for such plans, under the umbrella of the Environmental Protection Program within the Project EMS, is provided in EIS Section 2.9.1.3.1. The plans will serve several purposes, including assessing the performance of mitigation and control systems and demonstrating compliance with statutory limits or internal action levels.

3.4.1.1 Air Quality

Air Quality was selected as a VC (an Intermediate VC) as some Project-related activities are or can be associated with emissions of constituents that can influence ambient air quality. Changes to air quality were determined to be an important consideration for both human and ecological health through the engagement process. For the purpose of the assessment, indicators of air quality included levels of particulate matter (including absorbed radionuclide and non-radionuclide (metals) constituents), combustion products and radon. Collectively these are referred to as constituents of potential concern (COPCs).

The Project is situated in a remote area of the boreal forest in northern Saskatchewan, free from any significant nearby anthropogenic development or disturbance. The areas used to assess the effects of the Project on the Air Quality VC are shown in Figure 3-5 and included the Project Area, the Air Quality Local Study Area (LSA) and the Air Quality Regional Study Area (RSA). The Project Area is the area of maximum physical disturbance within which all Project components and activities are located. Furthermore, the Property Boundary is the boundary at which there will be limited public access and the area within which the air quality criteria apply. The Air Quality LSA is where direct Project effects can be expected and is located within 10 km of the Project Area (i.e., a 20 km by 20 km area centered on the Project site). The Air Quality RSA is where indirect or cumulative effects may potentially occur and extends 10 km from the Air Quality LSA (i.e., a 40 km by 40 km area centered on the Project site). The Property Boundary is also an important consideration in the air quality assessment, as it serves as one of the bases for evaluating air emissions related to the Project from a spatial perspective. The assessment considered all phases of the Project.

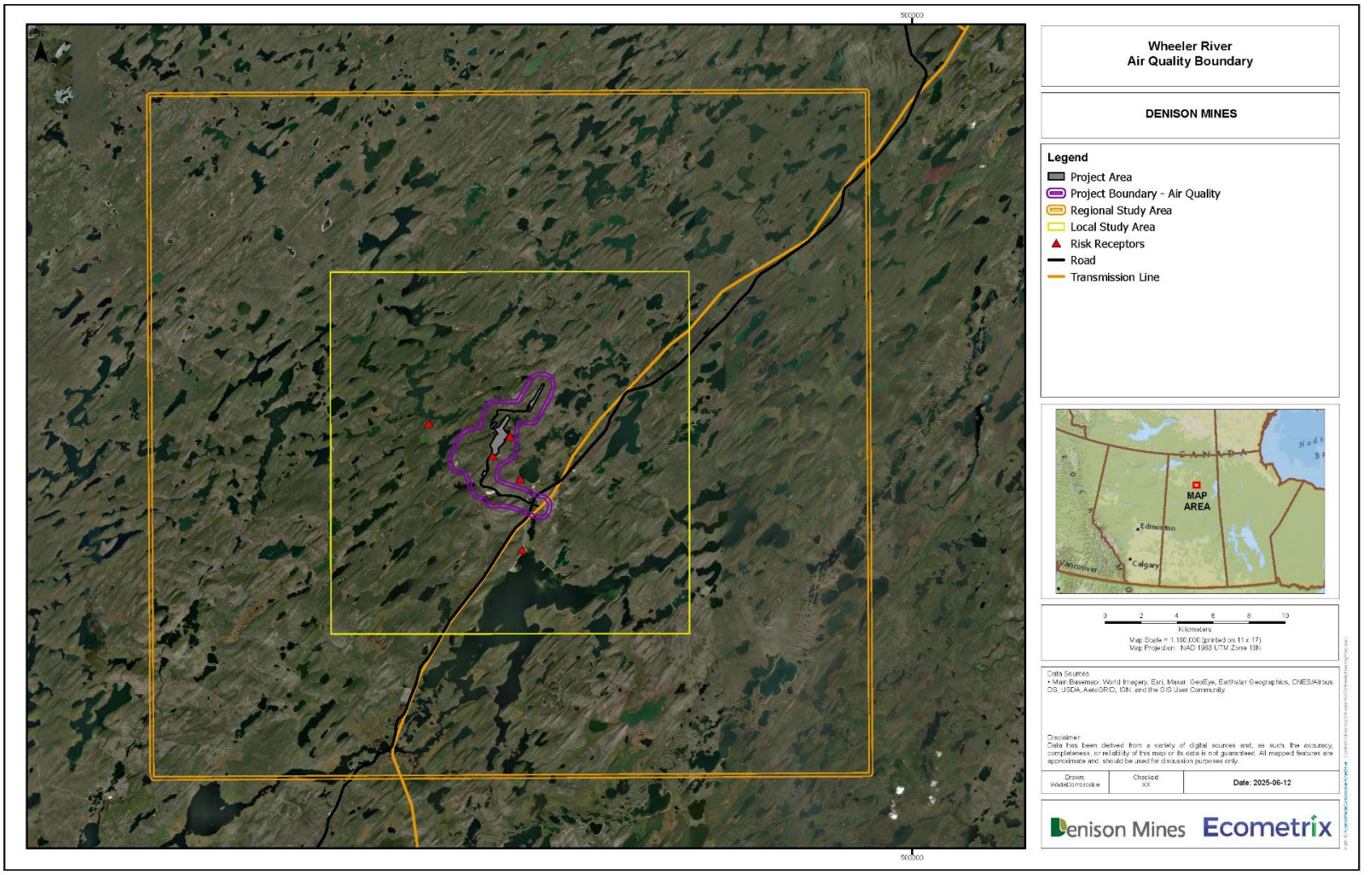


Figure 3-5 Local and Regional Study Areas and Sensitive Receptor Locations (yellow circles) for the Air Quality Valued Component

The existing air quality for the Project Area was characterized through a baseline monitoring program initiated in 2016. The program included the measurement of ambient levels of particulate matter (in the form of dust fall), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), radon and external gamma. Baseline monitoring results showed low levels of all constituents as is typical of a remote location in northern Saskatchewan. It is noted that baseline levels of radon are also low and lie within the regional baseline for northern Saskatchewan, which is below the 7.4 Bq/m^3 to 25 Bq/m^3 range (CNSC, 2018).

Some Project activities are expected to introduce new sources of air emissions to the local airshed. These activities include site clearing and construction, the use of unpaved roads, fuel combustion (e.g., power generators, diesel-powered mobile equipment), drilling in the ISR wellfield, operation of the ISR wellfield, operation of the ISR processing plant and storage and disposal of drill waste rock and process precipitates.

Predictive modelling using the CALPUFF model platform was employed to assess potential changes to air quality from Project activities. Conservative air emission inventories were developed for each Project phase, with the basis of the model inputs for each phase representing the maximum levels of air emissions expected in that phase. For example, the operation phase scenario was based on activities being completed in the late stages of operation when all facets of the operation are at maximum capacity levels. It was also assumed that diesel generators will be operating, even though the site will receive power from the provincial grid at that time. Except for radon, predicted COPC concentrations and depositions were added to background levels. Point of impingement concentrations and deposition rates were predicted for each COPC at each receptor location within the model grid at 2 km, 5 km, 10 km, 20 km, and 40 km spacing – all centred approximately from the centre of the Project Area. This process was also undertaken along the Project Boundary and the unpaved roads at parallel distances of 50 m, 150 m, and 250 m from the Project boundary and road edges.

The modelled COPCs include total suspended particulate matter (TSP), inhalable particulate matter (PM_{10}), respirable (fine) particulate matter ($PM_{2.5}$), carbon monoxide (CO), SO_2, NO_2, uranium, arsenic, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, vanadium, zinc and radon gas[3]. Predicted COPC concentrations were compared to relevant standards including the Saskatchewan Ambient Air Quality Standards (SAAQS; Government of Saskatchewan 2014a), the Canadian Ambient Air Quality Standards (CAAQS; CCME 2022), and Ontario Ambient Air Quality Criteria (AAQC; Ontario MECP 2020) where no Saskatchewan or federal standards existed.

In addition to the above, an array of sensitive receptor locations were defined within the CALPUFF model grid in the LSA and RSA to support the HHERA. The sensitive receptor locations represent discrete locations where a given receptor could be exposed to Project-influenced air quality. The results associated with those analyses were considered within the HHERA and are discussed in other sections of this report as appropriate. For reference, the sensitive receptors included:

- People assumed to use the area for different reasons, such as a seasonal resident at McGowan or Russell Lake and a worker periodically resident at the Project worker camp.
- People working within the Project Area at various locations such as buildings, the ISR wellfield and waste storage areas.
- An ecological receptor representing a generic wildlife species found within the Project Area.

[3] Acrolein emissions from diesel combustion were also evaluated through a screening analysis but were deemed negligible and excluded as a COPC.

Based on the conservative air-dispersion modelling undertaken to characterize potential changes in air quality associated with the Project, the following was indicated:

- COPC concentrations return to baseline ambient levels within 15 km of the Project Boundary.
- The concentrations of the majority of the COPC and averaging periods are below air quality standards at all receptor locations in the study areas for all Project phases, including:
    - 30-day dust fall.
    - Annual TSP concentrations.
    - 24-hour and annual PM2.5 concentrations.
    - One-hour and 24-hour and annual SO_2 concentrations.
    - One-hour and 8-hour CO concentrations.
    - 24-hour and annual NO_2 concentrations.
    - 24-hour concentrations of arsenic, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, lead, selenium, vanadium and zinc, and annual concentrations of cadmium, nickel and uranium.
- Select COPCs were predicted to occur at concentrations greater than their respective standards, but such cases were limited in both space and duration as described below, including:
    - TSP - Concentrations in all phases were predicted to be greater than standard only at a location on the west side of the Project Boundary and within 250 m of the boundary, as well as within 300 m along Hwy 914 south of the Project Boundary. The frequency of instances where concentrations were predicted to exceed the 24-hour averaging period standard at these limited locations was 28% during construction, 21% during operation and 0.5% during decommissioning.
    - PM_{10} - Concentrations in construction and operation were predicted to be greater than the standard only at a location on the west side of the Project Boundary and within 250 m of the Boundary (construction), as well as within 300 m along Hwy 914 south of the Project Boundary (construction and operation). The frequency of instances where concentrations exceeded the 24-hour averaging period standard during construction and operation was 17%.
    - NO_2 – Predicted concentrations for one-hour NO_2 were predicted to be greater than the standard only at a location on the west side of the Project Boundary. The predictions show that the frequency at which concentrations exceeded the one-hour averaging period standard is limited for each scenario, with such concentrations observed less than 1% of the time during all Project phases. While the predicted concentrations extend to a maximum distance of 1 km from the Property Boundary, the frequency of exceedances at this distance is expected to be one day per year (i.e., 0.3% of the time).
    - Uranium - Predicted concentrations for 24-hour uranium were greater than standard at one location on the west side of the Project Boundary during operations. The frequency analysis for 24-hour uranium predictions indicates that concentrations will exceed the standard less than 0.8% of the time at that location.
- Air emissions from other reasonably foreseeable projects in the area are not expected to overlap spatially with those from the Project and thereby are not expected to increase ambient air concentrations.

Air Quality is an Intermediate VC and no significance assessment was completed on the results referenced above. The significance of the effects (Project-specific and cumulative) is considered on the Receptor VCs associated with the air quality exposure pathway and are discussed elsewhere in this report.

As noted above, air quality management and monitoring plans have been proposed and will be developed as part of the permitting and licensing process. A framework for such plans under the Project EMS is provided in EIS Section 2.9.1.3.1. The air quality management and monitoring plans will serve to test EIS predictions and to demonstrate compliance with provincial ambient air quality standards. The plans will incorporate mitigation measures and monitoring requirements established by provincial and federal regulators, Indigenous groups and other interested parties. Within the air quality management program, operational procedures and controls to limit fugitive particulate emissions from unpaved roads, open areas and material stockpiles will be described including, for example, regular watering of unpaved roads and surfaces to suppress dust emissions, limiting vehicle speeds, equipping the process exhausts with scrubbers, and ensuring sufficient stack heights to prevent building downwash effects. The air quality monitoring plan will be developed to evaluate the effectiveness of these measures. It will be an extension of the ongoing baseline monitoring program and will define monitoring objectives, sampling design, methods and quality assurance/control requirements. The plan will cover TSP, dust fall, uranium, select metals and radionuclides in TSP and/or dust fall, passive NO_2 and radon.

3.4.1.2 Noise

Noise was selected as a VC (an Intermediate VC) as some Project-related activities include noise emissions that can influence ambient noise levels in the environment. Noise is also an important consideration for both human and ecological health and was raised as a concern during the engagement process. Indicators of noise used in the assessment include:

- Total day-night levels (Ldn).
- Changes in the percentage of highly annoyed persons (%HA).
- Daytime (Ld) and nighttime (Ln) sound levels.
- Changes in Ld and Ln.

The areas used to assess the effects of the Project on noise are shown in Figure 3-6 and included the Project Area, the Noise LSA and the Noise RSA. The Project Area represents the zone of maximum physical disturbance and direct effects on the Noise VC. The Noise LSA is generally established to assess the potential, largely direct effects of the Project and represents the extent to which there is a reasonable potential for Project-related activities to interact with and potentially adversely affect the Noise VC – the Noise LSA extended to 10 km from the Project site. The Noise RSA was established to assess potential cumulative effects in a regional context. As noise is not typically considered a regional issue, the Noise RSA was defined simply as the area outside of the LSA. The assessment considered all phases of the Project.

The existing sound environment in the vicinity of the Project Area was characterized using a noise measurement program that was completed in May 2021. The program was designed based on ISO Standard 1996-2:2007 (ISO 2007) in accordance with Health Canada guidance. Sound levels were measured at the Project site on a continuous 15-minute interval over the period from May 5 to 13, 2021.

Baseline measurements revealed that the Project Area is currently characterized by low ambient sound levels, primarily the sounds of nature. This is not unexpected, as the Project is situated in a remote area

of the boreal forest in northern Saskatchewan, which is free of any significant nearby anthropogenic development or disturbance.

Some Project activities are expected to introduce industrial sounds into the existing environment. Noise sources associated with the Project include site clearing activities, construction of facilities, power generators, diesel-powered mobile equipment, drilling in the wellfield, on-site traffic and air traffic, chilling equipment associated with the freeze plant and various equipment associated with the ISR process (e.g., pumps).

Predictive modelling that employed the software platform Cadna-A (DataKustik, 2020), an industry-standard calculation method described in ISO Standard 9613-2 (ISO 1996), was used to assess potential changes to noise levels, their magnitude and spatial extent. The modelling focused on the construction and operation phases, which have the greatest potential to influence off-site sound levels. Noise levels during decommissioning will be lower than during construction and operation. Two worst-case scenarios were modelled - one for the first year of construction, when equipment and vehicles operating at the site will be most active, and one for the late stages of operation, when uranium production will be at its maximum capacity. Sources associated with the Project were identified using information that detailed the process description and feasibility studies developed to identify equipment requirements. Sound levels were conservatively calculated using engineering calculation approaches, manufacturer data or measurement data for similar sources at similar sites.

The propagation of sound from the Project associated with construction and operation activities was predicted at an array of receptor locations shown in Figure 3-6. This included receptor locations designated as follows:

- Properties in the Noise LSA that are currently leased by the Government of Saskatchewan to individuals who may have structures (e.g., cabins) on them and may access them for seasonal use. For the assessment, it has been conservatively assumed that such leased properties will be subjected to Project-related noise.
- Seasonal residents at McGowan and Russell Lakes.
- An ecological receptor representing a generic wildlife species that was found within the Project Area.

The modelling results were compared to federal and provincial (Alberta) noise guidelines for reference purposes. As indicated, noise is an intermediate VC, so no significance assessment is tied to the results. Rather, significance is considered regarding the Receptor VCs to which the noise pathway is relevant (e.g., HHERA).

Predicted sound levels fell below both federal and provincial guidelines at all receptor locations for both the construction and operation phases, indicating that mitigation measures will be effective. An increase in background noise levels will be perceptible at the most proximate leased property (a seasonal cabin located southeast of the Project Area at the south end of McGowan Lake) during construction, related to heavy equipment use. However, overall noise levels remain below guideline levels.

Noise emissions from other reasonably foreseeable projects are not expected to combine with those from the Project to increase ambient noise levels. A model was prepared to assess traffic-related noise along Hwy 914, including noise from the Project and the Key Lake and McArthur River operations. The predicted sound levels resulting from combined truck traffic along Highway 914 did not exceed the federal or provincial guidelines.

As noted above, noise management and monitoring plans have been proposed and will be developed as part of the permitting and licensing process under the Project EMS. Noise management measures will be implemented including:

- Limiting the use of equipment during night-time hours where possible.
- Planning the site layout to locate significant noise sources are as far as possible from sensitive locations.
- Ensuring generator air discharges are directed away from sensitive locations.

Noise monitoring plans will include routine monitoring of sound levels at select locations and the establishment of a monitoring framework and procedures to track noise-related complaints and responses per Health Canada best practice guidance.

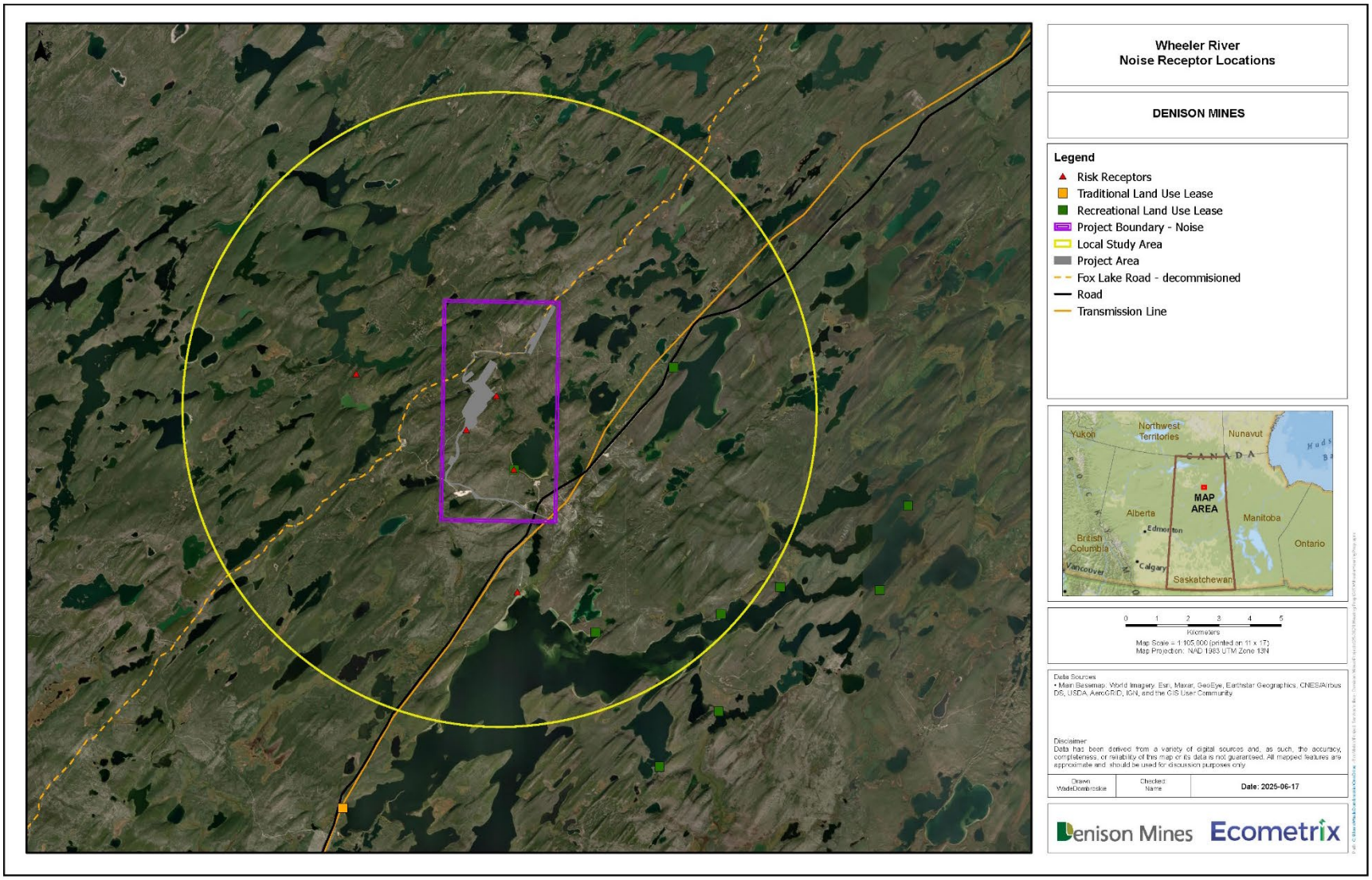


Figure 3-6 Noise Assessment Study Areas, Leased Properties and Sensitive Receptor Locations

3.4.2 Geology and Groundwater Environment

The geology and groundwater environment are represented by the Geology and Groundwater VCs. Both are considered intermediate VCs (i.e., they represent pathways to receptor VCs); therefore, no significance determination was conducted. Instead, the significance determination was completed on the associated receptor VC. For the Geology VC, the key Project-environment interaction and the basis of the effects assessment included the potential alteration of local topography, primarily as the result of subsidence (vertical displacement) at ground surface due to rock mass extraction at depth in the ISR mining zone, or alternatively through fluid balance alteration within the freeze wall zone while in place. Note that because of the lack of surface infrastructure associated with ISR mining, there will be no significant change to the existing landscape and topography of the Project area, unlike that expected with mining methods that require surface storage areas for waste rock and tailings.

For the Groundwater VC, the key Project-environment interactions and the basis of the effects assessment included potential changes to groundwater quantity and quality that could result from changes to groundwater flow paths and chemistry related to the injection of mining solution to the ore body. Potential cumulative effects were considered on a regional scale, considering other factors and sources that may overlap with those related to the Project. Predictive modelling was used as the foundation for assessing effects on the Geology and Groundwater VCs.

No concerns regarding the stability of the ground surface were identified. Under a worst-case scenario, subsidence at the surface due to the removal of rock from the orebody was predicted to be 2.5 mm. The potential for subsidence related to water table drawdown will be mitigated. Given the relationship of the ISR mining process to the groundwater environment, the Groundwater VC aspect of the assessment was supported by comprehensive predictive modelling that considered not only the primary mine phases (as defined in Section 3.1.2), but a future-centuries timeframe that evaluated the behavior of groundwater after freeze wall decommissioning on a time-scale sufficient to characterize the interaction of groundwater with down-gradient surface water. Potential effects on groundwater quantity, to the extent that surface water discharge zones would be affected, were characterized as negligible. During mining, both the freeze wall and the design of the wellfield to maintain hydraulic gradients towards the recovery wells provide hydraulic containment between the internal wellfield and the external regional groundwater systems. Freeze studies concluded a no flow boundary once closure of the freeze wall is established along the perimeter of the mining area and creation of an inward hydraulic gradient by the wellfield design was confirmed through field testing. Once mining ceases, water quality in the ore zone has been remediated to its decommissioning objectives and the freeze wall has been decommissioned, predictive modelling indicates that no constituent concentrations will exceed groundwater quality screening values in groundwater arriving at the most proximate downgradient water body (Whitefish Lake) where groundwater-surface water interactions are expected to occur. No cumulative effects were identified on the geology and groundwater environment VCs, as changes that may occur due to the Project are localized and/or small in magnitude and do not overlap with other reasonably foreseeable activities.

Geology and groundwater management and monitoring plans have been proposed and will be developed as part of the permitting and licensing process. A framework for such plans under the Project EMS is provided in EIS Section 2.9.1.3.1. The plans will serve several purposes, including assessment of mitigation and control systems and demonstrating compliance with statutory limits or internal action levels.

3.4.2.1 Geology

Geology plays a critical role in shaping subsurface flow and potential contaminant transport pathways, particularly in the context of ISR mining. The primary interaction between the Project and the geological environment involves subsidence as a result of ore removal and potential changes to hydraulic conductivity in the vicinity of the mining area. Geochemical reactive transport models were developed to predict the post-closure migration of COPCs into future centuries. These models informed the assessment of downstream receptor environments, where negligible surface terrain deformation and effective natural attenuation support the conclusion that there is no significant long-term geological risk to aquatic or terrestrial systems.

Geology encompasses bedrock, soils and geomorphology (i.e., physical features on the Earth and their relationship to underlying geological structures). Geology is recognized as an important component of the environment that may be affected by the Project. Changes to the local terrain and surface geomorphology could in turn lead to potential effects on other VCs selected for assessment. Components of geology are also important aspects of the natural and human environment. For example, terrain morphology dictates landscape function such as surface drainage patterns and reflects the underlying surficial (geological) materials. Changes to terrain morphology can also affect economic activity and biological functions in proximity to the Project. Geology was considered an intermediate VC representing pathways to receptor VCs and therefore does not require a significance determination. Changes to the Geology VC were evaluated to assess Project interactions with other VCs including Terrestrial Environment and Land and Resource Use.

The areas used to assess the effects of the Project on the Geology VC are shown in Figure 3-7 and include the Project Area, the LSA and the RSA. The Project Area is the area of maximum physical disturbance within which all Project components and activities are located. The boundaries of the LSA were selected in consideration of the Project footprint, mining phases, depth of the in ISR mining area, site engineering processes and the spatial extent of potential direct effects of the Project on the VCs, including the discharge of groundwater to surface waterbodies. The LSA includes the Project Area and portions of local lake drainage areas. The spatial extent of the RSA was developed to reflect potential groundwater discharge locations within the regional watershed in which the Project Area is located, and is the RSA defined for the Aquatic Environment (shown in Figure 3-8). The assessment for the Geology VC considered all phases of the Project where Project-environment interactions are expected.

Geological conditions are well understood based on Project-specific and regional information. The Project Area and associated mining operation have been designed to limit disturbance to the natural geological environment outside the immediate mining area. The Geology VC was evaluated based on two indicators. First, the assessment focused on subsidence at ground surface associated with consolidation of the rock mass in the ore zone approximately 400 m below the surface. The assessment predicted negligible change in ground elevation, within a range of 2.5 mm, in a discrete and localized area of the Project Area. This change is not expected to be measurable within the context of a Project-related effect. Also considered was the potential for subsidence because of drawdown of the water table in the sandstone units overlying the ore zone during active operations. During mining, a net draw on water contained in these units may occur because the wellfield is designed to maintain inward hydraulic gradients (i.e. recovering more fluids than those injected). As required, water levels within the freeze wall will be maintained by injecting groundwater from outside of the freeze wall into the freeze wall area. Second, changes in hydraulic conductivity localized to the mining area associated with ISR mining were evaluated as part of the assessment of potential effects on groundwater quantity and quality.

Assessment of potential cumulative effects on the Geology VC determined that there will be none. The predicted extent of Project-related subsidence is very small in magnitude and is localized to a small portion of the Project Area. There were no reasonably foreseeable activities identified that will overlap spatially or temporally with the Project in this regard.

As noted above, geology-related management and monitoring plans have been proposed and will be developed as part of permitting and licensing under the Project EMS. This will include the description of monitoring activities to assess the performance of various components of the Project associated with mine engineering, subsidence and infrastructure designs. As part of mining operations, subsidence at the surface within the wellfield will be evaluated from construction through decommissioning by monitoring the elevation of collars (the tops of pipes) for wells within the wellfield. The monitoring program will detect any vertical displacement at ground surface and includes a contingency plan should subsidence exceed expected levels.

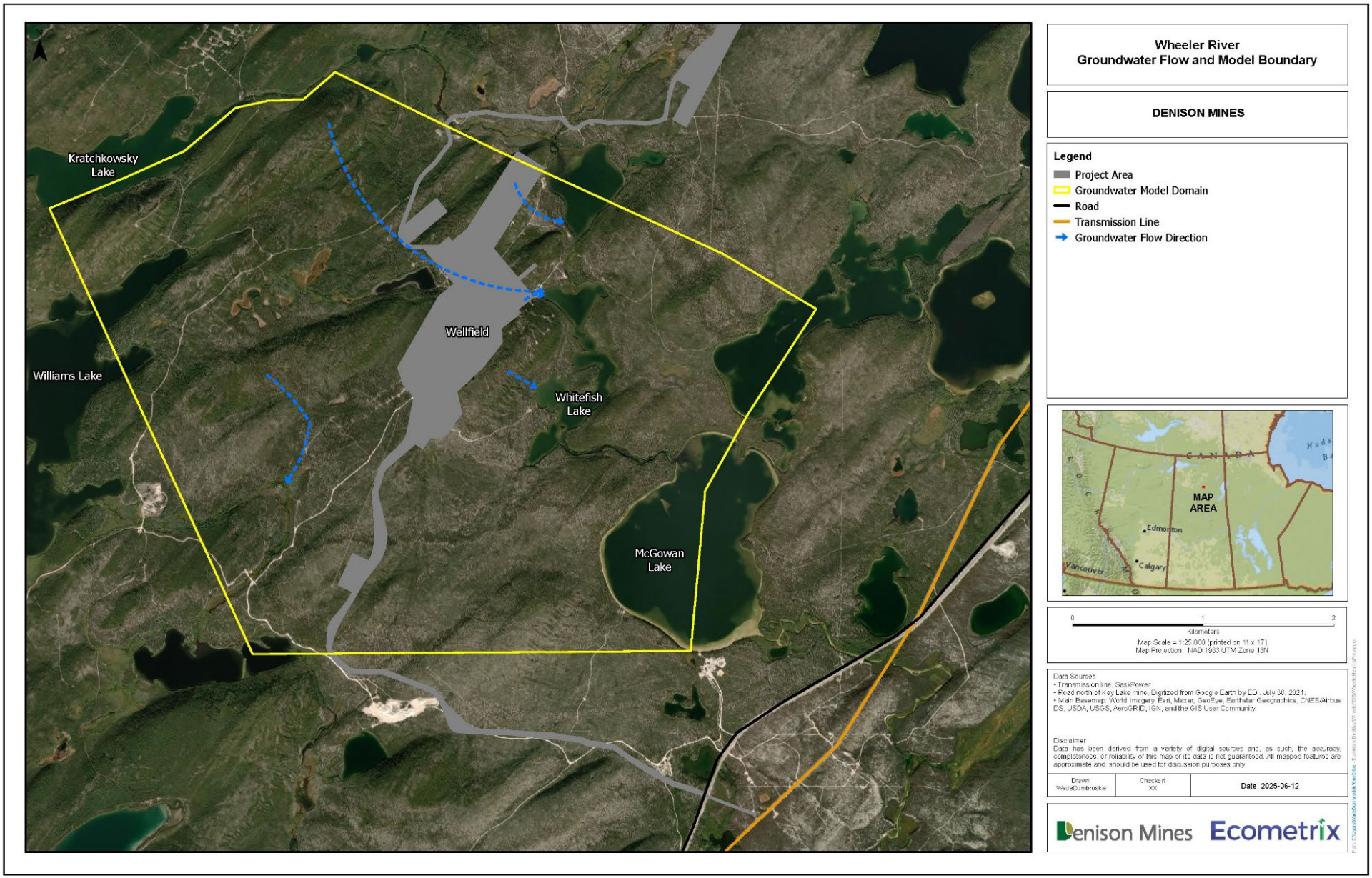


Figure 3-7 Spatial Boundary of the Local Study Area for the Geology and Groundwater Valued Components

3.4.2.2 Groundwater

Given the relationship of the ISR mining process to the groundwater environment, the Groundwater VC was a particular focus of the EA process. Consideration of the Groundwater VC drew on information from all facets of the Project, from engineering design to the detailed characterization of existing conditions, to comprehensive predictive groundwater modelling covering all project phases including a future-centuries scenario after freeze wall decommissioning.

Groundwater was selected as a VC because it is an integral component of the hydrologic cycle and is important in maintaining ecological habitats through its influence on the hydrology and water quality of surface water bodies, including wetlands. Groundwater is an intermediate VC representing pathways to receptor VCs and therefore does not require a significance determination. IK and engagement activities clearly identified the importance placed on groundwater quality and quantity as a pathway to surface water that may influence fish and fish habitat, sediment quality, vegetation, wildlife, human health and Indigenous land and resource use. It is also noted, with reference to the assessment of effects on the Groundwater VC, that groundwater is not a local potable water source, nor is groundwater used for domestic purposes.

The areas used to assess Project effects on the Groundwater VC are the same as those described in Section 3.4.2.1 for the Geology VC shown in Figure 3-7 for the LSA and Figure 3-8 for the RSA. The Project Area is where mine related infrastructure will be located and where there is potential for interaction between the Project and the groundwater environment.

Potential changes related to the Groundwater VC are most likely to occur in the LSA where groundwater interacts with surface water bodies.

The RSA was defined to reflect potential groundwater discharge locations on a regional scale where interactions with other reasonably foreseeable projects/activities would be possible. The assessment of the Groundwater VC considered all Project phases. As noted above, unlike other effects assessment components, the Groundwater VC was also assessed well into the future to reflect the period over which residual COPC transport downgradient of the mining zone after freeze wall decommissioning is likely to occur. The future-centuries scenario is a key aspect of the Groundwater VC evaluation focusing on interactions between groundwater and surface water with potential to affect the aquatic environment.

Existing hydrogeological conditions were characterized using information from regional studies pertaining to the Athabasca Basin (e.g., Sibbald et al. 1976; Macdonald 1980; AECL 1994; Ramaekers and Catuneanu 2004; Campell 2007; Harvey and Bethune 2007; Yeo and Delaney 2007; Cameco 2012a; Ng et al. 2013; Power 2014; Alexandre 2020) and information derived from extensive Project-specific investigations representing data collected over more than 16 years of study. Briefly, the hydrogeological environment can be described in terms of primary hydrogeological units, groundwater flow and groundwater quality as follows. The primary hydrogeological units which influence groundwater flow within the Basin include:

1. The Upper overburden unit defining the water table and upper shallow groundwater flow system.
2. The Athabasca Sandstone Supergroup.
3. The basement rocks.

Two groundwater flow regimes were identified in the local basin stratigraphy. The uppermost flow system is unconfined and includes groundwater flow through the overburden and Upper Sandstone Aquifer. The lower semi-regional system is confined by the Intermediate Sandstone Aquitard and includes flow through the Lower Sandstone Aquifer and locally in the Ore Zone Aquifer. Horizontal groundwater flow in the

deeper semi-regional flow system is generally directed from the west to the east and southeast, as interpreted by water level observations and groundwater chemistry. Groundwater flow within the Overburden and Upper Sandstone Aquifer is influenced by surface topography and surface water features. Flow in this upper groundwater is derived from recharge in the local area, whereas groundwater flow within the semi-regional groundwater flow system is derived from a combination of regional groundwater flow from upgradient sources and vertical flow through the Intermediate Sandstone Aquitard. In the Project Area, shallow groundwater in the overburden and the Upper Sandstone Aquifer is conceptualized to discharge into Whitefish Lake, located approximately 500 m east of the deposit. It is interpreted that elevated hydraulic conductivity value represented by the Desilicified Zone creates a preferential pathway for water to discharge into Whitefish Lake rather than remaining in the Lower Sandstone Aquifer on a regional scale. Concentrations of radiological and several other dissolved constituents in groundwater associated with the uranium deposit are generally orders of magnitude lower in overlying hydrostratigraphic units and surface water than in the ore zone groundwater samples, indicating very low mass flux between the units. The measured groundwater chemistry supports the presence of a Local Flow System, an Intermediate Sandstone Aquitard and a Lower Sandstone Aquifer. The chemistry of the groundwater in the Local Flow system is that of recharge water of relatively low pH from contact with organic matter in the upper soil profile. The chemistry of groundwater in the Intermediate Sandstone Aquitard is similar in terms of major ion composition to that of the Local Flow System, but a longer residence time in the aquitard of similar mineralogical composition to the overlying bedrock and sediments has led to increased mineralization of the water. The Lower Sandstone Aquifer is characterized spatially by two types of groundwater. The first type is like that observed in the Local Flow System indicating hydraulically active fractures and fault systems that allow fresh recharge water to penetrate and mix with deeper waters in the Lower Aquifer. The second type of groundwater lies within the zone of thermal alteration around the ore zone and has a relatively high degree of mineralization, thought to result from dissolution of remnant halide salts present on grain boundaries and in intragranular pores within the rock matrix at depth in the Athabasca Sandstones.

The Groundwater VC was assessed in terms of predicting changes in groundwater flow patterns and groundwater table elevations (groundwater quantity), and concentrations of chemical constituents in groundwater that may affect local surface water environments (groundwater quality). The overall Project Area and operation have been designed to limit disturbance to the natural groundwater environment outside of the immediate mining area. To minimize residual effects of the Project on groundwater quantity and quality and to protect discharges to local surface water bodies, specific and established engineering design features and mitigation measures will be employed, including liners, leak detection systems, leachate collection systems at landfills, pads and ponds, as well as impermeable cover designs during decommissioning. The freeze wall will be established as tertiary containment before mining operations commence to isolate the mining area hydraulically. Groundwater will be remediated during decommissioning to meet the mining area decommissioning objectives developed to protect surface water environments.

It was envisioned that groundwater quantity could be affected by Project-related water demands due to the potential changes in groundwater levels and flow within the shallow hydrostratigraphic units. Because these shallow units are connected to the surface water environment, potential effects associated with this groundwater pathway were considered within the context of potential changes in groundwater as an input to surface water. The assessment was completed using a calibrated numerical groundwater model with water demands calculated for all phases of the Project. The numeric model predicted only small

changes in local groundwater elevation over the Project lifecycle and supported the conclusion that potential effects on water quantity at surface water discharge zones will be negligible.

To evaluate how constituents dissolved in the remediated groundwater within the mining area may migrate and interact with the environment, a rigorous numerical model of groundwater flow and chemical constituent behavior along the groundwater flow path was used as a predictive tool. The model was founded on proven scientific principles and processes (e.g., groundwater flow, contaminant transport and geochemical reaction processes) and allowed the evaluation of future conditions. 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 in groundwater reaching Whitefish Lake remaining below values that would result in environmental risk.

In terms of groundwater quality, the following is noted with respect to potential Project-related effects:

- Site preparation and construction activities are not expected to adversely affect groundwater quality in consideration of Project design features and the best practices and mitigation measures that will be employed. The most likely interactions between the Project and groundwater quality would be related to small spills, for example through fuel handling, that may cause changes to shallow groundwater quality in localized areas. These types of incidents are described elsewhere in the EIS as accident and malfunction scenarios and are deemed of low risk (see EIS Section 14).
- During operation, groundwater interactions primarily stem from ISR activities involving the injection and recovery well system and freeze wall containment as a tertiary containment measure. Groundwater quality within the mining area is expected to change because of direct contact with the mining solution. As outlined above, a comprehensive predictive numeric groundwater model was developed to support the groundwater quality assessment. The multi-layer containment system afforded by normal operation of the ISR wellfield, including the freeze wall and the design of the wellfield to maintain inward hydraulic gradients, will contain the mining solution and no effects are expected. The concept of containment through maintenance of an inward hydraulic gradient created by the injection-recovery well system design was confirmed by Denison in field trials at the Project site. Potential loss of containment of the mining solution during operations was considered in the accidents and malfunctions assessment and deemed of low likelihood and overall at a low level of risk (see EIS Section 14).
- Once mining ceases, the ore zone water quality has been remediated to its decommissioning objectives and the freeze wall has been decommissioned, residual COPCs in groundwater from the ISR mining process will migrate within the subsurface over hundreds to thousands of years. This residual COPC migration in groundwater was considered using predictive modelling in the future-centuries scenario which evaluated a base-case scenario plus 15 sensitivity scenarios. The post-decommissioning modelling predictions indicate that even under conservative assumptions, COPC concentrations in groundwater reaching surface water receptors at Whitefish Lake will remain below ecological and human health thresholds, with most constituents declining to near-background levels over time. These results confirm that groundwater quality associated risks to aquatic receptors in the far future are unlikely.

As assessment was completed to understand the potential cumulative effects of the Project with existing and future developments on the Groundwater VC. No cumulative effects are expected as changes in groundwater quantity and quality are localized and are not expected to be influenced by changes in groundwater associated with existing or reasonably foreseeable developments.

As noted above, groundwater management and monitoring plans have been proposed and will be developed as part of permitting and licensing under the Project EMS. Groundwater quantity and quality will be monitored from pre-construction through operation to assess the performance of the engineering mining designs and performance and infrastructure designs put in place to protect the Groundwater VC. During decommissioning, monitoring will focus on demonstrating that groundwater remediation within the ISR mining zone meets decommissioning objectives. In post-decommissioning, the primary objectives of monitoring will be to demonstrate that natural flow conditions are re-established and that chemical stability has been achieved with respect to groundwater quality. Chemical stability will be demonstrated by verifying that groundwater-reactive transport of COPCs in remediated groundwater aligns with the predictive model. A groundwater monitoring plan including an excursion contingency plan and measures for adaptive management will be implemented for the Project.

3.4.3 Aquatic Environment

The aquatic environment was represented by several VCs including Surface Water Quantity, Surface Water Quality, Fish and Fish Habitat, Sediment Quality, Benthic Invertebrates and Fish Health. The VCs Surface Water Quantity and Surface Water Quality were considered intermediate VCs (i.e., they represent pathways to receptor VCs). The others were considered Receptor VCs.

Key Project-environment interactions and the basis of the effects assessment could occur within each phase of the Project and include, for example: emissions to water (e.g., controlled release of treated effluent during operations); control and release of non-contact water from areas of site development and infrastructure (e.g., erosion and sediment control around cleared areas); water-taking activities (e.g., as make-up water for operations in the ISR wellfield and the processing plant) and changes to natural drainage patterns (e.g., surface runoff control/diversion in areas of site infrastructure development). Given the scale and nature of the Project-environment interactions, the assessment largely focused on the LSA that extends downstream of the Project site to McGowan Lake but upstream of Russell Lake (i.e., the Wheeler River). This LSA has not been subject to historical development and is not influenced by human activity. Potential cumulative effects were considered on a regional scale in consideration of other reasonably foreseeable activities or sources that could interact with the aquatic environment and the potential for overlap with Project activities or sources.

Further details with respect to the results of the effects assessment for the aquatic environment VCs are provided below. In general, the following can be concluded from the assessment. Both physical and chemical interactions between the Project and the aquatic environment could be mitigated; and/or where residual effects were identified such effects were small in magnitude and limited in spatial extent. For example, Denison will maximize the recycling and reuse of contact and process water to minimize freshwater intake. Denison will implement industry standard erosion and sediment control practices in areas of ground clearing to mitigate potential mobilization of suspended sediment into water courses / water bodies. Construction of clear span bridges at stream crossings mitigates in-water works and potential impacts to fish movement posed by culverts. Predictive modelling indicated that constituent concentrations will be at or below relevant aquatic protection thresholds beyond the initial mixing zone that was metres from the discharge location. Based on the assessment it was concluded that residual Project effects on the receptor VCs (Fish and Fish Habitat, Sediment Quality, Benthic Invertebrates and Fish Health) were not significant. A similar conclusion was reached for these same VCs in consideration of

cumulative effects. No overlapping pathways of effects were identified between the Project and other reasonably foreseeable activities, therefore no cumulative effects were identified.

Aquatic environment management and monitoring plans have been proposed and will be developed as part of permitting and licensing. A framework for such plans under the umbrella of the Environmental Protection Program under the Project EMS is provided in EIS Section 2.9.1.3.1. These plans will be aligned with historical long-term monitoring to track trends through space and time. The plans will serve several purposes, including assessing the performance of mitigation and control systems and demonstrating compliance with statutory limits or internal action levels.

3.4.3.1 Surface Water Quantity

Project activities have potential to affect the Surface Water Quantity VC during all Project phases. Key considerations of the assessment are associated with how Project activities, including but not limited to water-taking activities, treated water release and changes to drainage patterns, may change hydrological conditions. The Surface Water Quantity VC considers hydrological parameters of interest, including flow regimes and water levels in watercourses and waterbodies within defined study areas. The Surface Water Quantity VC is an intermediate VC and does not undergo significance determination.

The spatial boundaries of the Surface Water Quantity VC assessment were the Project Area, LSA and RSA (Figure 3-8). The Project Area is the direct footprint of the project and represents the area within which direct physical disturbance may occur because of the Project (i.e., the area of maximum physical disturbance). The LSA is the area that surrounds the Project Area where both direct and indirect effects from Project activities can be reasonably measured. For the Surface Water Quantity VC, the LSA was derived from watershed boundaries near the Project Area, including portions of watersheds that overlap the Project site, as well as areas directly downstream that may be influenced by the Project site or effluent discharge/water-taking effects. The RSA was established to assess the potential largely indirect effects of the Project, as well as other activities, in a regional context. For the Surface Water Quantity VC, the RSA extends downstream to include Russell Lake. The temporal boundaries for the assessment included all Project phases.

In 2011 Denison initiated baseline hydrological monitoring for the Project which has continued to the present at various locations throughout the LSA. Streamflow records at existing stations provide an understanding of the range of flows during open water conditions, including snowmelt runoff, rainfall response to storm events and late summer low-flow periods. Winter data are not available at most stations because of a lack of winter field monitoring programs. Long-term flow records with winter discharge are available from a Water Survey of Canada hydrometric monitoring station located downstream of Russell Lake on the Wheeler River. The above-referenced hydrological data and records for the area were utilized to support the effects assessment for the Project.

Project interactions with the Surface Water Quantity VC are generally associated with changes in watershed areas because of mine construction and implementation of the contact water management plan, water-taking activities and treated effluent discharge. The full measure of change in watershed areas will be realized during construction, whereas water-taking activities and treated effluent discharge will occur through operation and decommissioning. Flows and water levels in lakes and rivers within the LSA for the Surface Water Quantity VC are expected to experience some change (i.e., reduction) because of altering the drainage areas reporting specifically to Whitefish Lake and water taking from this same

waterbody. However, under all scenarios including under low flow (fifth percentile), the reduction in flow is expected to be less than 3%, below the level that would be considered an effect to existing environmental flows (i.e., 5%). Effects to surface water flows and levels are also predicted to be localized to the sub-watersheds near the Project and specifically Whitefish Lake. The effects are predicted to be fully reversible following decommissioning as natural drainage patterns will be restored.

An assessment was completed to understand the potential cumulative effects of the Project with existing and future developments on the Surface Water Quantity VC. No cumulative effects are expected as changes in surface water quantity are of small magnitude, highly localized to Whitefish Lake and not propagated further downstream. As such, interaction with other existing or reasonably foreseeable activities are not expected to occur over the Project timeline.

Considerations of climate change related to surface water quantity were discussed in Section 8.1.7.5 and Section 15.5 of the EIS (see also Section 3.6.2.4 herein). Overall, and generally regardless of consideration of a low-, a moderate-, or a high-carbon emission scenario (RPC2.6, RPC4.5 or RCP8.5; per PCC 2019), future climate conditions at the Project site over the life of the Project will likely include warmer winters, longer and hotter summers and greater total annual precipitation that would be 10% greater than current levels to the year 2050. Changes in nominal stream flow (either increases or decreases) due to changes in the factors that would affect the surface water balance (e.g., precipitation, evapotranspiration) under those climate conditions were expected to be of low magnitude. Extreme events are expected to change due to climate change. Qualitatively, climate change is expected to increase the frequency and magnitude of such events – it was estimated that the magnitude of the 1:100 year, 24-hour storm is expected to increase by approximately 10%.

As noted above, management and monitoring plans related to the aquatic environment have been proposed and will be developed as part of permitting and licensing under the Project EMS. Monitoring programs will be established to confirm the predictions made in the effects assessment and to allow for the continued evaluation of long-term trends in streamflow and lake elevations at key locations within the LSA. To this end, surface water quantity monitoring will include both automated and manual measurement of streamflow and lake elevation measurements across the LSA and the measurement of any Project-related water-taking activities and discharges to surface waters.

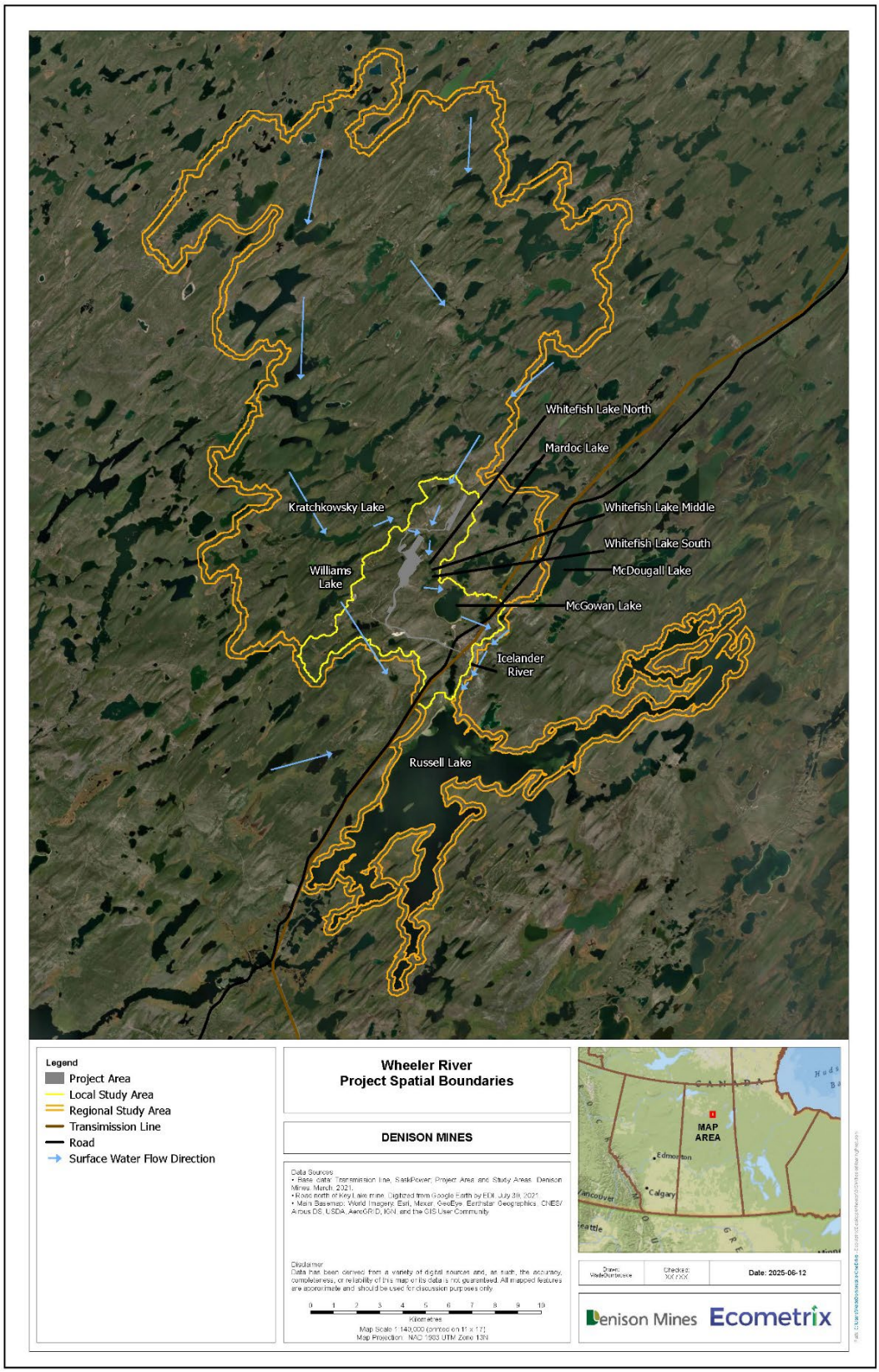


Figure 3-8 Aquatic Environment Study Area Boundaries

3.4.3.2 Surface Water Quality

Project activities have potential to affect the Surface Water Quality VC during all Project phases. The Surface Water Quality VC was selected for inclusion in the assessment, as changes to surface water quality have the potential to affect biodiversity and biological function through direct exposure and indirect food chain influences (i.e., aquatic sediments, fish and fish habitat and benthic invertebrates), and to address the cultural values of Indigenous groups, the public and other interested parties. The Surface Water Quality VC is an intermediate VC and does not undergo significance determination. It is linked to receptor VCs as a pathway. In general, the interactions can be characterized as being primarily associated with controlled, routine discharges from the Project site. Groundwater/surface water interactions were also a consideration, specifically in the future-centuries scenario (i.e., the period after decommissioning in which groundwater associated with the ISR mining area is predicted to migrate towards and interact with surface water).

The spatial boundaries for the assessment of Surface Water Quality VC are the same areas outlined in Section 3.4.3.1 for the Surface Water Quantity VC. This included the Project Area, LSA and RSA (Figure 3-8). Temporal boundaries for the assessment included all Project phases and the future-centuries scenario.

Baseline water quality characterization was initiated by Denison at the Project site in 2014 and has been ongoing. Surface water quality was assessed at lakes and watercourses within the LSA and RSA, including measurement of both physical (pH, temperature, electrical conductivity, dissolved oxygen and clarity) and chemical (metals, nutrients, major ions and radionuclides) characteristics. The Project is in a primarily undisturbed area of the boreal forest and the existing water quality in the lakes and rivers is indicative of a low level of disturbance. Water quality parameters were generally below guidelines for the protection of aquatic life; however, some constituents had concentrations above the guidelines, including aluminum, lead, copper, iron and cadmium. In these cases, the maximum concentrations were only marginally above the guideline values.

As noted above, Project activities may interact with the Surface Water Quality VC during all Project phases. Potential interactions are reviewed by Project phase below.

During site preparation and construction, the primary effect pathway for the Surface Water Quality VC is related to the potential for mobilization of suspended material into natural surface water features because of land disturbance and land clearing. Water management and erosion and sediment control measures will be implemented to mitigate the potential mobilization of suspended solids. Runoff associated with areas under development will be managed through multi-barrier control systems to collect and store water in management ponds until it is safe to release it into natural surface water features (i.e., suspended solid levels in the water would be at acceptable levels). With implementation of mitigations as planned, no effects on local surface waters are expected.

During the operations and decommissioning phases there will be direct, controlled discharge of treated effluent to surface water at Whitefish Lake. Contact waters collected on site that are not required to support the ISR process will be directed to the IWWTP for treatment. Prior to release, treated effluent will be conveyed to effluent monitoring and release ponds where it will be tested to confirm it is suitable for release. Predictive numeric modelling was used to evaluate the effect of the release of treated effluent to Whitefish Lake. A near-field water quality model was developed in the software platform CORMIX to evaluate initial effluent mixing at the discharge location. A regional water model was developed in IMPACT^{TM}, which includes the COPC transport equations outlined in CSA N288.1-20 (CSA Group 2020).

The regional model considered water quality in Whitefish Lake and areas downstream (McGowan Lake and Russell Lake) following mixing. Model predictions were compared to provincial and/or federal water quality guidelines for the protection of aquatic life. Modelled water quality concentrations were at or below the guidelines for the protection of aquatic life in all IMPACT^{TM} model scenarios within all waterbodies for both the operations and decommissioning phases. Through the federal EA review and in response to CNSC's Information Requirement (IR) process, the water quality guideline for copper was updated from the CCME water quality guideline to the more recently published Federal Environmental Quality Guideline (FEQG) using the Biotic Ligand Model. Due to laboratory detection limit constraints, model predictions for copper were greater than the FEQG in the background lake upstream of the discharge and carried forward to downstream of the discharge. The interpretation is considered further in the ecological risk assessment.

Consistent with the groundwater assessment, water quality in Whitefish Lake was assessed within the context of the future-centuries scenario reflecting the period during which residual COPCs in groundwater associated with the ISR mining area are predicted to migrate toward and interact with surface water at Whitefish Lake. Predictive modelling of the future-centuries groundwater contributions to Whitefish Lake indicates that all constituents in surface water will remain at or below their respective water quality guidelines for the protection of aquatic life.

The potential for cumulative effects related to the discharge of treated effluent during operations and decommissioning, along with releases to drainages from other projects which ultimately report to Russell Lake was considered. No cumulative effects were identified. The effects of the Project on water quality are local in nature and as such do not overlap with other activities. The future-centuries scenario was also considered from a cumulative effects perspective, but there was no reason to expect any interactions from reasonably foreseeable activities over such a long time. Overall, no cumulative effects on the Water Quality VC are expected.

As noted above, management and monitoring plans related to the aquatic environment have been proposed and will be developed as part of permitting and licensing under the Project EMS. Monitoring programs will be established to confirm the predictions made in the effects assessment to evaluate the effectiveness of mitigation measures, to meet regulatory obligations and to allow for the continued evaluation of long-term trends in surface water at key locations within the LSA. To this end, surface water quality monitoring will include in-situ and laboratory-based analysis of waters in key locations upstream and downstream of the Project Area, including locations at which routine controlled releases to the environment would occur and within all effluent streams associated with the Project. The surface water quality monitoring plan will define monitoring objectives, sampling design, methods and quality assurance/control requirements.

3.4.3.3 Sediment Quality and Benthic Invertebrates

Project activities have the potential to affect the Sediment Quality and Benthic Invertebrates VC during all Project phases. The Sediment Quality and Benthic Invertebrates VC was selected for inclusion in the assessment as changes to sediment quality and the structure of resident benthic invertebrate communities have potential to affect biodiversity and biological function through direct exposure and indirect food chain influences. In general, the primary interactions that can affect sediment quality and the structure of resident benthic invertebrate communities include controlled, routine discharges from the Project site and groundwater/surface water interactions considered in the future-centuries scenario,

reflecting the time period over which residual COPCs in groundwater associated with the ISR mining area are predicted to migrate toward and to interact with surface water.

The spatial boundaries for the assessment of the Sediment Quality and Benthic Invertebrates VC are those outlined in Section 3.4.3.1 and Section 3.4.3.2 for the Surface Water Quantity VC and the Surface Water Quality VC. This includes the Project Area, LSA and RSA (Figure 3-8). Temporal boundaries for the assessment included all Project phases and the future-centuries scenario.

Baseline sediment quality and benthic invertebrate community surveys were undertaken across the LSA. Sediments were characterized for physical (texture and grain size) and chemical (metals, nutrients and radionuclides) attributes. Area lakes were dominated by clay-type substrates with silt and sand being present in lesser proportions. Sediment quality was generally reflective of the lack of human activity in the study area. Constituent concentrations were generally below published sediment quality effects guidelines, where available. Organic carbon levels were relatively high. Benthic invertebrate communities were numerically dominated by the immature life stages of dipteran (true flies), water fleas (Daphnia) and worms, typical of lake environments.

As noted above, Project activities may interact with the Sediment Quality and Benthic Invertebrates VC during all Project phases. During site preparation and construction, the primary effect pathway is related to the potential for mobilization of suspended material into natural surface water features because of land disturbance and land clearing. Mobilization of suspended material into natural surface waters results in swamping of the sediment, changing its texture and chemistry.

Water management and erosion- and sediment-control measures will be implemented to mitigate the mobilization of suspended solids. Runoff associated with areas under development will be managed through multi-barrier control systems to collect and store water in management ponds until it is safe to release into natural surface water features (i.e., suspended solid levels in the water would be at acceptable levels).

With implementation of mitigations as planned, no effects on the Sediment Quality and Benthic Invertebrates VC are expected. In addition to the above, it is also noted that the construction of the treated effluent pipeline and diffuser structure will result in taking up a small proportion of the Whitefish Lake bottom (less than 0.05% by area). This small, localized effect is not material.

During the operations and decommissioning phases there will be direct, controlled discharge of treated effluent to surface water at Whitefish Lake. Changes in water quality can be reflected in changes to sediment quality based on the equilibrium between water and sediment and the partitioning of constituents between these two environmental compartments. The regional water model developed in IMPACT ^{TM} was used to derive sediment quality predictions downstream of the effluent discharge. Model predictions were compared to published sediment quality effects guidelines. Predicted concentrations of most COPCs did not exceed sediment quality guidelines except for molybdenum, selenium and vanadium. As such, these constituents were carried forward as part of the ecological risk assessment. The ecological risk assessment estimated dose and risk to representative aquatic receptors, including benthic invertebrates, during all Project phases. The ecological risk assessment concluded no significant adverse effects on aquatic populations or communities (including benthic invertebrates) because of releases from the Project predicted during the Project phases. All estimated total hazard quotients (HQs) for all COPCs for all ecological receptors were predicted to remain below the HQ benchmark of 1, with the exception of copper. In the final ecological risk assessment the toxicity reference values (TRVs) for copper were re-evaluated at the request of ECCC, using the Biotic Ligand Model developed by ECCC. Utilizing Project

conditions for hardness and pH (i.e. modelling included the expected hardness and pH expected in the effluent), no predicted HQ benchmark exceedances were identified for copper at downstream lakes. Utilizing baseline conditions, (i.e. modelling did not include the expected hardness and pH in the effluent), predicted HQ benchmark exceedances were identified for copper for benthic invertebrates and predator fish in Whitefish Lake.

There were no predicted exceedances of the 9.6 mGy/d radiation dose benchmark for aquatic biota during any Project phase (EIS Appendix 10-A).

Consistent with the groundwater assessment, water quality in Whitefish Lake was assessed within the context of the future-centuries scenario reflecting the period over which residual COPCs in groundwater associated with the ISR mining area are predicted to migrate toward and interact with surface water at Whitefish Lake. Predictive modelling of the future-centuries groundwater contributions to Whitefish Lake indicates that all constituents in sediments will remain at or below their respective effects guidelines levels.

The discharge of treated effluent during operation and decommissioning was considered from a potential cumulative effects perspective (i.e., in combination with releases to drainages from other projects which ultimately report to Russell Lake); however, no such iterations were identified. The effects of the Project on sediment quality and benthic invertebrates are local in nature and do not overlap with other activities. The future-centuries scenario was also considered from a cumulative effects perspective but there was no basis to postulate any interactions from reasonably foreseeable activities on that time scale. Overall, no cumulative effects on the Sediment Quality and Benthic Invertebrates VC are expected.

Based on the assessment it was concluded that residual Project effects on the Sediment Quality and Benthic Invertebrates VC were not significant. A similar conclusion was reached in consideration of cumulative effects. No overlapping pathways of effects were identified between the Project and other reasonably foreseeable activities; therefore no cumulative effects were identified.

As noted above, management and monitoring plans related to the aquatic environment are proposed and will be developed as part of permitting and licensing under the Project EMS. Monitoring programs will be established to confirm the predictions made in the effects assessment, to evaluate the effectiveness of mitigation measures, to meet regulatory obligations, and to allow for the continued evaluation of long-term trends at key locations within the LSA. To this end, sediment quality and benthic invertebrate community monitoring will include sample collection at key locations upstream and downstream of the Project site at a pre-defined interval. The sediment quality and benthic invertebrate community monitoring plan will define monitoring objectives, sampling design, methods and quality assurance/control requirements.

3.4.3.4 Fish and Fish Habitat

Project activities have potential to affect the Fish and Fish Habitat VC during all Project phases. The Fish and Fish Habitat VC was included in the assessment as changes to fish and fish habitat have the potential to affect biodiversity and biological function through direct exposure and indirect food chain influences. The Fish and Fish Habitat VC was also included in the assessment, as fish and fish habitat protection are priorities under federal and provincial legislation and also hold cultural and subsistence importance to Indigenous communities. The Fish and Fish Habitat VC is a Receptor VC. In general, the primary Project interactions identified as having potential to affect the Fish and Fish Habitat VC were related to the

mobilization suspended sediments into aquatic habitats, overprinting of fish habitat, alteration of water and sediment quality and increased localized access to fisheries resources.

The assessment of the Fish and Fish Habitat VC utilized the same spatial and temporal boundaries as the other aquatic environment components (see Figure 3-8).

Baseline fish and fish habitat surveys were performed in a combination of lentic (lakes and ponds) and lotic (streams and rivers) environments in the LSA and RSA. Aquatic habitat surveys were undertaken per standard protocols and included the collection of relevant information including bathymetric data, observations of shoreline conditions, substrate features and aquatic vegetation, along with targeted information regarding biological communities. These surveys identified river, stream, and lake features that support a variety of fish species, including Lake Trout, Lake Whitefish, Northern Pike, Walleye, Yellow Perch, Arctic Grayling and several other sucker and forage fish species. With the help of IK, LK and in-field surveys, critical spawning and nursery habitats for keystone species were identified, specifically in Whitefish and Russell Lakes. Known spawning habitats for Northern Pike, White Sucker, Longnose Sucker, Arctic Graying, Walleye, Lake Trout and Lake Whitefish are found in the LSA, west of the LSA and in Russell Lake.

As noted above, Project activities may interact with the Fish and Fish Habitat VC during all Project phases. Note that interested parties have raised concern about increased access and use of fisheries resources. This is a concern that spans the mine life cycle, as it is related to the presence of the workforce at the site. Denison will restrict fishing by employees under provincial licences while on-site and will encourage only catch-and-release fishing.

During site preparation and construction, the Fish and Fish Habitat VC may be affected by several factors. Mobilization of suspended material into natural surface water features because of land disturbance and land clearing can alter aquatic habitats. Water management and erosion- and sediment-control measures will be implemented to mitigate the mobilization of suspended solids. Runoff associated with areas under development will be managed through multi-barrier control systems to collect and store water in management ponds until it is safe to release into natural surface water features (i.e., suspended solid levels in the water would be at acceptable levels). Potential direct effects to fish and fish habitat could also result from habitat overprinting to develop site infrastructure. The construction of the treated effluent pipeline and diffuser structure will result in the overprinting of a small proportion of the Whitefish Lake bottom (less than 0.05% by area). This small, localized effect is not material. Stream crossings are needed for the construction of the airstrip access road. In place of culverts, clear-span bridges will be used to avoid overprinting of habitat. Generally, where Project works are proposed in and around water, fish habitat will be avoided, or best practices will be used to minimize the level of interaction. With implementation of mitigations as planned, no effects on the Fish and Fish Habitat VC are expected during site preparation and construction.

Controlled discharge of treated effluent to surface water at Whitefish Lake will occur during the operations and decommissioning phases. Changes in water quality can affect fish and fish habitat. The regional water quality model considered water quality in Whitefish Lake and areas downstream (McGowan and Russell Lakes). Following mixing, indicated concentrations were at or below the water quality guidelines for the protection of aquatic life, with the exception of copper as discussed in Section 3.4.3.1. In the final ecological risk assessment the TRVs for copper were re-evaluated at the request of ECCC, using the Biotic Ligand Model developed by ECCC. Utilizing baseline conditions predicted HQ benchmark exceedances were identified for copper for benthic invertebrates and predator fish in

Whitefish Lake. However, utilizing expected Project conditions for hardness and pH no predicted HQ benchmark exceedances were identified for copper at downstream lakes. Therefore, fish and fish habitat will not be adversely affected by predicted changes in water quality.

Numerical modelling of groundwater transport was conducted for the future-centuries scenario to assess the impact of the project on surface water quality after decommissioning. The results of the numerical modelling support the conclusion that, with the implementation of appropriate mitigation during the decommissioning and restoration phases of the Project, the residual effects of the Project will result in no adverse effect on surface water quality; therefore fish and fish habitat will not be adversely affected.

The discharge of treated effluent during operation and decommissioning was considered from a potential cumulative effects perspective with releases to drainages from other projects which ultimately report to Russell Lake. No cumulative effects were identified. The effects of the Project on fish and fish habitat are local in nature and no overlap with other activities will occur. The future-centuries scenario was also considered from a cumulative effects perspective but there was no reason to expect any interactions from reasonably foreseeable activities over the period. Overall, no cumulative effects on the Fish and Fish Habitat VC are expected.

Based on the assessment it was concluded that residual Project effects on the Fish and Fish Habitat VC were not significant, and the same conclusion was reached for cumulative effects. As noted above, management and monitoring plans related to the aquatic environment have been proposed and will be developed as part of permitting and licensing under the Project EMS. Monitoring programs will be established to confirm the predictions made in the effects assessment, to evaluate the effectiveness of mitigation measures, to meet regulatory obligations and to allow for the continued evaluation of long-term trends at key locations within the LSA.

3.4.3.5 Fish Health

The Fish Health VC was included in the assessment, as changes to fish health have potential to affect biodiversity and biological function through direct exposure and indirect food chain influences. The Fish and Fish Habitat VC was also included, as fish and fish habitat protection are priorities under federal and provincial legislation (e.g., fish health measured as part of biological monitoring programs mandated through the MDMER (Government of Canada 2022) and fish carry particular importance to Indigenous peoples from a cultural and subsistence perspective). The Fish Health VC is a Receptor VC. The primary interactions with potential to affect the Fish Health VC are related to the alteration of water and sediment quality. The Fish Health VC assessment was therefore conducted in conjunction with the evaluation of the environmental pathways through which fish may be exposed to Project-related emissions. This evaluation included exposure to altered water and sediment quality as the result of treated effluent discharge during operation and decommissioning and in consideration of the future-centuries scenario whereby residual COPCs in groundwater associated with the mining areas interact with downgradient surface water environments. Exposure to COPCs through water and sediment has been shown to affect fish health adversely and this exposure, along with measurement of COPC accumulation in fish tissues, is the focus of the Fish Health VC assessment.

Spatial and temporal boundaries for the assessment of the Fish Health VC are the same as for the other aquatic environment VCs (Figure 3-8).

Extensive aquatic environment baseline studies were conducted in the Project Area and within the LSA. Aquatic habitats were characterized and biological communities surveyed to understand how these communities utilize the habitats to support their different life history stages. Fish tissue samples were collected from representative species as part of the baseline studies; these data contribute to the Fish Health VC assessment. Fish flesh and bone were collected from each of a predator species (Northern Pike) and a forage species (White Sucker) for metals and radionuclides analysis from McGowan Lake, Whitefish Lake (South and North), Kratchkowsky Lake and Russell Lake. Constituent concentrations in fish tissues were measured on a raw-weight basis and commred to the limited number of guideline values for fish tissue including for mercury (Health Canada, 2007) and selenium (BC MOE, 2014; US EPA, 2016). As indicated, these data were also used to support environmental pathways analysis that considered COPC transport between and within environmental and human receptors. Measured baseline concentrations of mercury and selenium in fish tissues were below levels considered protective of both human health and freshwater aquatic life.

As noted above, the main Project-related factors that may affect the Fish Health VC are the discharge of treated effluent during operation and decommissioning and the transport of residual COPCs in groundwater. Both factors have potential to result in changes in surface water quality and sediment quality. The Environmental Risk Assessment (ERA) estimated doses and risk to representative aquatic receptors, including fish during all Project phases. The ERA predicted no significant adverse effects on aquatic populations or communities (including fish) because of releases from the Project during all Project phases. Estimated total HQs for all COPCs for fish were predicted to remain below the HQ benchmark of 1 (considering expected Project conditions for pH and hardness when assessing the copper HQ, see Section 3.4.3.4). Additionally, the total radiological dose (baseline plus Project) was compared against the ecological dose benchmarks. There were no predicted exceedances of the 9.6 mGy/d radiation dose benchmark for fish in the Project area, LSA or RSA during any phase of the Project. Based on this measurement, no effects on the Fish Health VC as the result of the Project are expected.

The discharge of treated effluent during operation and decommissioning was considered from a cumulative effects perspective with releases to drainages which ultimately report to Russell Lake from other projects. No cumulative effects were identified. Potential effects from the Project on fish health because of changes in water and sediment quality are local in nature and will not overlap with other activities. The future-centuries scenario was also considered from a cumulative effects perspective but there was no basis to expect any interactions from reasonably foreseeable activities. Overall, no cumulative effects on the Fish Health VC are expected.

Based on the assessment it was concluded that residual Project effects on the Fish Health VC were not significant. A similar conclusion was reached in consideration of cumulative effects. No overlapping pathways of effects were identified between the Project and other reasonably foreseeable activities; therefore no cumulative effects were identified.

As noted above, proposed management and monitoring plans related to the aquatic environment will be developed as part of permitting and licensing under the Project EMS. Monitoring programs will be established to confirm the predictions made in the effects assessment, to evaluate the effectiveness of mitigation measures, to meet regulatory obligations and to allow for the continued evaluation of long-term trends at key locations within the LSA. To this end, fish health monitoring will be incorporated in the aquatic environment monitoring plan. This plan will include measurement of fish health directly as an endpoint to the federal Environmental Effects Monitoring Program under the Metal and Diamond Mine

Effluent Regulations and fish tissue chemistry to track any changes over time. In the latter instance these data will also be used to support regular updates to the ERA over the lifecycle of the Project.

3.4.4 Terrestrial Environment

The terrestrial environment was represented by several VC groups including:

- Terrain, Soil and Organic Matter/Peat.
- Vegetation and Ecosystems, Listed Plant Species and Wetlands.
- Ungulates, Furbearers and Woodland Caribou.
- Raptors, Migratory Breeding Bird, and Bird Species at Risk

Additionally, Species at Risk (SAR) not included in the VC groups above were assessed separately in Appendix 9-D of the EIS under the VC groups Arthropod, Amphibian and Bat Species at Risk.

VC groups were used for the effects assessment to ensure a diversity of terrestrial habitats and species was considered. This approach is possible because Project-environment interaction for the species within each group is similar. All the VC groups were considered receptor VCs and the effects assessment considered the significance of any identified residual effects.

Key Project-environment interactions were assessed in all phases of the Project and were generally characterized as direct footprint interactions (i.e., taking up terrestrial habitat to develop the Project Area) and interactions related to sensory disturbance where habitats and biota are affected by factors such as noise that extend into the LSA. In general, the direct level of interaction between the Project and terrestrial environment is small in scale (< 200 ha) compared to other resource projects. Cumulative effects were assessed in a regional context with other existing and reasonably foreseeable activities that could overlap with Project activities.

Further details about the results of the effects assessment for the Terrestrial Environment VC groups are provided below. In general, the assessment determined that both direct and sensory interactions between the Project and the terrestrial environment could be mitigated; where residual effects were identified, they were small in magnitude and limited in spatial extent. Denison will implement wildlife and avian management (including SAR) through:

- Education of staff.
- Implementing protection measures and deterrence to avoid wildlife/bird-human interaction.
- Excluding wildlife/birds from the Project site.
- Adhering to activity timing windows to minimize disturbance.
- Management of roads and traffic.
- Management of waste and waste materials.
- Minimizing the likelihood of sensory disturbance through noise, light and dust management.

Woodland Caribou, a threatened species under the federal Species at Risk Act, have received particular attention through the EA process. Denison has identified and will implement targeted activities beyond the mitigations planned for other terrestrial species, including other SAR. Though the level of disturbance in the SK-1 Caribou Management Unit in which the Project is located is below the thresholds at which population sustainability is compromised, Denison plans to offer additional mitigation through offsetting. A Draft Caribou Mitigation Plan was offered as part of the EIS submission. This plan will be updated and submitted to the provincial and federal governments before the start of construction.

Overall, the assessment concluded that residual Project effects on the terrestrial environment VC groups were not significant. The same conclusion was reached in consideration of cumulative effects.

Terrestrial environment management and monitoring plans have been proposed and will be developed as part of permitting and licensing. A framework for such plans under the Project EMS is provided in EIS Section 2.9.1.3.1. The plans will serve several purposes including to assess the performance of mitigation and control systems and to demonstrate compliance with statutory limits and/or internal action levels.

3.4.4.1 Assessment of Terrestrial Environment VCs

There were common themes for the effects assessment of the different terrestrial environment VCs, particularly as it concerned the spatial and temporal scopes, mitigation measures and monitoring. These factors are summarized below. Additional information is provided in the VC-specific sub-sections that follow.

Spatial and Temporal Scopes of the Assessment

The areas used to assess the effects of the Project on the terrestrial environment VCs are shown in Figure 3-9 and Figure 3-10.

The Project Area is the area of maximum physical disturbance where all Project components and activities are located and is the same for all terrestrial environment VCs.

Local Study Areas were defined as follows for:

- The Terrain, Soil and Organic Matter/Peat VC group and the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC group. The LSA encompassed a 500 m buffer surrounding the Plant Site and Ancillary Facilities/Features (e.g., airstrip, borrow pits and effluent ponds) and a 250 m buffer surrounding access roads and other linear features.
- The Ungulates, Furbearers and Woodland Caribou VC group, the Raptors, Migratory Breeding Birds and Bird Species at Risk VC group and the other SAR VC group (arthropods, amphibians and bats). The LSA included a 1.7 km buffer around the Project Area, covering approximately 5,000 ha.

The terrestrial environment Regional Study Area (RSA) was the same for all terrestrial environment VCs and encompassed an area of ~40,000 ha centered on the Project Area to establish potential indirect effects in a regional context and for the assessment of potential cumulative effects.

The temporal boundaries for the assessment of all terrestrial environment VCs included all Project phases.

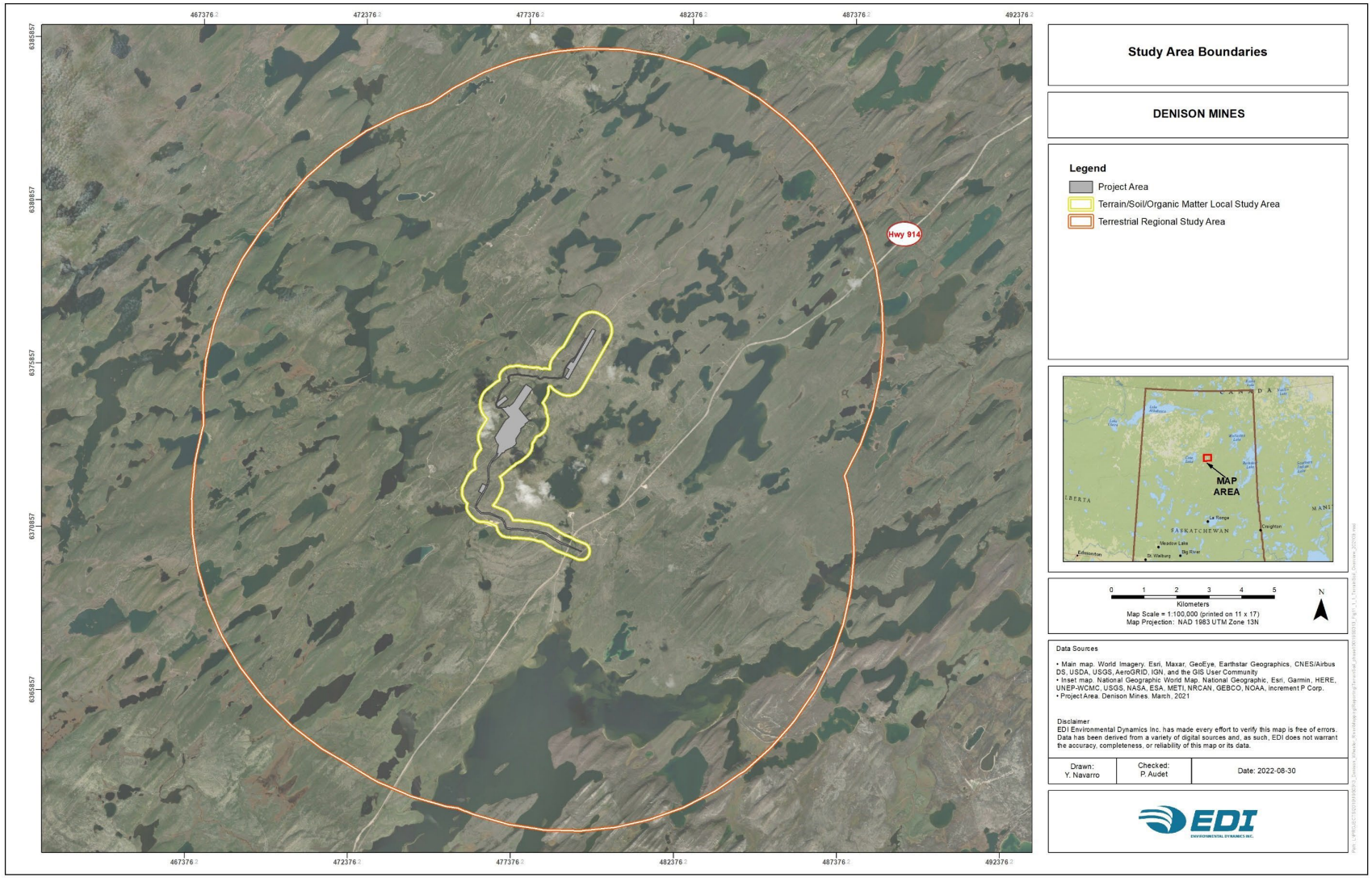


Figure 3-9 Terrain, Soil and Organic Matter/Peat Study Area Boundaries

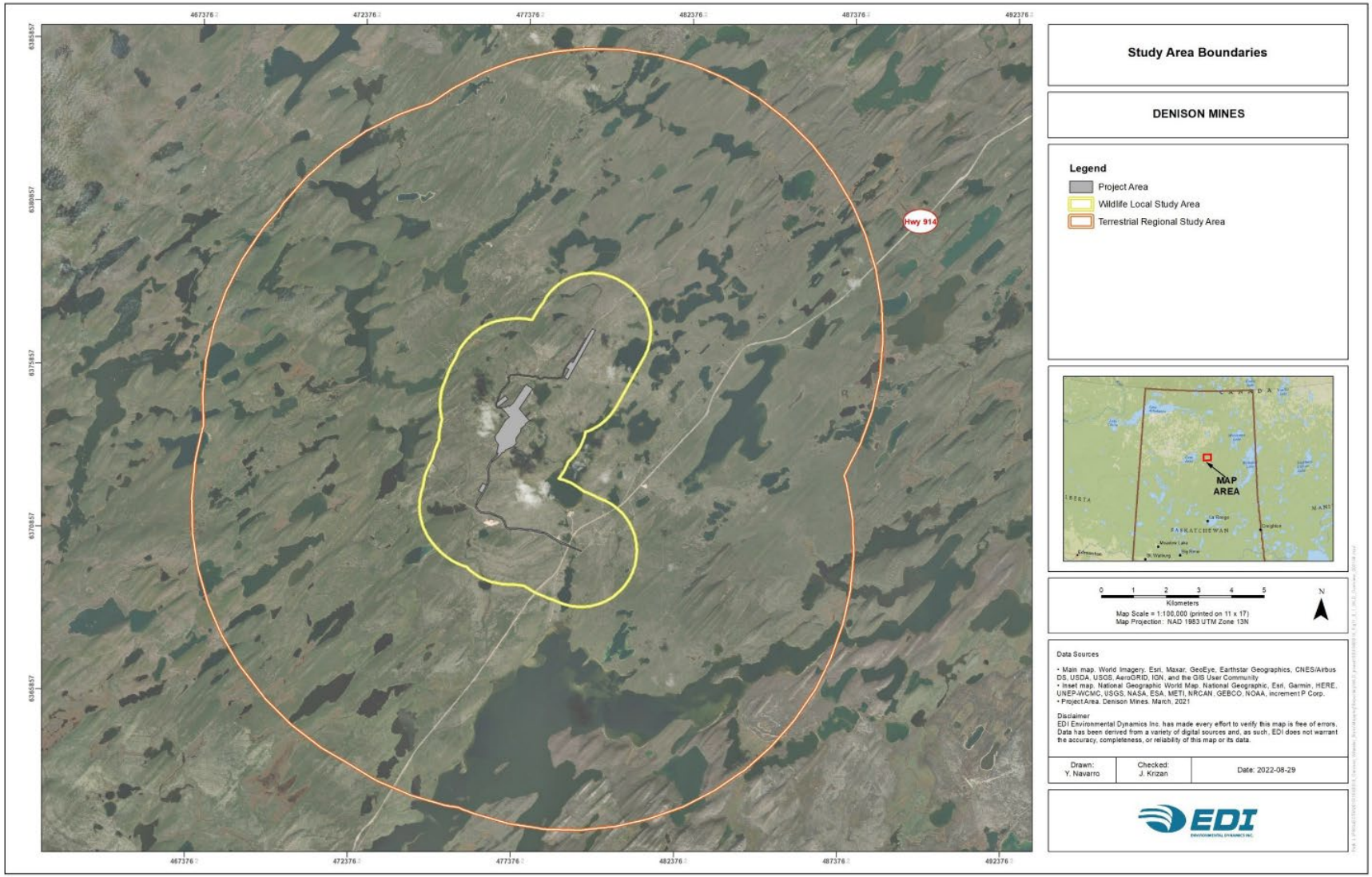


Figure 3-10 Study Area Boundaries for Wildlife Valued Components

Mitigations

Denison has committed to several mitigation measures that apply to all terrestrial environment aspects and were considered in assessing potential Project and cumulative effects. Examples of these measures include:

- Minimizing the Project footprint as much as possible (the ISR mining plan eliminates the need for extensive underground mine development, open pits and large storage facilities for waste rock and tailings).
- Working within and integrating areas previously disturbed by exploration activity into the Project footprint to minimize habitat loss and alteration.
- Avoiding sensitive life-history windows, as well as times of the year when environmental factors are more difficult to manage (e.g., spring freshet) for clearing and major earth work activities.
- Applying suitable setbacks to sensitive areas where possible.
- Implementing progressive reclamation and revegetation of disturbed lands.
- Implementing pre-clearance wildlife sweeps to identify the presence of species and features of interest such as occupied nests or species at risk.
- Managing waste and hazardous materials to minimize environmental exposure and human-wildlife conflict.
- Implementing administrative controls (e.g., signage, speed limits) to prevent wildlife-vehicle collisions.
- Developing policies prohibiting employees and contractors from feeding, approaching or harassing wildlife.

Additional VC-specific mitigation measures are highlighted in the subsections that follow.

Monitoring

Management and monitoring plans related to the terrestrial environment have been proposed and will be developed as part of permitting and licensing under the Project EMS. Monitoring programs will be established to confirm the predictions made in the effects assessment, to evaluate the effectiveness of mitigation measures, to meet regulatory obligations and to allow for the continued evaluation of long-term trends at key locations. Additional VC-specific monitoring information is provided in the subsections that follow.

3.4.4.1.1 Terrain, Soil, and Organic Matter/Peat VC

The Terrain, Soil and Organic Matter/Peat VC was included in the assessment because Project activities have potential to affect terrain morphology and stability, soil quantity and quality and organic matter/peat quantity. These changes may affect land use, economic activity, biodiversity and biological function (i.e. ecosystem function and wildlife habitat) in proximity to the Project. The changes also have potential to affect cultural values of Indigenous groups, the public and other interested parties. In general, the primary Project activities with potential to affect the Terrain, Soil and Organic Matter/Peat VC relate to Project infrastructure development at the site.

Baseline conditions associated with the Terrain, Soil and Organic Matter/Peat VC were characterized using a combination of sources, including:

- Anthropogenic, fire and predictive ecosite mapping.
- Field sampling/ground truthing studies.
- A desktop review of available studies, historic surveys, and databases relevant to the Project Area (see Omnia 2020 and EDI 2021).

Landform types in the study areas are characteristic of the eastern Athabasca Basin region. Regional geomorphology is dominated by landforms associated with continental glaciation. The terrain is gently rolling and supports undeveloped forested uplands. The predominant mineral soils are Sandy Dystric Brunisols (Smith et al. 2011) with organic matter (soils and peats) limited to lowland areas associated with wetlands and waterbodies. Soil quality (metals, trace elements and radionuclides) reflects the undisturbed nature of the areas. Measured values were low and/or below soil quality threshold values for environmental and human health.

Project-related activities that could adversely affect the Terrain, Soil and Organic Matter/Peat VC are related to infrastructure development (e.g., plant site, borrow pits and effluent ponds, roads and ancillary features) involving surface land clearing and related earthworks. Such activities can change topography (slope, aspect and exposure) at the local scale, alter surface drainage patterns and increase surface erosion potential and can affect landscape stability. These effects will be mitigated through application of standard industry management practices. Potential Project-related effects resulting from emissions (e.g., atmospheric emissions of metals and/or radionuclides from the processing plant and fugitive dust emissions) and spills of hazardous materials (e.g., diesel) were also identified as having potential to affect local soil quality. Quantitative predictive analysis of changes to soil quality that could result from Project emissions indicated that any changes to soil quality will not exceed thresholds for the protection of ecological and human receptors.

Based on available information and understanding of past, present and reasonably foreseeable projects or activities within the RSA for the Terrain, Soil and Organic Matter/Peat VC, no potential for cumulative effects was identified.

The assessment predicted Project-related residual effects on the Terrain, Soil and Organic Matter/Peat VC indicated small and localized effects that will be partially reversible at decommissioning. Overall, these residual effects were deemed not significant. Similarly, cumulative effects were also deemed not significant because of the low potential for occurrence.

Monitoring during construction will be undertaken for the Terrain, Soil and Organic Matter/Peat VC group to confirm adherence to design plans, oversee soil salvage during land clearing and to assess soil quality at regular intervals during the operational phase.

3.4.4.1.2 Vegetation and Ecosystems, Listed Plant Species and Wetlands

The components of the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC were grouped together for effects assessment because they are interrelated and are linked to other VCs in similar ways. This VC was included in the effects assessment, as changes in these aspects may affect biodiversity, ecosystem function and maintenance of wildlife habitat. Environmental, socio-economic and cultural value was also ascribed to this VC group by Indigenous groups, the public and other IPs. It is further noted that during Denison's engagement on VC selection, participants emphasized that all environmental components are interconnected and vital for survival, for future generations, for traditional livelihoods and for human health.

Details regarding baseline terrestrial conditions are described in Omnia (2020) and EDI (2021). The Project is in the Wheeler Upland Landscape Area of the Athabasca Plain Ecoregion of Saskatchewan (Acton et al. 1998) and is characterized by minimal human activity. Upland jack pine and black spruce forests dominate the area. Wetland areas comprise up to 8.5% and 16.6% of the LSA and RSA, respectively. There are no wetlands within the RSA designated as Ramsar Wetlands of International Importance. Native plants traditionally harvested for cultural use, such as berries and medicinal plants, are common throughout the various vegetation communities and ecosystems within the RSA. One listed plant species, Alaskan clubmoss (*Diphasiastrum sitchense*), was observed during the surveys to the northwest of the LSA.

Project activities with potential to affect the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC involve site preparation and major earthworks associated with the development of the site and related infrastructure (e.g., clearing, leveling and grading) as well as construction, operation and decommissioning activities that may result in the introduction and/or proliferation of invasive plants, edge effects, changes to water quantity and quality and dust deposition.

The Vegetation and Ecosystems, Listed Plant Species and Wetlands VC is subject to direct effects from site preparation and earth works. The Project Area is approximately 170 ha and, for the purpose of the assessment, complete disturbance of that footprint was assumed. Most of this area is either the jack pine/blueberry/lichen and black spruce/blueberry/lichen upland forested ecosite or the jack pine/black spruce/feathermoss upland forested ecosite that together represent 83% of the available terrestrial habitat within the Project Area. Wetlands of all types occupy about 0.5 ha of the Project Area. No listed plant species have been recorded in the Project Area to date. Direct Project effects will be mitigated through measures identified above.

Indirect effects on the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC group could occur for several reasons including:

- Introduction and proliferation of invasive species in disturbed areas.
- Development of edge effects that create altered microhabitat conditions (e.g., light intensity, temperature, wind, moisture, relative humidity and patterns of snow accumulation) at the interface of disturbed areas and native ecosystems.
- Exposure to Project-related emissions (atmospheric or water-borne).

Such effects will be mitigated through proactive management of invasive plants, minimizing disturbance of natural habitats that create edge habitat and management of Project emissions. Past, present and reasonably foreseeable projects or activities within the RSA have potential to contribute to cumulative effects on the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC. The activities considered include maintenance of existing infrastructure in the RSA (roads, transmission lines), mineral exploration and other localized land uses (Indigenous or recreational land use) which may involve vegetation clearing, edge effects, fugitive dust emissions and which contribute to the introduction and/or proliferation of invasive plants.

Overall, the assessment predicted small and localized Project-related residual effects on the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC. Based on the abundance of similar features on the regional landscape and the ability to partially reverse any effects at decommissioning, these residual effects were deemed to be not significant. Similarly, cumulative effects were also deemed not significant based on the relative scale of such effects on a regional basis.

Monitoring specific to the Vegetation and Ecosystems, Listed Plant Species and Wetlands VC include:

- Pre-construction listed plant surveys targeting ecosites within the Project Area that have not been surveyed or that have high potential to support listed plants (e.g., Alaskan clubmoss).
- Routine monitoring of vegetation and invasive plants through the life of the Project.
- Soil monitoring during salvaging and stockpiling activities.
- Progressive reclamation and revegetation of disturbed areas that will be monitored in accordance with the decommissioning plan.
- Monitoring to understand uptake of COPCs in plants.

3.4.4.1.3 Ungulates, Furbearers and Woodland Caribou

The Ungulates, Furbearers and Woodland Caribou VC group was included in the effects assessment based on the likelihood of interaction with the Project and potential to affect biodiversity and ecosystem function. This VC also contributes to environmental, socio-economic and cultural values as expressed by Indigenous communities and other IPs through engagement activities.

Baseline conditions associated with the Ungulates, Furbearers and Woodland Caribou VC were characterized using a combination of sources including desktop review of available studies, historic surveys and databases relevant to the study areas and targeted field sampling/ground truthing studies to confirm existing information and fill data gaps, highlighted as follows:

- Ungulates were represented by moose (the key indicator). Moose are highly valued by subsistence and sport hunters and are an important cultural species for Indigenous peoples (SK MOE 2019a). The Saskatchewan Conservation Data Centre (SK CDC) has assigned moose an S5 status (Secure/Common: demonstrably secure under present conditions; widespread and abundant; low threat level) (SK CDC 2021); moose are not protected by federal or provincial regulations. Surveys were conducted in the LSA and RSA confirming moose presence and the suitability of various habitats.
- Furbearers were represented by several species (key indicators), including wolverine, pine marten, mink and muskrat. Of these, only wolverine is protected. Wolverine is listed as Special Concern by COSEWIC (COSEWIC 2014) and under the SARA (ECCC 2021), and the SK CDC has assigned wolverine a status of S2 (Imperiled/Very Rare: at high risk of extinction or extirpation due to a very restricted range, very few populations, steep declines, threats or other factors). Surveys were conducted in the LSA and RSA that confirmed the presence of pine marten, mink and muskrat and the availability of suitable habitat. Harvest reports demonstrate that the pine marten, mink and muskrat populations have been stable over the past 30 years. Muskrats are heavily trapped for fur and are the third most harvested species in the harvest management area where the Project is located. No indication of wolverine presence was detected during the baseline surveys.
- Woodland caribou were specifically included in the assessment of potential Project and cumulative effects given their status under provincial and federal legislation. Nationally, woodland caribou are listed under Schedule 1 of the federal SARA and by COSEWIC as Threatened (ECCC 2021), whereas provincially the SK CDC assigned the species a status of S3 (Vulnerable/Rare to Uncommon: at moderate risk of extinction or extirpation due to a restricted range, relatively few populations, recent and widespread declines, threats or other factors; SK CDC 2021). The Project site is in the SK1 Boreal Shield Woodland Caribou Management Unit, a largely undisturbed area affected primarily by natural fires over the past 40 years (ECCC 2020). The SK1 range supports Canada's only stable, self-sustaining caribou population with an

agreement to maintain at least 40% undisturbed habitat (ECCC 2024). Surveys conducted in the RSA confirmed the presence of woodland caribou and availability of suitable habitat. No distinct calving areas have been documented within the SK1 range, but caribou may use open fen and treed bog habitat types for calving during the spring/summer period.

Project-related activities in all phases have potential to adversely affect the Ungulates, Furbearers and Woodland Caribou VC group, though effects would be expected to diminish during post-decommissioning as activity subsides and habitat regeneration progresses in reclaimed areas. The mode of Project effects is generally seen as being similar across the representative species. Loss of and changes to habitat and habitat quality resulting in the displacement of these species from the landscape would occur through development of the Project footprint and Project activities, edge effects that alter environmental conditions, sensory effects of Project-related noise (e.g., vehicles, equipment and aircraft) and emissions (e.g., air emissions from the processing plant, fugitive dust). Mortality risks could accrue from direct interactions such as vehicle collisions and indirect effects such as increased predator or hunter access, stress and apparent competition. Such effects will be mitigated by implementation of the measures identified above. Concerning woodland caribou, targeted additional mitigations will be implemented. A Draft Caribou Mitigation Plan was offered as part of the EIS submission and the plan will be updated and submitted to the provincial and federal governments ahead of the start of construction. Though the level of disturbance in the SK1 Caribou Management Unit is below the thresholds at which population sustainability is compromised, Denison plans to conduct additional mitigation through offsetting as part of the mitigation plan.

Cumulative effects from the Project, in combination with other past, current and reasonably foreseeable developments were considered. Activities with potential to contribute to cumulative effects were of relatively small scale and included, for example, maintenance of existing infrastructure in the RSA (roads and transmission lines), mineral exploration and other localized land uses (Indigenous or recreational land use). Such activities could contribute to habitat alteration or loss, increased mortality risk from vehicle traffic, increased predator access and sensory disturbances at the regional scale. The magnitude of potential cumulative effects from the Project and other activities was considered minor overall, as the associated disturbance is relatively small on the regional landscape. Although species such as woodland caribou and wolverine are recognized as conservation priorities, cumulative effects are not expected to compromise the sustainability or ecological function of their regional populations.

The assessment of Project-related effects on the Ungulates, Furbearers and Woodland Caribou VC concluded that residual Project effects related to habitat alteration and/or loss will be low to moderate in magnitude and local in scale, while residual Project effects related to a change in mortality will be low in magnitude and regional in scale. All residual Project effects are expected to be reversible through decommissioning activities. It was further concluded that the residual Project effects were not significant. Similarly, cumulative effects were also deemed to be not significant.

As it concerns the Ungulates, Furbearers and Woodland Caribou VC, monitoring will include tracking wildlife movement around and interactions with the Project site. Targeted caribou monitoring will be developed within the Caribou Mitigation Plan.

3.4.4.1.4 Raptors, Migratory Breeding Birds and Bird Species at Risk

The Raptors, Migratory Breeding Birds and Bird Species at Risk VC was included in the effects assessment based on the group's contribution to biodiversity and ecosystem function, as well as its contribution to environmental, socio-economic and cultural values as expressed by IPs through engagement activities.

Baseline conditions associated with the Raptors, Migratory Breeding Birds and Bird Species at Risk VC were characterized using a combination of sources including desktop review of available studies, historic surveys, databases relevant to the study areas and targeted field sampling/ground truthing studies to confirm existing information and fill data gaps, highlighted as follows:

- Raptors were represented by Bald Eagle and Osprey. Aerial surveys of lakes, streams and wetlands recorded Bald Eagle and Osprey activity. For Bald Eagle, one active nest was found in the LSA and two were found in the RSA, with two adults observed at each of two nests and two chicks at the third. Several additional Bald Eagles were also observed throughout the LSA/RSA. For Osprey, three active nests were recorded within the RSA and one just outside it, with one to two adults at each nest. Several other Osprey were observed in the LSA/RSA.
- Migratory breeding birds were represented by waterbirds and waterfowl, upland game birds and migratory songbirds. The boreal forest of northern Saskatchewan supports a wide range of waterbirds and waterfowl, including three nesting guilds: upland ground nesters, cavity nesters and overwater nesters. Twenty confirmed and three unknown species of waterbirds and waterfowl were recorded in the LSA/RSA, with the most observed being Ring-necked Duck, Common Merganser, Common Loon and Mallard. Upland game birds in the LSA/RSA included Ruffed Grouse, Willow Ptarmigan, Spruce Grouse and Sharp-tailed Grouse. The region provides breeding and stopover habitat for numerous migratory songbirds, which occupy a wide range of habitats. Baseline surveys of breeding songbirds detected 36 species. The most common were Ruby-crowned Kinglet, Dark-eyed Junco, Canada Jay and Yellow-rumped Warbler.
- Bird SAR were represented by Bank Swallow (Threatened), Barn Swallow (Threatened), Common Nighthawk (Special Concern), Horned Grebe (Special Concern), Olive-sided Flycatcher (Special Concern), Rusty Blackbird (Special Concern), Short-eared Owl (Special Concern) and Yellow Rail (Special Concern). Baseline surveys detected Barn Swallow, Common Nighthawk, Horned Grebe, Rusty Blackbird and Olive-sided Flycatcher in the LSA. All these species except Horned Grebe were previously observed in the RSA.

Project-related activities associated with all Project phases may adversely affect the species representative of this VC group, though effects are expected to diminish during post-decommissioning as activity subsides and habitat regeneration advances in reclaimed areas. The mode of such effects is similar across the species represented in the VC. The main Project activities considered in the effects assessment include site preparation (i.e., clearing, grading and construction of roads, airstrip and surface infrastructure), operation (i.e., vehicle movement and material handling), water management (i.e., withdrawal/use of surface and/or groundwater and release of effluent), waste management (i.e., temporary storage, handling and off-site transportation) and reclamation (i.e., progressive and final reclamation of disturbed areas). Loss of and changes to habitat and habitat quality would result in the displacement of these species from the landscape at the Project Area scale, extending into the LSA. Such effects may occur through development of the Project footprint (e.g., clearing, grading and construction of site infrastructure, roads and airstrip). Interactions related to operation include edge effects that alter environmental conditions, sensory effects related to Project-related noise (e.g., vehicles, equipment and aircraft) and emissions (e.g., air emissions from the processing plant, fugitive dust). Mortality risks could

result from direct interactions such as entrapment in enclosed spaces, collisions with vehicles, equipment, buildings, windows and aircraft, and collisions with power transmission lines/energized equipment. Mortality risks can also accrue from indirect effects such as nest failure or abandonment caused by sensory disturbance, changes in predator-prey dynamics or increased public access.

Cumulative effects from the Project, in combination with other past, current and reasonably foreseeable developments were considered. Project activities that could contribute to cumulative effects were of relatively small scale and included maintenance of existing infrastructure in the RSA (roads, transmission lines), mineral exploration and other localized land uses (Indigenous or recreational land use). Such activities could to some degree contribute to habitat alteration or loss, increased mortality risk from direct and indirect means and sensory disturbances at the regional scale. Potential cumulative effects from the Project and other activities were considered minor overall, as disturbances related to the identified activities is relatively small on the regional landscape, with total human impacts remaining below thresholds of concern. Although several bird species are recognized as conservation priorities, cumulative effects are not expected to compromise the sustainability or ecological function of their regional populations.

Based on the assessment of Project-related effects on the Raptors, Migratory Breeding Birds and Bird Species at Risk VC, it was concluded that residual effects related to habitat alteration and/or loss will be low to moderate in magnitude and local in scale, while residual Project effects related to a change in mortality will be low in magnitude and regional in scale. All residual Project effects are expected to be reversible through decommissioning activities. It was further concluded that the residual Project effects were not significant. Similarly, cumulative effects were of relatively small scale on a regional basis and deemed to be not significant.

As it concerns the Raptors, Migratory Breeding Birds, and Bird Species at Risk VC, targeted monitoring will include:

- Pre-construction nest surveys which will be conducted prior to any vegetation clearing or soil disturbance.
- Routine monitoring of avian species throughout the life of the Project.
- Monitoring avian mortalities related to avian use of waste and water facilities, vehicle collisions and transmission line collisions.
- Monitoring progressive reclamation and revegetation of disturbed areas in accordance with the Reclamation and Closure Plan.

3.4.4.1.5 Arthropod, Amphibian and Bat Species at Risk

The six species in this VC group included three arthropods (Nine-spotted Lady Beetle [Endangered], Transverse Lady Beetle [Special Concern], Yellow-banded Bumble Bee [Special Concern]), one amphibian (Northern Leopard Frog [Special Concern]) and two bat species (Little Brown Myotis [Endangered] and Northern Myotis [Endangered]). All these species have potential to occur in all study areas. These species were included in the effects assessment based on the likelihood of interaction with the Project and their contributing roles to biodiversity and ecosystem function, as well as their status under federal legislation.

Baseline conditions associated with the six species at risk were characterized using a combination of sources including desktop review of available studies, historic surveys, databases relevant to the study areas and targeted field studies (northern leopard frog and for the bat species), highlighted as follows:

- COSEWIC reports that the current ranges of the Nine-spotted Lady Beetle (COSEWIC, 2016a), Transverse Lady Beetle (COSEWIC, 2016b), and Yellow-banded Bumble Bee (COSEWIC 2015) coincide with the LSA. There have been no observations of any of the three species reported in SK CDC, and no Project-specific observations to date.
- Amphibian nocturnal call and visual search surveys completed in the LSA and RSA indicated no Northern Leopard Frog observations. This result is consistent with data reported in SK CDC.
- Both bat species were documented as being present in the LSA and RSA during the acoustic bat surveys as part of the baseline field program. Little Brown Myotis was previously observed in the RSA (SK CDC 2023). Consideration of potential for habitat use of these two species was also provided in the EIS to gauge the likelihood of habitat use within the Project Area in particular, and within the LSA and RSA more generally. The only potential habitat associated with hibernacula and maternal roosting sites within the Project Area (as representing the wider landscape) includes large diameter trees. Ecosites with sufficiently large diameter trees represent about 49 ha of the 170 ha associated with the Project Area. Based on observation, the majority of these ecosites have trees with diameter at breast height of less than 10 cm and would not be suitable as hibernacula and maternal roosting sites.

Project-related activities associated with all Project phases have potential to adversely affect the six species at risk through direct and/or indirect pathways, though effects are expected to diminish during post-decommissioning as activity subsides and habitat regeneration progresses in reclaimed areas. Loss of and changes to habitat and habitat quality would result in the displacement of these species from the landscape. Such effects would occur through development of the Project footprint and could occur because of edge effects that alter environmental conditions, sensory effects related to Project-related noise (e.g., vehicles, equipment, aircraft) and emissions (e.g., air emissions from the processing plant, fugitive dust). Footprint effects will be limited to the Project Area whereas edge effects and effects from sensory disturbance will extend into the LSA. Mortality risks could accrue from direct interactions such as vehicle/equipment collisions.

Cumulative effects from the Project, in combination with other past, current and reasonably foreseeable developments were considered. Activities with potential to contribute to cumulative effects were of relatively small scale and included, for example, maintenance of existing infrastructure in the RSA (roads, transmission lines), mineral exploration and other localized land uses (Indigenous or recreational land use). Such activities could to some degree contribute to habitat alteration or loss, increased mortality risk from direct and indirect means, and sensory disturbances at the regional scale. Potential cumulative effects from the Project and other activities were considered minor overall, as disturbance with the identified activities is relatively small on the regional landscape, with total human impacts remaining below thresholds of concern. Despite all the six species being recognized as conservation priorities, cumulative effects are not expected to compromise the sustainability or ecological function of their regional populations.

Based on the assessment of Project-related effects on the six species at risk it was concluded that residual Project effects will be low to moderate in magnitude, local in scale and reversible through decommissioning activities. It was further concluded that the residual Project effects were not significant. Similarly, cumulative effects were relatively small scale on a regional basis and deemed to be not significant.

As it concerns the six species at risk, targeted monitoring will include:

- Pre-clearance surveys of breeding ponds for amphibians and of roosting sites and hibernacula for bat species, which will be conducted prior to any vegetation clearing or soil disturbance.
- Tracking species at risk movement around and interactions with the Project site.
- Monitoring species at risk mortalities related to avian use of waste and water facilities, vehicle collision, and transmission line collisions.
- Monitoring progressive reclamation and revegetation of disturbed areas in accordance with the Reclamation and Closure Plan.

3.5 The Wheeler River Project is Protective of the Human Environment

Project effects on the Human Environment were assessed in the categories of:

- Human health.
- Land and resource use.
- Quality of life.
- Economics.

Each topic was assessed using VCs selected through engagement with Indigenous groups, local communities, government agencies and the public. The assessment considers both potential adverse effects and potential benefits and was informed by IK, LK and baseline data. Together, these sections reflect Denison's commitment to minimizing effects and maximizing Project benefits to the human environment.

3.5.1 Human Health

The human health assessment considered both a Human Health VC and a Worker Health and Safety VC. The assessment of potential effects on the Human Health VC was supported by a human health risk assessment and an ecological risk assessment (described collectively as ERA). The assessment of potential effects on the Worker Health and Safety VC was supported by a predictive assessment of worker exposure to radiation.

3.5.1.1 Human Health VC

Project activities have potential to affect human health and safety through direct exposure to constituents of potential concern (COPCs) released to air or water, and through indirect exposure to COPCs in soil, sediment and food sourced from fish, wildlife and plants. Human health is important to Denison and was identified as important through engagement with Indigenous and local communities.

The spatial boundaries defined for the Human Health VC were the Project Area (area within which the Project and all components/activities were located), the LSA (area where Project-related changes in COPC concentrations in environmental media will likely occur) and the RSA (area within which cumulative effects may occur) as shown in Figure 3-11.

The temporal boundaries for the assessment included all Project phases, as well as the future-centuries scenario that reflects the period over which residual COPC transport downgradient of the mining zone after decommissioning and interactions between groundwater and surface water are likely to occur. The

human health screening identified the following COPCs for further assessment in the human health risk assessment: chloride, sulphate, arsenic, cadmium, chromium, cobalt, copper, molybdenum, selenium, uranium, vanadium, zinc, Th-230, Ra-226, Pb-210, and Po-210. Physical stressors such as noise were also considered.

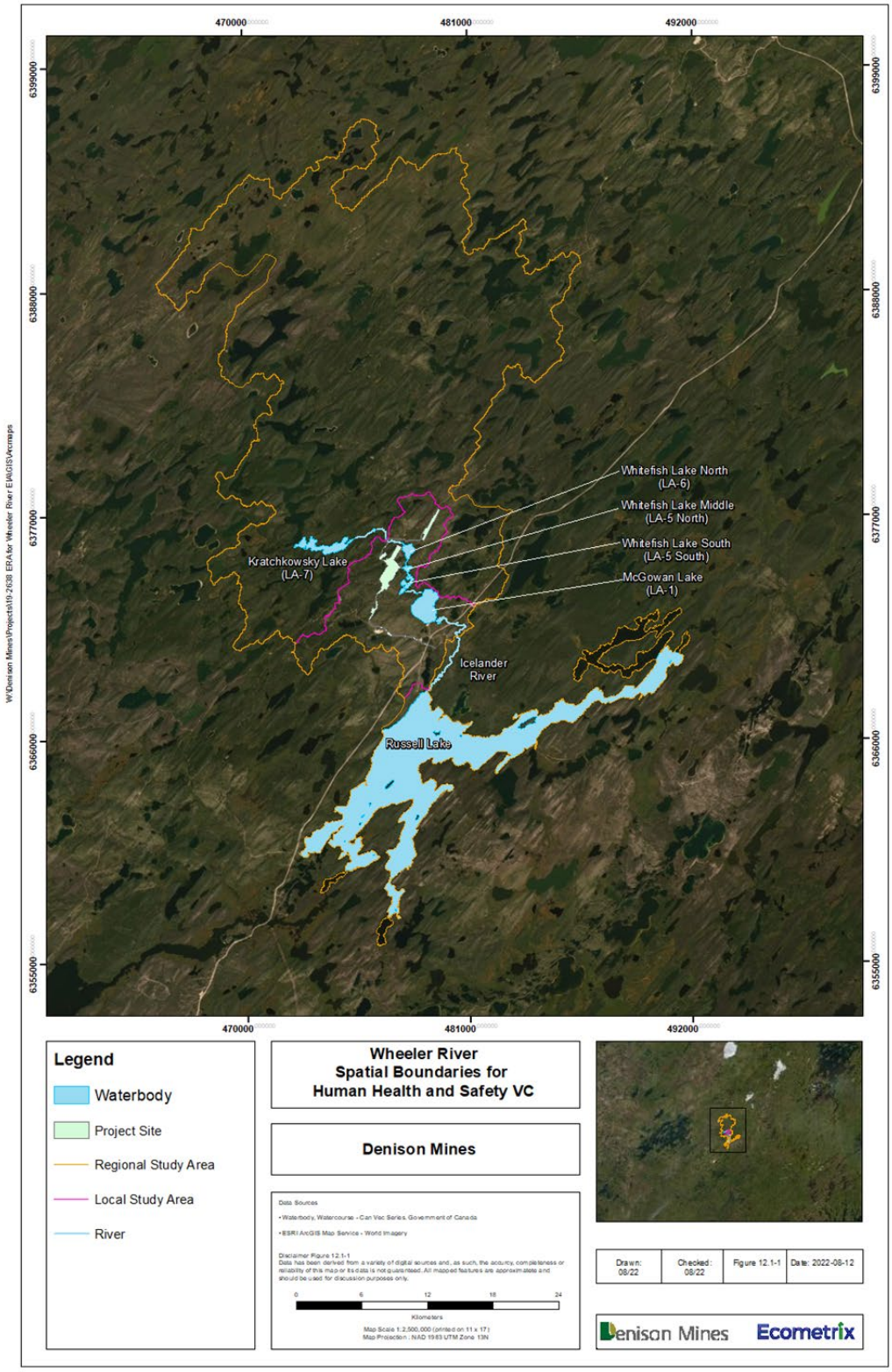


Figure 3-11 Study Area Boundaries for Human Health Valued Component

The ERA focussed on chemical and radiological exposure pathways[4] and was completed in compliance with Canadian Standards Association Group (CSA) N288.6-22 *Environmental Risk Assessments for Nuclear Facilities and Uranium Mines and Mills* (CSA 2022). It also met the ERA requirements outlined in Section 4.1 of Regulatory Document-2.9.1, *Environmental Principles, Assessments and Protection Measures* (CNSC 2020b). The process by which the HHRA component of the ERA was completed is highlighted in Figure 3-12.

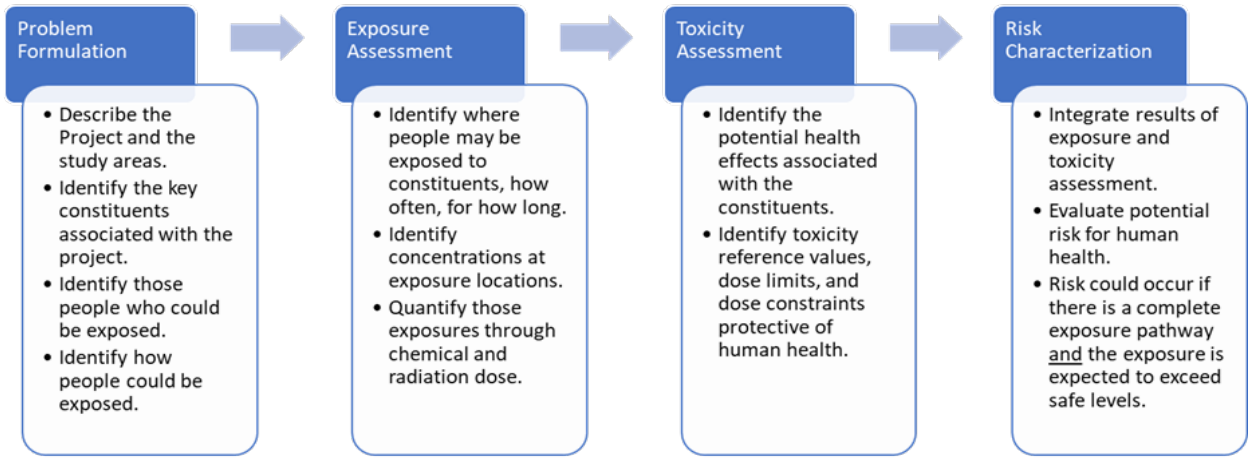


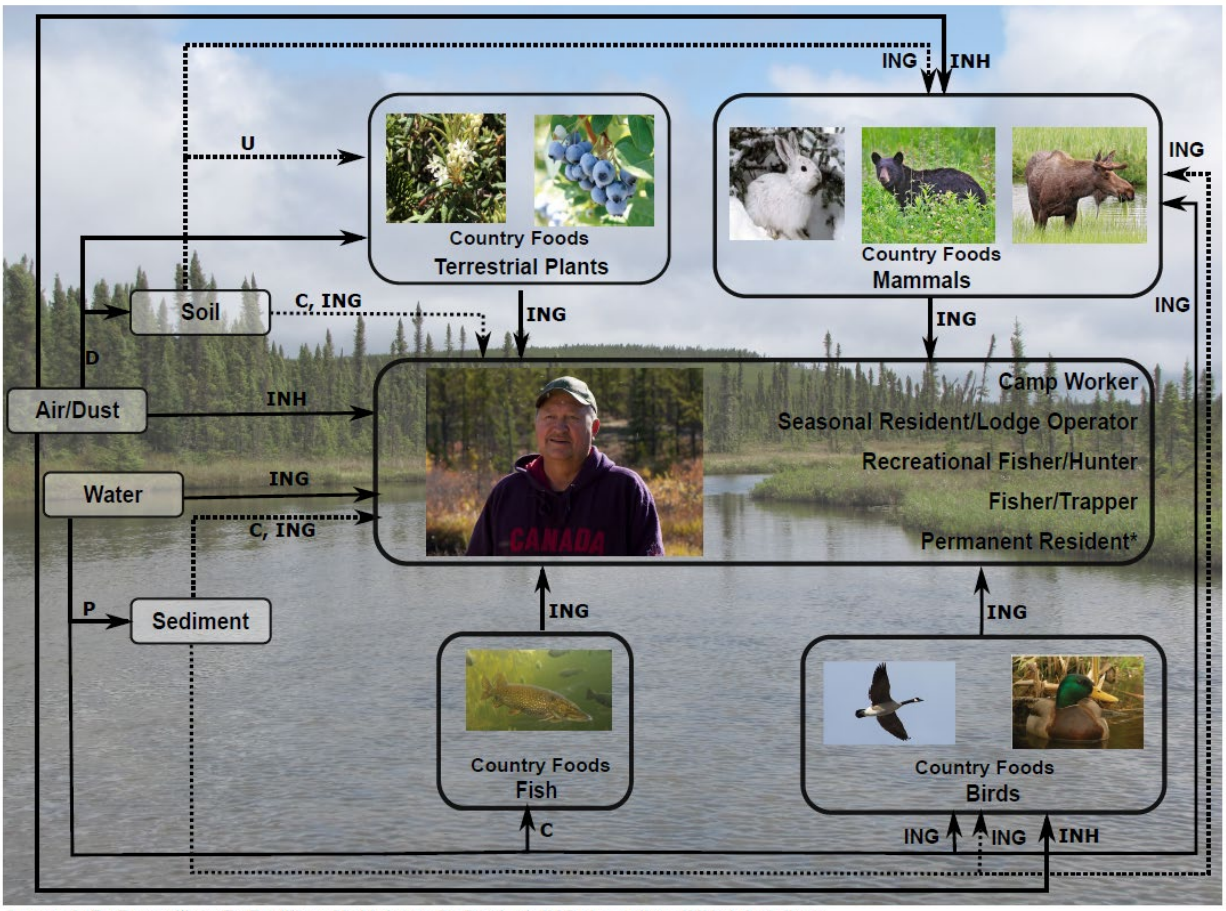
Figure 3-12 Human Health Risk Assessment Process

The assessment of human health in the HHRA focused on a number of human receptors, including:

- A camp worker present on site during all Project phases.
- A seasonal resident present during all Project phases.
- A recreational fisher/hunter present during all Project phases.
- A fisher/trapper present during all Project phases.
- A future permanent resident during future centuries.

The human health conceptual model shown in Figure 3-13 illustrates how receptors are exposed to COPCs. It represents the relationship between the source and receptors by identifying the source of constituents, the receptors and the exposure pathways to be considered in the assessment for each receptor. Exposure pathways represent the various ways that radionuclides and/or chemicals may enter the body of the receptor. For radionuclides, the source may exert effects from outside the body. The country food pathway is a key consideration for the potential exposure of all human receptors. To ensure the country food pathway was represented appropriately, Denison used an existing ERFN country foods study (CanNorth 2017), plus engagement with the ERFN Trapper (who has since passed away) to gain dietary information on what kinds and quantities of country foods are eaten.

[4] Physical pathways that may be associated with risks to human and/or ecological receptors associated with the Project were considered in other components of the EIS as appropriate.



Legend: D: Deposition; **P:** Partition; **U:** Uptake; **C:** Contact; **ING:** Ingestion; **INH:** Inhalation;
→ Exposure pathway from primary media; ⇢ Exposure pathway from secondary media.

* Human Receptors are assumed to be present during all project stages, except the Permanent Resident who is assumed to be present during future centuries.

Figure 3-13 Human Health Conceptual Site Model for the Project Human Health Risk Assessment

The software used for the exposure pathways analysis and for calculation of radiological doses was IMPACT Version 5.6.0, which is consistent with federal standards and guidance, including CSA N288.1-20 (CSA 2020) and CSA N288.6-22 (CSA 2022). The HHRA estimated dose and risk to all human receptors during all Project phases, as well as in the future-centuries scenario. For non-cancer-causing substances (non-carcinogens), the risk was measured as a total or incremental hazard quotient (HQ[5]), with predictive HQs compared to a benchmark value of 0.2 following Health Canada guidelines (2021). For cancer-causing substances (carcinogens), the risk of developing cancer over a lifetime (the Incremental Lifetime Cancer Risk, ILCR) was estimated and compared to Health Canada's recommended risk level of one in 100,000 (Health Canada 2021). Predicted incremental radiation dose to human receptors was compared to the regulatory public dose limit of 1 mSv/yr and the dose constraint of 0.3 mSv/yr.

Key results from the HHRA as it concerns the Human Health VC were as follows:

[5] A hazard quotient is the ratio of the estimated exposure to a substance and the level at which no adverse effects are expected.

- The Project incremental HQ was predicted to remain below 0.2 for human receptors for all non-carcinogens and all pathways during all phases of the Project as well as the future-centuries scenario, except for selenium for the fisher/trapper at Russell Lake from the fish ingestion pathway. Increased risk (HQ>0.2) was predicted for the fisher/trapper based on consumption of fish exclusively from Russell Lake. Note that consumption of fish exclusively from Russell Lake does not reflect expected consumption patterns of a typical fisher/trapper who would source fish from multiple locations. For reference, during an engagement meeting on March 26, 2025, EFRN confirmed that the overall consumption rates for the fisher/trapper receptor used in the EIS was representative of the maximum consumption rate of traditional foods. For the assessment of carcinogens (arsenic), the ILCR was estimated and compared against the cancer risk level of one in 100,000 recommended by Health Canada (2021). The ILCR was predicted to remain below the negligible cancer risk level of one in 100,000 for the camp worker, the recreational fisher/hunter, and the seasonal resident during the Project phases, as well as for all human receptors in the future-centuries scenario. The ILCR was predicted to be essentially equal to the negligible cancer risk level of one in 100,000 for the adult fisher/trapper at Russell Lake – as above, the higher predicted risk for the fisher/trapper was a function of the high rate of consumption at Russell Lake, whereas a typical fisher/trapper would source fish from multiple locations.
- The incremental radiation dose to all human receptors during all Project phases including the future-centuries scenario is predicted to be below the regulatory public dose limit of 1 mSv/yr and the dose constraint of 0.3 mSv/yr. The maximum incremental radiological dose is predicted to be 0.06 mSv/yr to the fisher/trapper at Russell Lake. The maximum incremental dose to the camp worker from all radionuclides in the U-238 decay chain including radon would be 0.16 mSv/year, which is below the dose limit for a non-nuclear energy worker (NEW) of 1 mSv/yr. As the radiation dose estimates will be below the public dose limit, no discernable health effects are anticipated because of exposure of these receptors to radioactive releases from the Project.

Potential cumulative effects on the Human Health VC from existing uranium mines and mills in the RSA (Cigar Lake, Key Lake [including the Key Lake Extension Project] and McArthur River operations) and reasonably foreseeable projects and activities were assessed. Potential pathways for cumulative effects were related to air emissions and effluent. The assessment determined that air emissions and effluent from other operations and reasonably foreseeable projects and activities will not overlap spatially with the Project – that is, there would not be an exposure pathway to human receptors, including local resources users as depicted in the HHRA, representing the combined effects of the air emissions and effluent. In consideration of this, it was concluded that any cumulative effects will not be significant.

Based on the assessment of Project-related effects on the Human Health VC, it was concluded residual Project effects were not significant. Proposed management and monitoring plans will be developed as part of permitting and licensing under the Project EMS and will be used to verify model predictions in the EIS and to inform regular ERA updates as required by the CNSC.

3.5.1.2 Worker Health and Safety VC

The Worker Health and Safety VC was used to assess potential Project effects on workers from direct and indirect exposure to radiation during all Project phases. Conventional workplace hazards are managed through a health and safety plan in compliance with federal and provincial legislation and are expected to

be negligible. The Worker Health and Safety VC was assessed within the Project Area where worker exposures will occur. The Worker Health and Safety VC is likely to interact with the Project during construction, operation and decommissioning. The post-decommissioning phase was not considered applicable to the assessment, as workers are not likely to be present during this period.

As part of the assessment, radiation exposure scenarios were identified based on work sequencing associated with activities during construction, operation and decommissioning. The activities assessed by phase included:

- Construction:
  - ISR Wellfield and freeze hole drilling (wellfield and freeze hole drillers).
- Operations:
  - Operation of the ISR wellfield (wellfield operators and workers)
  - ISR wellfield- and freeze-wall drilling (wellfield and freeze hole drillers)
  - Operation of the processing plant and production of uranium concentrate (plant operators and workers; maintenance workers)
  - Storage and disposal of drill cuttings, process precipitates and industrial wastewater treatment (geologists, geotech loggers and equipment operators); packaging and transport of nuclear substances (plant workers and truck drivers).
- Decommissioning:
  - Site water management, treatment and release (water management workers and equipment operators)
  - Mining horizon remediation and thawing of freeze wall (wellfield workers)
  - Remediation of contaminated areas: wellfield, pads, ponds, domestic wastewater treatment location and process plant area (remediation workers)

Predictive modelling according to regulatory standards for primary exposure pathways (dose from dust inhalation, dose from radon inhalation, dose from gamma radiation) was used to determine individual pathway and cumulative radiation dose for all workers associated with the Project activities described above. The predicted doses were compared to the dose limits prescribed in The Radiation Protection Regulations (Government of Canada 2021) under the Nuclear Safety and Control Act.

The results of the predictive assessment indicated that potential effects on worker health and safety as the result of radiation exposure were expected to be negligible for all worker scenarios. The predicted radiation doses were less than the annual allowable effective dose of 20 mSv/yr (ranged from 0.16 mSv/yr for a well field operator up to 14.88 mSv/yr for a plant operator). Radon was predicted to be within the range of 3.9 Bq/m*3* to 1,180 Bq/m*3* for all receptors, which is well within the range considered by Health Canada (2014) to be manageable under a Radiation Protection Program (RPP). Denison will implement an RPP, which is a worker health and safety plan specifically for radiation exposures. The RPP designates the roles and responsibilities of Denison staff and contractors, specifies radiation dose limits, action levels and administrative levels, describes procedures to monitor and manage worker exposures (dust and radon monitoring, personal dose monitoring) and describes processes for staff training and record-keeping. Successful implementation of the RPP, in conjunction with in-design measures, is key to keeping worker radiation exposures as low ALARA during all phases of the Project.

Potential cumulative effects on the Worker Health and Safety VC were considered in the assessment. No existing or reasonably foreseeable projects or activities with potential to contribute to workers' radiation

exposure were identified. As such, no potential cumulative effects were identified. Based on the assessment of Project-related effects on the Worker Health and Safety VC, it was concluded residual Project effects were not significant. Similarly, it was concluded that cumulative effects will not be significant.

Management and monitoring plans have been proposed and will be developed as part of permitting and licensing under the Project EMS. Monitoring of radiation exposure to workers in all phases of the Project is a key component of the RPP. In accordance with the RPP, workers who have a reasonable likelihood of exceeding an effective dose of 1 mSv/yr are classified as nuclear energy workers (NEW), and are subject to personal dose monitoring, reporting and information requirements under the Radiation Protection Regulations (Government of Canada 2021). Licensees are required to use a dosimetry service that is licensed by the CNSC (LDS) to measure and monitor the doses received by NEWs who have a reasonable probability of receiving one or both of:

- An effective dose greater than 5 mSv in a one-year dosimetry period.
- An equivalent dose to the skin, or to the skin of the hands and feet, that is greater than 50 mSv in a one-year dosimetry period.

All workers are required to wear personal dosimeters, measured at regular intervals of three months. Dosimetry monitoring documents worker exposures to radiation and demonstrates compliance with dose limits. Personal dosimeters measure external gamma exposure. Personal alpha dosimetry may be implemented in areas where exposure to uranium and decay products is increased. A bioassay program may be implemented to monitor internal exposure of workers with higher potential exposure to uranium and its progeny.

In addition to personal dose monitoring, area monitoring for gamma radiation, radon and/or radioactive dust in air will be performed in work areas where higher exposures are expected. This monitoring will provide information for estimating doses in these areas to facilitate safe work planning. Action levels and administrative levels for exposure will be defined, and monitoring data will be compared to these levels, to make sure that corrective action can be taken as needed to maintain worker doses ALARA.

3.5.2 Land and Resource Use

The Land and Resource Use assessment was organized around three VCs:

1. Indigenous Land and Resource Use (ILRU) including traditional or subsistence practices by Indigenous people including hunting and fishing, non-commercial trapping and gathering of herbs, roots, berries, plant medicines, food and firewood
2. Other Land and Resource Use (OLRU) including recreational and commercial use of resources, such as commercial trapping and fishing, lodge and outfitting services, ecotourism, forestry and mining under provincial licences or by resource allocation
3. Heritage Resources including archaeological and culturally significant sites.

The various phases of the Project have potential to affect the ILRU and OLRU VCs and their KIs: (i.e., resource availability for harvesting (terrestrial and aquatic resource availability and health of resources), availability of land and waters for resource use, perceived suitability of land and resources (aesthetic experience), perceived suitability of resources for safe use and quality of resources for consumption.

It is acknowledged that certain activities in each of these categories are pursued by the same individuals, as resource harvesters often pursue both traditional and commercial harvests simultaneously.

The Key Lake gate will continue operating for the foreseeable future, limiting general access to areas north of the Key Lake gate and along the road between Key Lake and McArthur River. Access beyond the Key Lake gate is restricted, although some resource users and members of ERFN are provided access to the Key Lake-McArthur River haul road if they are on the SK MOE list or have received a gate access pass. Denison will also restrict fishing by employees under provincial licences while on site or at the camp to avoid conflicts with other land users and will encourage only catch-and-release fishing. The assessment was informed by IK, LK and engagement activities with Indigenous communities. This input contributed to Denison's understanding of potential Project effects and is reflected in the conclusions and mitigation measures described in the EIS. The conclusions from the Human Health VC (Section 3.5.1.1) and the HHRA informed the assessment of Land and Resource Use as it relates to the perceived suitability of land and resources, including the safety and quality of resources for use.

3.5.2.1 Indigenous Land and Resource Use

The ILRU VC was defined in consultation with land users including ERFN, KML, YNLR, MN-S, Patuanak Métis Local #82, A La Baie Métis Local #21 and Sipishik Métis Local #37 through extensive engagement activities beginning in 2016 (Section 3.5.2). Other Indigenous communities interested in the project were also included in engagement through the technical review processes. Information provided by Indigenous communities was overlaid with Project activities and potential biophysical effects to identify interactions between the Project and the ILRU VC.

The spatial boundaries defined for ILRU include the:

- Project Area, in which all Project components/activities will be located. It is expected that all physical disturbances resulting from construction, operation, and reclamation activities will occur within this area. The project footprint is 1.69 km^2.
- Local Study Area, established to assess the potential effects of the Project on the environment. It is defined as the Project area plus the maximum combined extents of RSAs for other VCs with potential to affect Indigenous resource use. The area considers trapping and fishing areas that involve resource user travel through and adjacent to Project activities and includes the Key Lake and McArthur River operations. The LSA covers a total area of 2,620 km^2.
- Regional Study Area, established to assess potential, largely indirect effects of the Project over a wider area, also for cumulative effects. The RSA covers a total area of 29,754 km^2 and is defined as trapping blocks N-16 and N-18.

Figure 3-14 shows the Indigenous Land and Resource Use VC study areas.

The assessment focused on Indigenous land and resource use by communities identified by Denison through an extensive engagement process (Section 3.5.2).

The Project is within the Nuhtsiye-kwi Benéne of ERFN, the traditional territory of KML, the Nuhenéné of the Athabasca Denesųłiné communities and the homeland of the MN-S. Spatial data and mapping were provided from Indigenous communities and indicated that land and resource use by Indigenous communities often occurs close to their primary populated communities, although some uses are

documented in proximity to the Project footprint and surrounding areas including Russell Lake and along the Wheeler River. Russell Lake is located approximately 28 km downstream from the Project and the associated treated effluent discharge location in Whitefish Lake. Within the ILRU LSA, recorded uses include hunting sites (moose and woodland caribou), the gathering of plants for food or subsistence purposes, trapping of aquatic furbearers (including beaver and muskrat) and fishing (including Walleye, Northern Pike, Lake Trout, Lake Whitefish and Arctic Grayling). Proximal to the Project, many of the most recent uses were by an ERFN Trapper who passed away in 2022, prior to the filing of the EIS. Prior to his passing, this individual provided Denison with significant information in relation to land use activities in the Project footprint and in the general area. These uses are considered representative of future land use by the ERFN. Areas of importance to Indigenous communities include ERFN's cultural camp located at kilometre 160 (over 50 km south of the Project) and one of KML's cultural camps located at kilometre 67 (over 140 km south of the Project), along with documented uses on Russell Lake, proximal to the decommissioned Fox Lake Road in and areas south of the Key Lake Gate.

The Key Lake gate is located at kilometer 180 on Highway 914, over 30 km from the Project. Cameco controls access to areas beyond the Key Lake site for safety purposes. As a result, travel beyond the Key Lake Gate toward the Project site by vehicles other than all-terrain vehicles or snowmobiles is generally limited to lease holders (e.g., cabin owners) and some Indigenous communities.

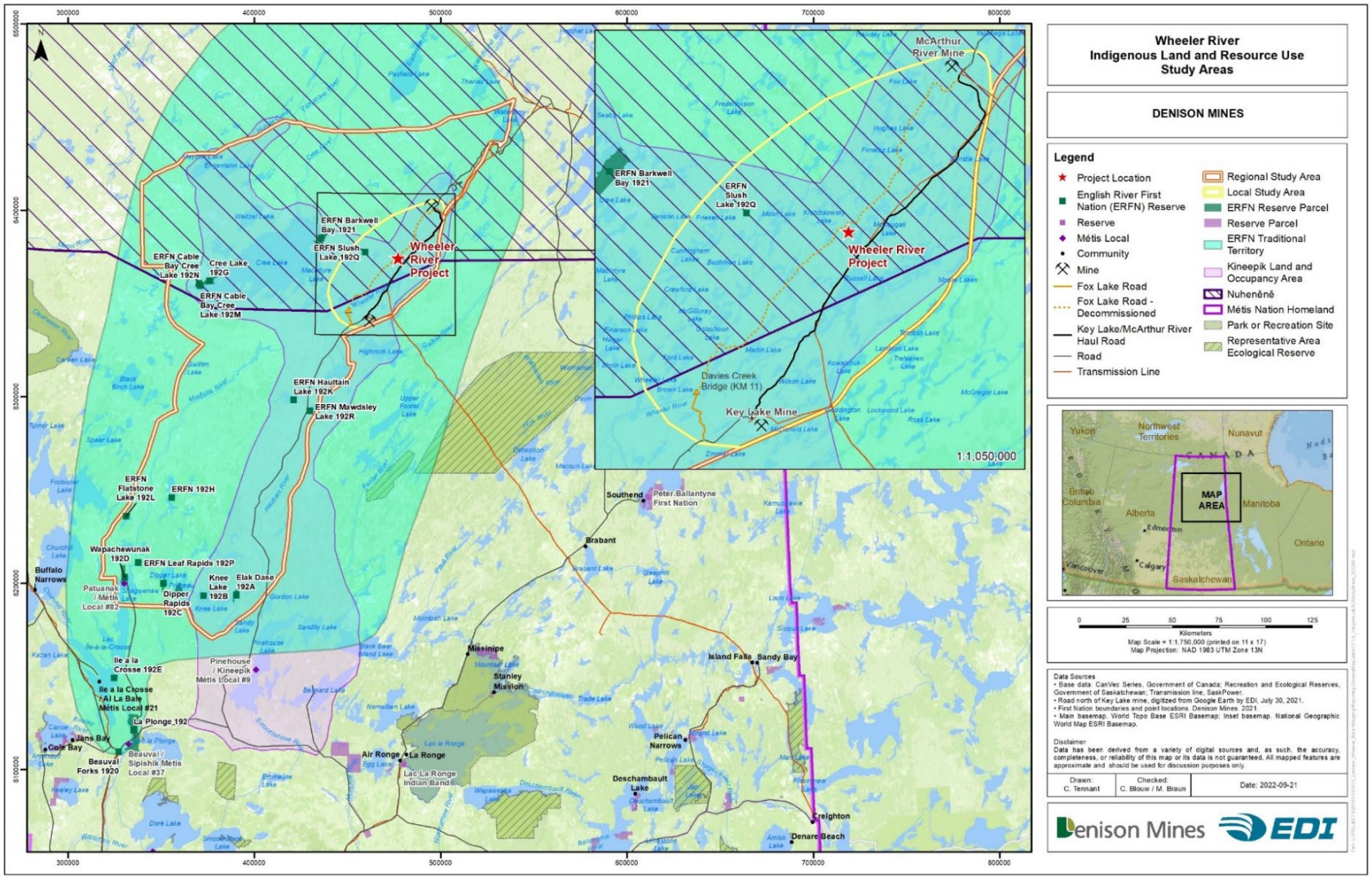


Figure 3-14 Indigenous Land and Resource Use Study Area

The assessment determined that the Project has potential to affect ILRU and its KIs through changes to:

- Resource availability for harvesting subsistence resources (terrestrial and aquatic resource availability and health of resources).
- Availability of land and waters for traditional practices.
- Perceived suitability of land and resources (aesthetic experience, safety and quality of resources for use).

Feedback received through engagement and the technical review process identified ILRU as incredibly important to communities, particularly around traditional harvesting, perceived safety of country foods and its contributions to cultural expression through land-based activities.

The KIs of resource availability, land and waters available for traditional practices, perceived suitability of land and resources for use and aesthetics were not carried forward to residual effects assessment. Mitigation of effects on these KIs is well understood and has been shown effective for existing operations in the area. Wildlife and fish are expected to remain in sufficient abundance to support traditional harvesting practices. The health of the resources is not expected to be affected, and the extent of lands and waters affected by the Project is minimized through design and the small Project footprint.

The Project is expected to have an adverse effect on the perceived suitability of the lands and resources for some users near the Project Area and on either side of local access roads and the haul road for the Key Lake and McArthur River operations. This effect is a result of the Project's existence, the introduction of a new mining method, generation of noise and dust, increased competition for resources and concern about exposure to contaminated water and soil. These effects are expected to vary by individual. Some resource users may continue activities and others may avoid areas near the Project. Denison has been working closely with Indigenous communities to develop ways to effectively communicate and share information more broadly to reduce avoidance of the area.

Several mitigation measures apply to ILRU, many of which relate to Project interactions with the biophysical environment and the resources on which ILRU activities rely. This includes Denison's selection of ISR mining, which results in a smaller surface disturbance than other uranium mining methods. Environmental protection plans to reduce noise, air emissions and the discharge of COPCs will also be implemented to minimize effects on the biophysical environment and resource use. Other measures include fencing and waste management practices to deter wildlife. Denison has committed to collaborating with several Indigenous communities to develop community-specific monitoring programs suited to the interests and needs of each and to share the results. Further, Denison will be the first uranium operation along Highway 914 to support participation in the Eastern Athabasca Regional Monitoring Program, providing transparent access to regional monitoring data related to broader potential impacts from activities in the region.

Overall, the assessment determined that the adverse effects on ILRU in the LSA are low in magnitude, limited in geographic extent and reversible. As a result, these residual effects are anticipated to be not significant.

Feedback received through engagement and the technical review process raised concerns about the cumulative effects from abandoned camps and industrial waste. These sites were included in the baseline conditions of the environmental assessment. Indigenous communities have noted that past mining activities, exploration and historical land disturbances have affected land users' ability to access and use land (ERFN and SVS 2022). Project effects are expected to interact with the residual effects of other projects and activities in the RSA because of spatial and temporal overlaps that result in potential

cumulative effects on ILRU. These effects are anticipated as a result primarily of the proposed Highway 914 extension project. With mitigation measures, the residual effects of the Project and the cumulative effects may result in increased competition, as additional resource users may access the area from locations further north. These cumulative changes could exacerbate perceptions of the area's suitability for continued Indigenous land and resource use.

Data from monitoring programs associated with the biophysical environment, including groundwater, air quality, noise and wildlife health will be shared with interested Indigenous communities as part of continuing engagement activities through all phases of the project. No additional monitoring or follow-up activities are proposed for ILRU VC.

3.5.2.2 Other Land and Resource Use

Other land and resource uses potentially affected by the Project include commercial and recreational activities including fishing, trapping, hunting, outfitting and ecotourism. Commercial trapping and commercial fishing are both conducted under licences granted by the Government of Saskatchewan, which can be held by both Indigenous and non-Indigenous peoples.

An extensive system of conservation fur blocks was established in the 1940s for the purpose of managing and conserving fur resources. Each fur block has a chairperson tasked with coordinating trappers within a fur block and participating in a co-management board with the Government of Saskatchewan. Chairpersons and members of a fur block are generally from the same community or Nation.

Fur blocks historically have been associated with a specific community or Nation. To be eligible, trappers must be Saskatchewan residents who hold a valid Fur Conservation Area Fur Licence, which is purchased annually. The fur industry has experienced volatility since the 1970s as prices have declined globally, while the cost of equipment and supplies has increased. Trapping continues to be a source of supplemental income for many, with efforts often targeted toward species with market value, such as marten. The Project is in the N-18 fur block, which is coordinated by the English River First Nation. Commercial trapping in the OLRU LSA was known to be conducted exclusively by the ERFN Trapper, who passed away prior to the time of filing the EIS. The late ERFN trapper is understood as representative of broader current and future ERFN land use, and the ERFN anticipates continued use of the area through future generations. Lease holders and cabin owners with land tenures are also situated near the Project.

Commercial fishing is similarly overseen by the Government of Saskatchewan, with a system of quotas that allocate weight and species limits for lakes as a means of managing resources. Within the OLRU LSA, Cree Lake (located approximately 120 km west of the Project) and 20 smaller lakes have been assigned quotas ranging from 500 kg to 4,100 kg for species including Walleye, Northern Pike and Lake Whitefish. These lakes were fished intermittently between the mid-1960s through the 1980s, with production tapering off between the late 1900s and the 2000s. Commercial fishing within the OLRU LSA was known to be conducted exclusively by the late ERFN trapper. The fishing patterns of the ERFN trapper in the LSA involved pulse fishing followed by a two-year fallow period on Russell Lake (approximately 28 km from the Project), Moore Lakes (approximately 12 km from the Project), Kratchkowsky Lake (approximately 14 km from the Project) and Moon Lake (approximately 31 km from the Project). The fishery targeted Walleye for its high market value, though Northern Pike, Lake Whitefish and Lake Trout were also caught. Russell Lake was commercially fished in 2024 for the first time since 2005 (Government of Saskatchewan 2021; 2025). Only one licence was issued for Russell Lake.

The current extent of commercial and recreational uses is limited by restrictions at the Key Lake gate, which limits access to those with a lease or a commercial licence, those who operate outfitting businesses and members from specific Indigenous communities.

The spatial boundaries defined for OLRU include:

- The Project Area, in which all Project components/activities will be located. It is expected that all physical disturbances resulting from construction, operation and reclamation activities will occur within this area.
- The LSA, established to assess the potential effects of the Project on the environment. The LSA is defined as the Project area plus the maximum combined extents of RSAs for other VCs with potential to affect resource use. The area considers trapping and fishing areas that involve resource user travel through and adjacent to Project activities.
- The RSA, established to assess the potential, largely indirect effects of the Project over a wider area, as well as cumulative effects. The RSA is defined as trapping block N-18 and the footprint of the Key Lake Mine.

Figure 3-15 shows the Other Land and Resource Use VC study areas.

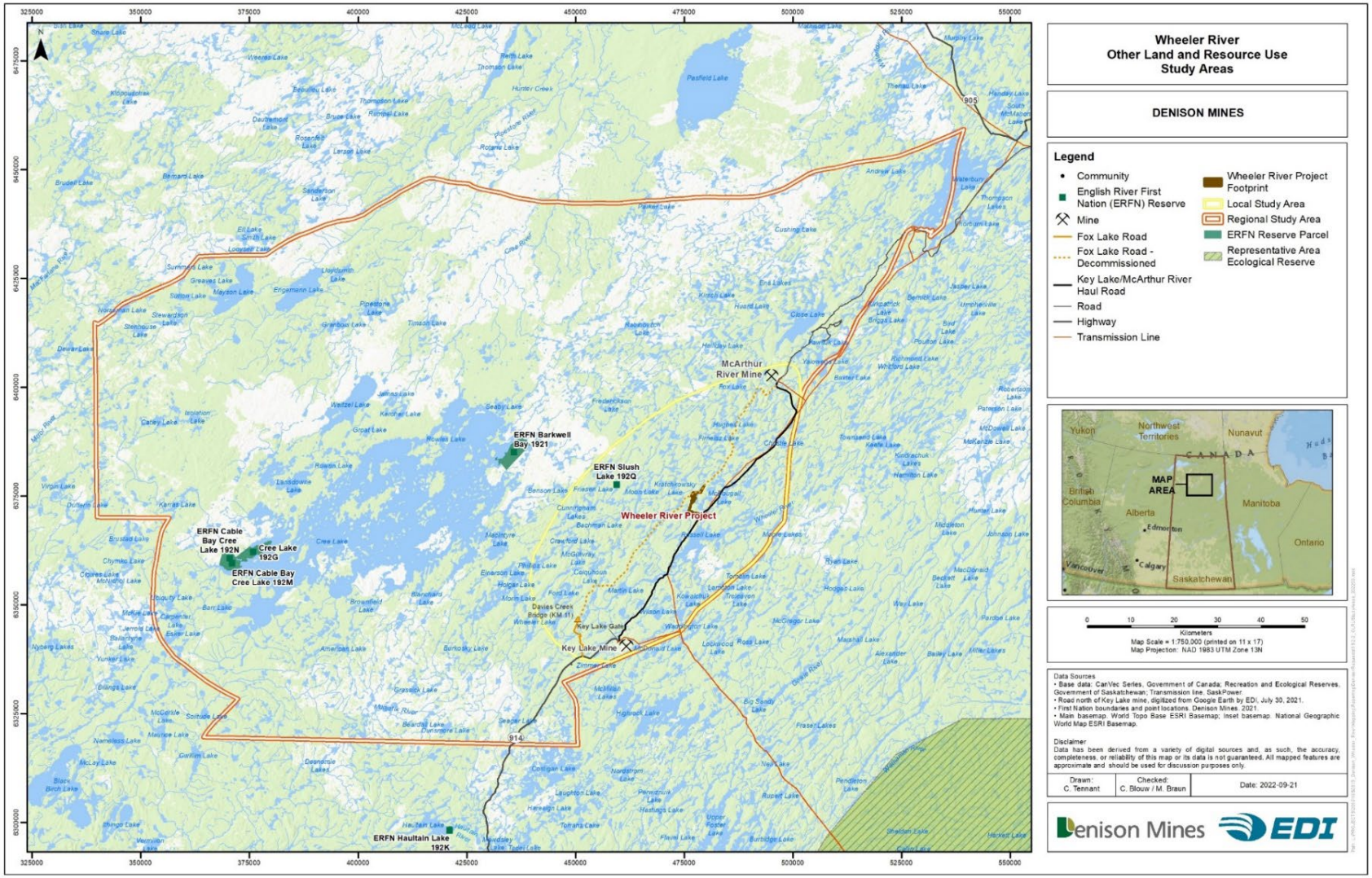


Figure 3-15 Other Land and Resource Use Study Area

The Project is expected to have effects on OLRU and its KIs including:

- Change to resource availability (including terrestrial and aquatic resource availability and the health of resources) and change to land available for recreational and commercial harvesting (including land and waterways).
- Change to the perceived suitability of land and resources (including aesthetics and perceived suitability of resources for safe use).

The KIs of resource availability and land available to conduct recreational and commercial harvests were not carried forward to residual effects assessment, as these effects can be effectively mitigated.

As with ILRU, the Project is expected to have an adverse effect on the perceived suitability for some users of the lands and resources near the Project and on either side of local access roads and the haul road for the Key Lake and McArthur River operations. This effect and the mitigations to be implemented are the same as described for IRLU (Section 3.5.2.1). Furthermore, Denison will be the first uranium operation along Highway 914 to support participation in the Eastern Athabasca Regional Monitoring Program, providing transparent access to regional monitoring data related to broader potential impacts from activities in the region.

Denison established a relationship with the ERFN trapper who recently passed away. If another trapper takes over the trapline, Denison will seek to build a relationship with them. Considering the low magnitude and limited geographic extent of residual effects and the effective adaptation of resource users to changing conditions in the past, the residual effects of the Project on the OLRU VC are expected to be not significant.

The residual effects of the Project are expected to interact with those of other projects and activities in the OLRU RSA, resulting in potential cumulative effects on commercial and recreational resource users. These effects are anticipated as a result primarily of the Highway 914 extension project. Concerns related to increased access from this project were raised by both Indigenous and non-Indigenous resource users (e.g., trappers, leaseholders, lodge operators) and are considered within the cumulative effects assessment.

After mitigation measures, the residual effects of the Project and its interaction with residual effects from other projects and activities may result in increased competition, as additional resource users may access the area from other locations. The workforce is not expected to act as competition for other lands and resource use as all the activities are regulated by the province. However, the presence of additional people may degrade the wilderness experience for some users. These cumulative changes could exacerbate perceptions of the area's suitability for continued use.

Data from monitoring programs associated with the biophysical environment, including groundwater, air quality, noise and wildlife health will be shared with interested Indigenous communities as part of continuing engagement activities in all phases of the project. No additional monitoring or follow-up activities are proposed for the OLRU VC.

3.5.2.3 Heritage Resources

Denison recognizes the importance of protecting archaeological and cultural heritage resources, which are of great significance to Indigenous communities. Through baseline studies, collaboration with the Saskatchewan Heritage Conservation Branch and the implementation of a Heritage Resources

Management Plan, Denison has implemented measures to avoid or mitigate effects on archaeological sites. Denison's approach to heritage resources is consistent with the perspectives of Indigenous communities as expressed during engagement activities, as well as the guidance of provincial and federal government authorities.

The spatial boundaries for the assessment of Heritage Resources include:

- The Project Area, within which all the Project components/activities are located and where all the physical disturbances will be located. As such, this area has the greatest potential to affect Heritage Resources and will be the primary focus of the heritage assessment.
- The LSA, within a 10-km radius of the Project Area.
- The RSA, within a 20-km radius of the Project Area.

The LSA and RSA for heritage resources were established to determine the size and nature of the potential archaeological sites that may be encountered within the Project Area.

The Project includes areas classified as sensitive by the Saskatchewan Heritage Conservation Branch (i.e., areas that have the potential to contain heritage resources in undisturbed terrain near significant waterbodies, rivers or streams). Heritage resources range from large archaeological sites to isolated artifact finds, as defined under The Heritage Property Act (Saskatchewan). Denison completed two heritage resources assessments during baseline studies. Two heritage sites were identified in the Project Area, each consisting of a single artifact find. The Heritage Conservation Branch determined that the sites were of low interpretive value and work was allowed to continue.

Other archaeological sites may be identified during the life of the Project. To mitigate Project effects on archaeological sites, Denison has developed and implemented a Heritage Resources Management Plan. The plan outlines procedures to follow if additional heritage resources are identified. The procedures include:

- Assessment of the resource site by a qualified archaeologist.
- Engagement with local Indigenous leadership.
- Implementing mitigation measures as directed by the Heritage Conservation Branch, which may include avoidance of the site, systematic testing of the site, archaeological excavation and/or construction monitoring.

Residual effects on heritage resources may involve a decrease in the number of archaeological sites. Considering the low number of archaeological sites identified in the Project Area and measures outlined in the Heritage Resources Management Plan to ensure that any additional discoveries are assessed appropriately, the likelihood of residual effects on heritage resources is considered low, with a low frequency of occurrence. As a result, residual effects on Heritage Resources VC are expected to be not significant.

3.5.3 Quality of Life

The Quality-of-Life VCs for the Project are:

- Cultural Expression.
- Community Well-being.
- Infrastructure and Services.

The VCs were determined through Indigenous and public engagement activities, potential Project interactions and regulatory guidance on maintaining cultural continuity, supporting community well-being and minimizing effects on infrastructure and services.

IK, LK, and feedback from Indigenous groups, government agencies and the public informed the assessment. This input is reflected in the EIS.

The spatial boundaries for the Quality-of-Life VCs were selected to support detailed baseline characterization for assessment of potential interactions between the Project and the VC. The spatial boundaries for the Quality-of-Life VCs include an LSA and an RSA, although some differences exist within spatial boundaries for each VC.

- The LSA for Cultural Expression VC is the same as for the ILRU VC (Figure 3-14). Potential changes associated with the fly-in, fly-out work schedule require the RSA to include the Saskatchewan NAD.
- The LSA for the Community Well-being VC is based on the consideration of communities where Project recruitment is likely to be prioritized, and includes:
    - ERFN (including Indian Reserves Wapachewunak 192D and La Plonge 192).
    - Patuanak (Northern Hamlet and Métis Local #82).
    - Pinehouse Lake (Northern Village and Kineepik Métis Local (KML) #9).
    - Beauval (Northern Village and Métis Local #37).
- The RSA for Community Well-being VC is the Saskatchewan NAD.

The spatial boundaries for the Infrastructure and Services VC include:

- A traffic study area that includes the highways to be used during all Project phases (Highway 914 and Highway 165). Other highways near communities in the LSA, including Highway 918 to Patuanak, Highway 155 and Highway 2, are not likely to be affected by Project-related truck traffic during the construction and operation phases. These highways are not expected to intersect with those areas or would be indistinguishable from existing traffic volumes.
- An Infrastructure and Services LSA, defined as communities where Project activities may affect demands on local infrastructure and services or health and emergency services including ERFN (including Indian Reserves Wapachewunak 192D and La Plonge 192), Patuanak, the Northern Village of Pinehouse Lake and the northern Village of Beauval.
- The Infrastructure and Services RSA, known as the Saskatchewan NAD.

Figure 3-16 provides the location of the Project relative to the communities in the LSA and the RSA.

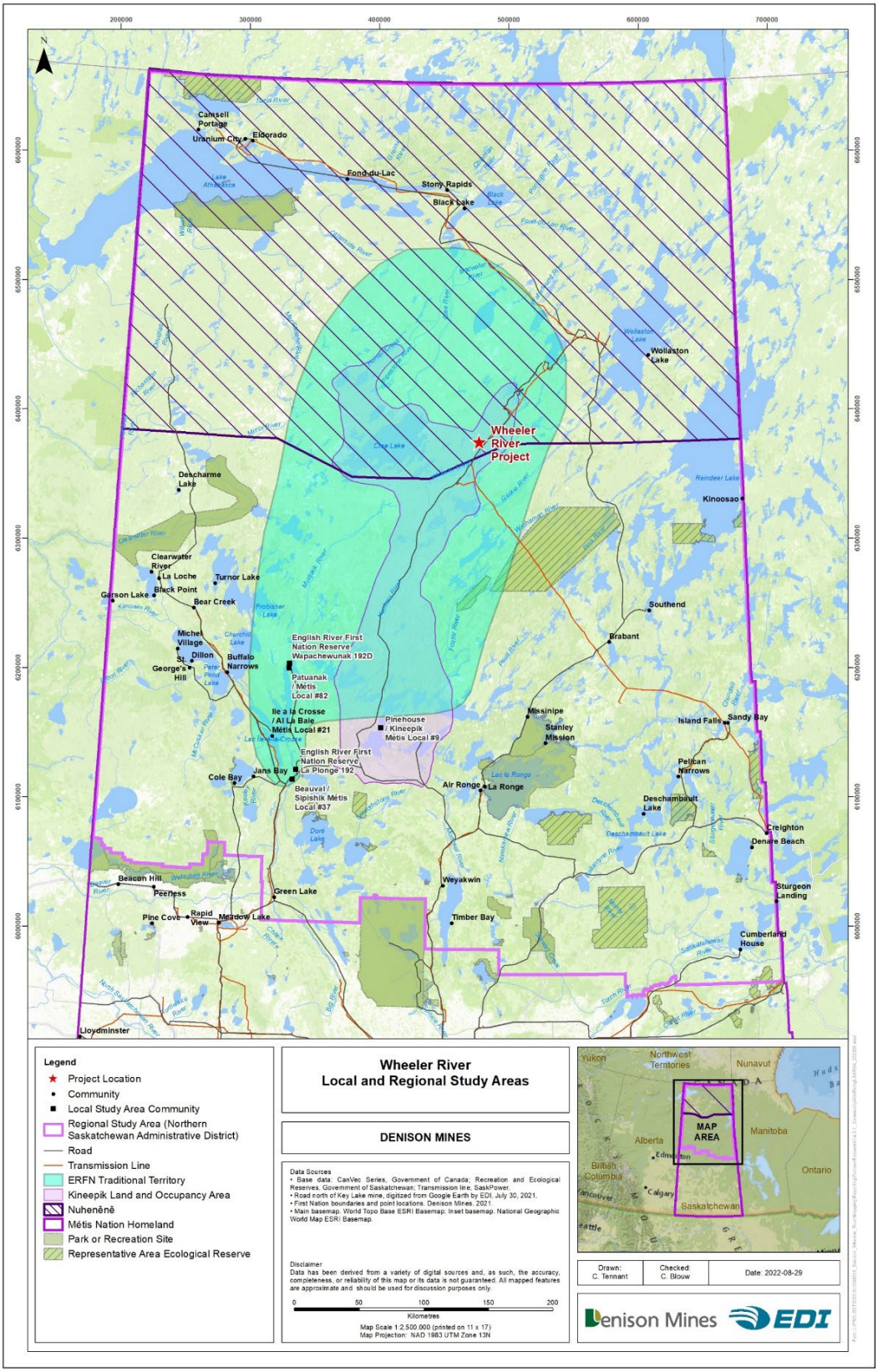


Figure 3-16 Location of the Project in Relation to Communities in the Local Study Area

3.5.3.1 Cultural Expression

The Cultural Expression VC describes the activities that Indigenous peoples in the LSA consider necessary to support their cultural continuity. The Project protects cultural expression by respecting land-based practices, knowledge transfer among people and the harvest and consumption of traditional foods. This protection is demonstrated by the small Project footprint, selection of the ISR mining method to minimize effects and engagement with Indigenous communities.

The Cultural Expression VC considers changes to the KIs of knowledge transmission and the traditional diet. Knowledge transmission encompasses cultural activities and sites that provide an opportunity for knowledge sharing among family and community members. The traditional diet, including moose, woodland caribou, fish and berries is of cultural importance to Indigenous communities. The assessment of traditional diets considered changes to the availability and perceived suitability of country foods. Engagement with Indigenous communities and federal reviewers identified concerns about the potential for contamination of traditional foods, and how perceptions alone could limit the quantity of traditional foods consumed.

The Project may lead to the relocation of cultural activities that support knowledge transmission. For example, there are two cultural camps along Highway 914 within the LSA used by Indigenous peoples in the transmission of knowledge, specifically the ERFN cultural camp at kilometer 160 of Highway 914 (50 km from the Project), and the KML cultural camp at kilometer 67 of Highway 914 (140 km from the Project). Concerns about Project-related traffic on provincial highways adjacent to these cultural camps are addressed through specific mitigation measures, including instructing drivers to reduce speeds in culturally sensitive areas and at wildlife crossings.

ILRU is expected to continue in the LSA during the Project and minimal effects on knowledge transmission are anticipated. The project is not expected to affect opportunities for Project employees to participate in traditional land use and associated knowledge transmission. However, concerns were raised that the fly-in, fly-out work schedule could reduce workers' time spent on the land. Denison responded to these concerns by committing to developing culturally sensitive scheduling and employment practices.

For the traditional diet, the Project has potential to affect the availability of country foods by restricting access to Project areas. For Indigenous peoples, the traditional diet is considered healthy and is often preferred. The Project is expected to adversely affect the perceived suitability of country foods; however, the availability and abundance of species important to a traditional diet (e.g., moose, Walleye) are not expected to change. Some resource users may change their behaviors and limit the quantity of traditional foods in their diets, while others will continue to harvest as they currently do. To mitigate the effect on the perceived suitability of country foods, Denison has been working closely with Indigenous communities to develop effective communication and information sharing methods to reduce avoidance of the area. After mitigation, the residual effect on the traditional diet is expected to be low.

To mitigate the effects of the Project on cultural expression, mitigation measures include:

- Adopting culturally sensitive employment policies to reduce the potential effects of work requirements on cultural activities.
- Working with Indigenous communities to identify culturally important periods, including important harvest times and cultural camp schedules.
- Reducing the Project footprint to the extent practicable.
- Reducing risks associated with increased traffic, noise, air quality and releases of COPCs.

- Implementing an environmental monitoring program consistent with the CSA for nuclear facilities and mines, as required by the CNSC.
- Supporting participation in the Eastern Athabasca Regional Monitoring Program to provide access to regional monitoring data.

The residual effects of the Project are expected to interact with those of other projects in the Cultural Expression RSA, resulting in potential cumulative effects. These effects are anticipated as a result primarily of the proposed Highway 914 extension project. However, no overlap occurs between the effects of the Project on the perceived suitability and safety of country foods in a traditional diet. Therefore, no cumulative effect is anticipated for the Cultural Expression VC. No specific monitoring or follow-up activities are proposed with respect to Cultural Expression.

3.5.3.2 Community Well-being

The Community Well-being VC describes factors that influence the well-being and cohesion of communities in the LSA and RSA. Through employment opportunities, culturally appropriate workforce policies and mitigation measures developed to address both income effects and family life, the Project supports community well-being.

Community Well-being can be defined in multiple ways, depending on the community and the people involved. The assessment focused on how the Project interacts with the Community Well-being VC, and included the KIs of population and demographics, employment and associated income for local workers and community cohesion. Individuals and families may have varied experiences with the Project, with the possibility of both positive and negative influences. The pathways to effects include:

- Potential in-migration of workers to the region for employment opportunities which could change population and demographics.
- Change in income for local workers.
- Effects on community cohesion because of changes in income and employment (e.g., work schedule, time spent away from family).

The Project is not expected to substantially change the population or demographics of communities in the LSA. The Project will employ a fly-in, fly-out work schedule with pick-up points within and outside the LSA. There is little need to relocate to access employment. Additionally, Denison's hiring approach will prioritize individuals from the Indigenous and non-Indigenous communities consistent with anticipated surface lease obligations, further limiting the potential for in-migration to the LSA.

Project employment and business opportunities could provide additional income for individuals and households. Additional income could be beneficial as increased income is associated with improved health outcomes. Numerous studies have documented negative effects on community cohesion related to increased income, including potential for increased drug and alcohol use and increased household stress levels related to time spent away from family because of work schedules. To mitigate effects of the Project on community cohesion, Denison will collaborate with communities to develop culturally sensitive hiring practices and provide support to individual workers and their families. Supports may include:

- Providing multiple pick-up points for fly-in, fly-out workers to minimize the potential for migration and time spent away from families.

- Establishing health and wellness programming including life skills and financial literacy, an Employee and Family Assistance Program and applying a no drugs and alcohol policy on site.
- Implementing culturally sensitive employment policies (e.g., having an Elder on site for counselling).

After mitigation, changes to incomes and community cohesion related to the Project are expected to result in both positive and potentially adverse effects. The communities are resilient and have considerable experience with fly-in, fly-out operations in the region. Overall, the residual effects on the Community Well-being VC resulting from changes to income and community cohesion are not expected to be significant.

The cumulative effects assessment considered the potential Highway 914 extension project. However, the two projects have distinct local and regional study areas. Potential changes to community cohesion resulting from employment are unlikely to result in any discernible changes, particularly as opportunities associated with the all-weather road may involve a broader labour pool. Accordingly, cumulative effects on Community Well-being VC are predicted to be not significant.

Monitoring and follow-up will be used to track progress toward achieving employment and contracting targets, to identify opportunities to improve employment and procurement, to maintain communication with communities and to contribute to continuous improvement of the Project.

3.5.3.3 Infrastructure and Services

The Infrastructure and Services VC assessed the Project's potential to affect traffic, community infrastructure and services and emergency services capacity, all of which are important to communities in the Project study areas. The pathways to effects include:

- Increased traffic volumes and potential increases in collisions during transportation of personnel, equipment and materials including nuclear substances to and from the site.
- Increased demand on community infrastructure and services (e.g., support for family members of workers during absences for work).
- Increased demand for emergency services to respond to Project-related accidents or malfunctions, particularly off-site.

Project-related traffic volumes are expected to be similar during construction and operations and similar or less during decommissioning. During construction, the average annual daily trucks traffic and the average annual daily traffic volumes are predicted to increase by 14 and 22 vehicles, respectively. During operations, both the average annual daily trucks traffic and the average annual daily traffic are predicted to increase by 18 vehicles to 32 and 40 vehicles, respectively. This increased truck traffic is considered low in magnitude. Community engagement with Pinehouse Lake identified concerns over increased risk of collisions related to the Project and a need for better information about transportation safety. Denison will require truck traffic to slow to 40 km/hr for a minimum of 2.5 km on either side of the culture camps, which occur in September and October.

Except for vehicular traffic to move equipment, supplies and personnel, the Project is not predicted to affect Infrastructure and Services in the LSA. The mine, processing plant and associated camp will be equipped to meet the needs of the Project and its workforce. The extent to which community infrastructure and services including health and emergency services are affected will vary by community

based on the capacity of existing facilities and services. Supports provided to employees on site, including an Employee and Family Assistance Program, are expected to minimize potential effects on community services.

Accidents and malfunctions could increase pressure on emergency services. However, such incidents were determined to range in probability from highly unlikely to unlikely (EcoMetrix 2023), after mitigation by preventive operational protocols and emergency response plans. Vehicle collisions are the only potential effects pathway for the Infrastructure and Services VC which cannot be effectively addressed onsite and may therefore require emergency services from communities in the LSA.

Mitigation for Infrastructure and Services includes:

- The use of designated pick-up and drop-off points.
- Appropriate driver training.
- An Emergency Response Plan to proactively address the potential for spills during the transportation of dangerous goods and/or hazardous products.
- Ongoing communication between Denison, LSA communities and relevant authorities.
- An onsite primary care paramedic.
- A health and safety management plan.
- Services and programs provided onsite and accessible to workers (including health and wellness programming, health promotion, immunization programs, life skills programming and workforce education).
- An Employee and Family Assistance Program.

The LSA communities are resilient and have considerable experience with uranium mining operations in the region. Overall, the residual effects related to Infrastructure and Services VC resulting from the Project are expected to be not significant.

The cumulative effects assessment considered the potential Highway 914 extension project, which could increase traffic volumes along Highway 914. Although traffic volume estimates were not provided in the Highway 914 extension project EIS, it is assumed that the cumulative effects could include increased road maintenance requirements and increased risk of collisions. The potential Highway 914 extension project proposed mitigations including:

- Reducing project-related traffic during construction.
- Implementing speed limits in areas of concern.
- Installing and maintaining signage along the highway.
- Conducting regular inspections and maintenance on the highway and associated components.

Although there may be cumulative changes to traffic volume, it is anticipated that the increases in traffic can be effectively managed.

The cumulative effects on infrastructure and services for the potential Highway 914 extension project would primarily relate to emergency response. They would increase connections to community-based emergency services beyond the LSA, thereby increasing capacity for response to emergencies for all communities. Accordingly, the cumulative effects on Infrastructure and Services VC are expected to be not significant.

With mitigation, the cumulative effects on emergency services capacity do not change, even with the Highway 914 extension project. Vehicular collisions will be monitored on Highways 165 and 914. Denison

will also engage with communities, service providers, mine and mill operators and emergency response providers for the duration of the Project.

3.5.4 Economics

The Project is expected to provide economic benefits to local Indigenous communities, northern Saskatchewan and the Province of Saskatchewan. The assessment of potential changes to the economy considered the five key indicators of:

- Employment and training.
- Income.
- Traditional economy.
- Business opportunities.
- Government revenues.

The assessment was guided by engagement with Indigenous groups, local communities and regional stakeholders, and incorporated IK and LK where available.

The Project will generate employment and training opportunities, provide opportunities for increased income, mitigate the Project effects on traditional economies, provide business and contracting opportunities and contribute to government revenues. Denison is committed to Indigenous and local participation, prioritizing hiring, training and procurement opportunities for Indigenous and local businesses (Denison, 2021).

Spatial boundaries for the Economy VC were selected to reflect the geographic areas where economic impacts from the Project are likely to be measurable. Economic benefits related to Project employment (including income and training) are likely to be targeted toward the communities identified within the spatial boundaries. Spatial boundaries for the Economy VC include:

- The LSA includes ERFN (including Indian Reserve Wapachewunak 192D and Indian Reserve La Plonge 192); Patuanak (Northern Hamlet Patuanak and Métis Local #82); Pinehouse Lake (Northern Village and Kineepik Métis Local (KML) #9); and Beauval (Northern Village and Métis Local #37).
- The RSA, which is the Saskatchewan NAD.

The LSA communities are located within MN-S Northern Region 3 and the Project is located within MN-S Northern Region 1. For specific economic indicators such as government revenues, the Government of Saskatchewan and the Government of Canada are the relevant tax-collecting authorities and form the relevant spatial boundary.

Figure 3-16 provides the location of the Project in relation to the communities in the LSA.

The Project is expected to create employment and business opportunities and increase incomes for workers and businesses in the LSA. The Project is projected to create approximately 300 jobs during construction and 180 during operation. Mining positions offer higher wages than many other industrial positions. Residents and communities in the LSA will be given priority for employment, training and business opportunities, followed by Indigenous and/or other communities in the RSA. The Project will also generate revenue for the governments of Saskatchewan and Canada during operations through corporate income tax, personal income tax and uranium royalties. The Project is expected to contribute positively to employment and training, business opportunities and government revenues.

Potential interactions between Project employment and participation in the traditional economy are known and understood in the communities of the region. Project employment has potential to affect the traditional economy by limiting the ability of community members to participate in traditional activities because of work shifts. The Project is not expected to affect ILRU near the Project because traditional resource activities typically continue in the vicinity of operating mine sites. There is less certainty regarding the extent to which participation in the workforce may affect traditional resource users in the LSA. It is likely to vary by individual. Traditional resource use may be supported by employment income.

Measures to maximize potential Project benefits to the Economy VC include:

- Implementation of a workforce development plan to prioritize Indigenous and non-Indigenous communities in the LSA for employment and training opportunities.
- Establishment of a procurement approach through all phases of the Project with a focus on businesses based within the LSA communities, followed by Indigenous businesses and/or businesses in the RSA.
- Development of the Project's Surface Lease Agreement and Human Resource Development Agreement.

The mitigation measures designed to protect Indigenous land and resource use measures are expected to be protective of participation in the traditional economy. For certain specific cases, a one-off arrangement (i.e., a trapper compensation agreement if/when an existing trapline passes to another individual) may be required to respond to specific concerns.

The Project will deliver benefits in the LSA, the RSA and beyond. The only potential residual adverse effects relate to the traditional economy, which can be mitigated. Any residual adverse effects would occur in the LSA and be low in magnitude, medium-term in duration and reversible after decommissioning.

The cumulative effects assessment for the Project applied only to changes to the traditional economy. The changes to traditional economy relate to the Highway 914 extension project, which has potential to ease access to the area and attract additional resource users.

Monitoring will be implemented to assess progress on achieving employment and contracting goals for the Project. Follow-up items will focus on the continuation and maintenance of communication about topics of importance with Indigenous and non-Indigenous communities, relative to the economic priorities identified by communities. Monitoring relative to the traditional economy includes activities associated with Indigenous land and resource use.

3.6 Integrated Topics

The evaluation of integrated EA topics included the assessment of potential accident and malfunction scenarios and assessment of the effects that environmental factors unrelated to the Project could have on implementation of the Project.

3.6.1 Accidents and Malfunctions

The assessment of potential accident and malfunction scenarios for the Project is detailed in Section 14: Accidents and Malfunctions of the EIS, and a Technical Supporting Document (EIS Appendix 14-A; Ecometrix, 2023).

The assessment of potential accidents and malfunctions is aligned with federal (CNSC 2020) and provincial (Government of Saskatchewan 2014b, 2014c) guidance and recent EA practice for proposed uranium mining developments in the Athabasca Basin. As described above in Section 3.2.3.1, the assessment followed a risk-based approach to identify hazards and to determine an overall risk rating based on likelihood and consequence using a risk matrix.

The assessment provides a thorough evaluation of potential human health and biophysical environmental effects resulting from radiological and conventional accidents and malfunctions, considering proposed environmental protection measures. The assessment considered all mine-life phases focusing on the Project site, the Project site access road and specific off-site locations along the mine-related transportation route (i.e., provincial highway system) of interest to local Indigenous peoples.

A total of 70 potential Project-related hazard scenarios were identified and evaluated through an initial screening process. The results of the screening process are highlighted below and summarized in Figure 3-17.

Of the scenarios evaluated, 44 were characterized as low risk, based on low likelihood of occurrence and/or low consequence considering planned safeguards and design features. Low-risk scenarios were not carried forward for more detailed analysis.

Twenty-one of the scenarios were characterized as moderate risk (i.e., representing a tolerable level of risk, considering the proposed safeguards and design features to reduce the risk level to as low as reasonably practicable). Four of the moderate risk scenarios were deemed to require additional detailed assessment. These scenarios are associated with contaminant releases to the environment, which may have potential effects that could not be adequately assessed through the screening.

Three of the five hazard scenarios that were characterized as high risk required further assessment.

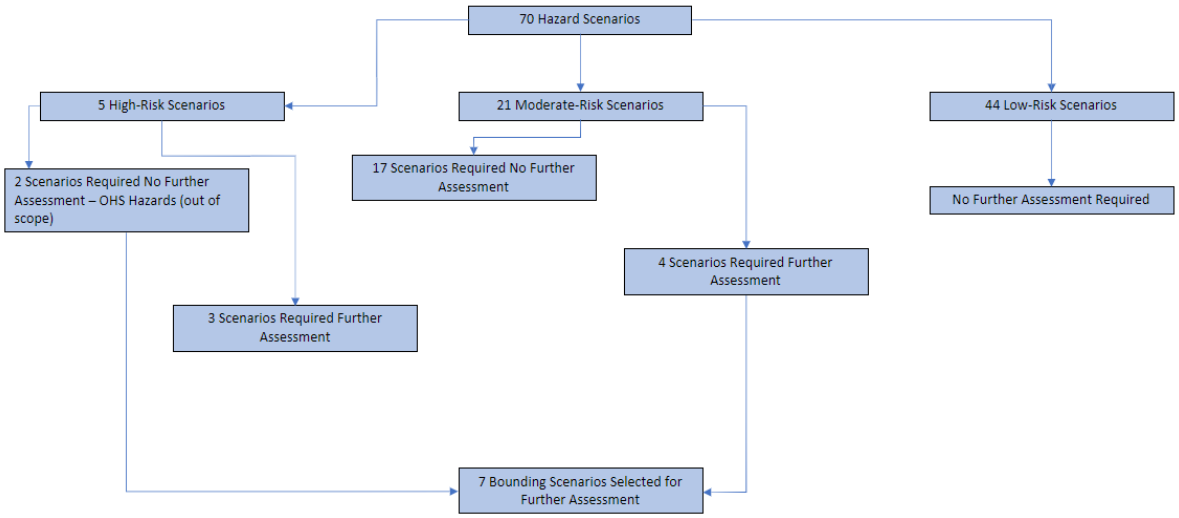


Figure 3-17 Summary – Initial Screening of Accident and Malfunction Scenarios

The results of the quantitative assessment of the seven moderate- or high-risk accident and malfunction scenarios are summarized as:

- **Loss of freeze capacity to maintain the freeze wall and secondary containment**. A loss of containment of mining solution caused by loss of freeze capacity was deemed highly unlikely. The freeze wall provides tertiary containment, and the postulated excursion could only occur under the highly unlikely scenario where the multi-barrier containment system was compromised by independent events over a prolonged period. In this highly unlikely event, migration of mining solution is likely to be slow and localized, allowing effective mitigation to be implemented. The consequence was deemed major. The overall risk rating for this bounding scenario, considering probability and consequence, was determined as moderate.
- **Loss of integrity of the freeze wall**. A loss of freeze wall integrity caused by an external seismic event was deemed highly unlikely. The Project area has a very low level of seismic activity. There have been no recorded earthquakes with a magnitude greater than 3 within 200 km of the site (NRCan 2021b). In this highly unlikely event, migration of the mining solution is likely to be slow and localized, allowing effective mitigation. The consequence was deemed to be major, given the potential impact to the underlying freeze wall infrastructure, which could take a significant amount of time to repair. However, the overall risk rating, for this bounding scenario in consideration of probability, consequence and mitigation measures, was determined to be moderate.
- **Vessel or pipe leak inside the processing building**. Based on data from the Center for Chemical Process Safety of the American Institute of Chemical Engineers about the probability of failures for different components in processing plants, this scenario was deemed likely. The severity of the consequences of this scenario was predicted to be minor, given planned control measures within the processing plant and emergency response measures. The overall risk rating for this bounding scenario, considering probability and consequence, was determined to be low.

- **A release to ground of radioactivity, fuels or chemicals**. Based on traffic and accident statistics it was determined that the probability of this scenario is unlikely. The consequences of this scenario were predicted to be minor given control measures, the likely limited spatial extent of potential effects and emergency response measures. The overall risk rating for this bounding scenario, considering probability and consequence, was determined to be low.
- **Aquatic release of uranium concentrate.** Based on traffic and accident statistics it was determined that the probability that this scenario would occur was deemed highly unlikely. The severity of the consequences of this scenario was predicted to be moderate given control measures, the likely limited spatial extent of potential effects and their transience and emergency response measures. The overall risk rating for this bounding scenario in consideration of probability and consequence was determined to be low.
- **Aquatic release of fuels or chemicals** – Based on traffic and accident statistics it was determined that the probability of this scenario was unlikely. The severity of the consequences of this scenario was predicted to be moderate given control measures, the limited spatial extent and transience of potential effects and emergency response measures. The overall risk rating for this bounding scenario was determined to be low.
- **Fire and/or explosion within the processing plant** – Based on data from the Center for Chemical Process Safety of the American Institute of Chemical Engineers, the probability of this scenario was predicted to be highly unlikely. The severity of the consequences of this scenario was predicted to be moderate, given the control measures, emergency response measures and the expected level of exposure to radioactivity for workers and the public. The overall risk rating for this bounding scenario was determined to be low.

Overall, based on the assessment of accidents and malfunctions presented in the EIS, including the initial screening and subsequent re-analysis of the bounding scenarios, it was anticipated that potential effects could be addressed through engineering design and compliance with industry best practices, thereby reducing the risks associated with the hazard scenarios to as low as reasonably practicable. Based on this assessment the risks can be characterized as tolerable.

3.6.2 Effects of the Environment on the Project

Section 15 of the EIS, Effects of the Environment of the Project, detailed the evaluation of the potential effects of environmental factors on the execution of the Project. As noted in Section 3.2.3.2, the analysis was completed to satisfy Section 19(1)(h) of the Canadian Environmental Assessment Act, 2012 (Government of Canada 2019) and followed the guidance provided by Section 9.4.2 of the Generic Guidelines for the Preparation of an Environmental Impact Statement – Pursuant to the Canadian Environmental Assessment Act, 2012 (CNSC 2021). This evaluation involved consideration of the following potential ways in which the environment could interact with the Project:

- Seismic events
- Forest fires
- Extreme weather (short-term events)
- Climate change

3.6.2.1 Seismic Events

Seismic activity has the potential to damage infrastructure and equipment, injure people, and interrupt Project activities; the question of potential earthquakes was raised during engagement with Indigenous groups.

According to Natural Resources Canada (NRCan), northern Saskatchewan is one of the least earthquake-prone areas in Canada, ranking as a low seismic hazard zone in which a seismic event is unlikely.

Denison will design buildings to meet the standards of the National Building Code of Canada (National Research Council of Canada 2020). This code considers earthquake probabilities and the nature of potential seismic activity at a site to determine structural design criteria. These infrastructure design features, combined with the low probability of seismic activity in northern Saskatchewan, are expected to mitigate any risk from seismic events.

3.6.2.2 Forest Fires

Forest fires are common throughout northern Saskatchewan. The Boreal Shield Ecozone of Saskatchewan where the Project is located experiences a natural fire regime that results in the largest area burned per unit area and the highest proportion of very large fires (>50,000 ha) in Saskatchewan (Parisien et al. 2004). The severity, cause and extent of forest fires are influenced by local conditions (e.g., the quantity of available fuel or combustible material) and depend on summer weather (e.g., temperature, precipitation and wind). Lightning strikes are the primary cause of summer forest fires.

Based on data from the SK MOE – Wildfire Management Branch (Dallyn 2019), seven fires covering 257 km^2 have occurred since 1945 in the Terrestrial Regional Study Area, which was defined for the Project. Of these, three fires covering 22 km^2 occurred within the Wildlife LSA. Lightning caused most of the forest fires in the Terrestrial RSA, while the remainder were caused by human activity or unknown causes (National Forestry Database, 2021).

Forest fires can damage infrastructure and equipment, interrupt Project activities, create unsafe working conditions and/or result in injuries. While forest fire management is the responsibility of the provincial government, Denison will have fire suppression obligations as an industrial and commercial operator. It is expected that Denison will enter into a fire control agreement with the Government of Saskatchewan (as other northern uranium mine and mill facilities have done) as per The Wildfire Act (Government of Saskatchewan 2014d). This will allow firefighting support from the Government of Saskatchewan should a fire develop near the Project. Pursuant to section 19(3) of The Wildfire Act, Denison would be responsible for initially controlling and extinguishing a wildfire burning within a portion of designated lands on which the Project is located.

Denison's Emergency Response Plan will include information on how to prevent and suppress forest fires near the Project. Fire guards (i.e., buffer zones of 30 m) will be established and maintained between specific Project facilities (e.g., main camp) and forested areas to minimize risks from forest fires. Onsite emergency response equipment will be available for fire suppression and firefighting. The fire water system for the Project will include a freshwater tank, two electric fire water pumps, and a backup diesel fire water pump for onsite fire suppression needs. Denison's Emergency Preparedness and Response Program for the Project will address appropriate responses for forest fire events.

Although the potential exists for forest fires to occur during the life of the Project, fire is not expected to have a detrimental effect, given the design features and mitigation measures that Denison will implement. Denison will design the facilities and operate the site in accordance with a Fire Protection Program developed specifically for the Project, based on proven programs at existing northern operations. Consideration will be given to the projected increase of forest fire frequency and severity as a result of climate change in the future (see below).

3.6.2.3 Extreme Weather (Short-term Events)

Saskatchewan has a continental climate, experiencing extremes in temperatures and weather events. Air temperatures from 1981 to 2020 near the Project site at Key Lake ranged from a maximum of 36°C in summer to a minimum of −53°C in winter (ECCC, 2021). The maximum daily precipitation at Key Lake during the same period was 72 mm of rainfall in July 1998 and 27 cm of snowfall in September 1997 (ECCC 2021). The prevailing wind is from the west with a maximum hourly speed of 60 km/hr from the northeast, as measured in April 1985 (ECCC, 2021). For reference, community members have noted changes to local waterbodies caused by both flood and drought conditions.

Research suggests that climate change is likely to cause changes in the frequency, severity and/or nature of weather extremes which may affect the Project (Seneviratne et al., 2021). A summary of short-term extreme weather events with potential to affect the Project assessed in the EA, and the mitigation and management plans associated with each, is provided below. In this context, short-term refers to events that occur over several hours, days or weeks, and contrasts with long-term events that include climate change (see Section 3.6.2.4). Denison believes there is sufficient robustness in the engineering design associated with the Project and comprehensiveness within the Project's management system to mitigate the potential effects during the Project lifespan.

- Major precipitation events (e.g., prolonged periods of heavy precipitation lasting days to weeks) or a rapid spring melt in the region surrounding the Project area could damage infrastructure from flooding and compromise water storage containment and processing.
- Drought could lead to a reduction or loss of runoff in the Wheeler River watershed and Icelander River drainage area which may affect access to make-up water required for the Project.
- Extremely high air temperatures could adversely affect the health of workers through heat exhaustion, dehydration and heat stroke, as well as equipment malfunctions contributing to risk of exposure and accidents, increased energy needs to operate HVAC systems and the increased likelihood of forest fires in the Project Area.
- Extremely low air temperatures could adversely affect health of workers through frostbite and hypothermia, as well as equipment and machinery failures, treacherous road conditions, reduced visibility, increased energy requirements for heating systems and potential interruptions to road and air transportation.
- Extremely high winds could damage structures, equipment and infrastructure such as power lines, creating safety hazards, power outages, potential extreme cold and fire conditions and interruptions to road and air transportation.

Mitigations within the design and management systems include:

- Equipment and design systems that will be selected to enable operation during each extreme event.

- Denison's Emergency Preparedness and Response Program, that will include information about planning for and responding to severe weather events.
- Weather forecasts which will be monitored to provide sufficient warning and time to prepare for extreme events.
- Health and safety policies implemented and risk assessments undertaken before work begins.
- Staff education through formal training programs to ensure workers understand the risks of extreme weather events and safe work procedures during them.
- Employees wearing appropriate personal protective equipment while working outside in extreme weather.
- Maintaining radio communication with those working away from the mine site during these conditions.
- Having diesel generators onsite at strategic locations to provide backup power during power outages.
- Using generators to maintain power to the processing plant, the accommodations facility and other essential services as required.
- Designing water-management infrastructure to meet the requirements of the Environmental Code of Practice for Metal Mines (e.g., Surface drainage facilities should be designed to handle peak conditions at least equivalent to a once in 100-year flood event; ECCC 2009).
- Designing the Project's surface drainage network to either collect or divert water.
- Designing the wellfield runoff pond to accommodate the probable maximum precipitation (38,200 m^3).
- Designing ponds and pads in the Project Area to accommodate the probable maximum precipitation.
- Building water management infrastructure to allow transfer of water between ponds if required.
- Clearing snow from roadways and moving it away from building air supply and exhaust locations.
- Monitoring ditches and culverts and clearing any debris within the channel when safe to do so.

3.6.2.4 Climate Change

Climate change can be defined as a long-term change in weather patterns attributed to increased levels of atmospheric greenhouse gases (GHGs) produced by human activities. Globally, mean surface air temperature has increased progressively over the last 120 years. Between 2001 and 2020, the global temperature was nearly 1°C higher than recorded between 1850 and 1900 (Intergovernmental Panel on Climate Change (IPCC) 2021). As a result, the frequency and magnitude of extreme weather events have increased worldwide and regional weather patterns have changed. For example, historical records show increased precipitation events at higher latitudes and decreased events near the equator (Warren and Lemmen 2014).

Concerns related to climate change were raised during engagement activities conducted by Denison. It should be noted that these concerns relate to climate change rather than GHG emissions specifically. The concerns included climate-related changes observed by members of ERFN who provided LK in support of the EIS. The Village of Pinehouse Lake also posed questions regarding the potential effects of the Project on climate change.

In Canada, the annual mean surface air temperature increased by 1.5°C between 1950 and 2010, with stronger warming trends seen in the northern and western regions of the country (Warren and Lemmen 2014). According to the 2021 IPCC Sixth Assessment Report (IPCC 2021), temperature increases in Canada

are projected to be very large compared to the global average, particularly during winters. Moreover, annual precipitation (i.e., snow) is expected to increase between December and February in Canada's north.

Appendix D in Appendix 6-C of Section 6 of the EIS presented predicted mean values of the climate variables for the Tomblin Lake regional grid unit (the general area in which the Project resides) for two climate change scenarios - RPC4.5 and RCP8.5 - as indicated by the Climate Atlas (IPCC 2019). In both emission scenarios, mean and maximum annual temperatures are predicted to increase approximately 2°C by mid-century, and 3°C to 5°C by 2080, with the greatest increases in warming expected during fall and winter months. The number of very hot days (>30°C) is also expected to increase from one day per year (historical mean) to one to two weeks per year by 2080, depending on the emission trajectory. Minimum temperatures in the Tomblin Lake regional grid unit are predicted to increase and the number of very cold days is expected to decrease in the coming decades. However, total precipitation is not expected to change substantially over time, although the greatest increases are expected during spring and fall. Extreme rain events (one-day maximum rain events) are expected to increase minimally (<5 mm) in both predicted emission scenarios. Although the temperature increases are expected to result in more growing days for forage and crops, increased evaporation could cause water stress and potentially decrease productivity (Warren and Lemmen 2014). Overall, regardless of emission scenario, the model projections at this location indicate future climate conditions over the life of the Project will likely include warmer, snowier winters and longer, hotter summers. Given the uncertainty around projected precipitation, it is unclear if the increased trend in total and extreme precipitation events will produce local climatic conditions that will affect the Project.

Per Section 5.1.5 of the Strategic Assessment of Climate Change (Government of Canada 2021), *All proponents will be required… to provide information in the Impact Statement on how the project is resilient to and at risk from both the current and future impacts of a changing climate.* The Project will be developed with consideration of the predicted changes in climate conditions that could occur during its lifecycle from pre-construction design through to post-decommissioning monitoring. Denison has incorporated design features and mitigation measures related to forest fires and extreme weather into the Project. The Project has also been designed using engineering best practices and will meet current regulations and building codes. Additional growing days because of increased temperatures may benefit the Project during decommissioning, allowing for accelerated revegetation and reclamation of natural vegetation communities.

Denison will develop an Emergency Preparedness and Response Program for the Project to address forest fires and extreme weather that may occur. If unforeseen effects on the Project occur because of longer and more severe forest fire seasons associated with climate change, or because of increased frequency or severity of extreme weather (e.g., ice storms, snowstorms and flooding), Denison will apply adaptive management that includes monitoring climate factors so it can proactively mitigate or prevent adverse climate effects on the Project.

3.7 EA Conclusions

Denison applied an industry-standard approach to conduct the environmental assessment process for the Project, consistent with the guidance provided by both the provincial and federal governments under The Environmental Assessment Act (Government of Saskatchewan 2018) and the Canadian Environmental Assessment Act, 2012 (Government of Canada 2019b), respectively. The methodologies used were

appropriate to those legislative frameworks and are the basis by which a thorough and rigorous analysis of potential Project and cumulative effects were evaluated. Moreover, Denison has taken proactive steps to engage with local and Indigenous communities, residents, businesses, organizations and land users to develop meaningful relationships and to ensure that IK and LK have been included and considered in the assessment. The four key components of the assessment included:

1. Evaluation of Project-specific effects.
2. Evaluation of cumulative effects.
3. Evaluation of integrated EA topics including postulated accident and malfunction scenarios.
4. Effects that environmental factors unrelated to the Project could have on the implementation of the Project.

The EA for the Project was comprised of two broad areas of assessment: the biophysical environment and the human environment.

The biophysical environment was defined in terms of the following attributes:

- atmospheric and acoustic environment
- geology and groundwater
- aquatic environment
- terrestrial environment

The human environment was defined in terms of the following attributes:

- human health
- land and resource use
- quality of life
- economics

Based on the Project information and related evaluation and assessment of effects, Denison has demonstrated that the Project can be safely constructed, operated and decommissioned and is unlikely to cause significant adverse residual effects or cumulative effects to the biophysical or human environments.

4 Licence to Prepare a Site and Construct

Pursuant to the Nuclear Safety and Control Act and the Uranium Mines and Mills Regulations, Denison is seeking a licence to prepare a site and construct a uranium mine and mill.

4.1 Introduction to the Request for the Licence to Prepare a Site and Construct

Denison is seeking authorization for the following activities to be conducted under a Licence to Prepare a Site and Construct a uranium mine and mill:

- Site preparation and construction of a facility for the mining of uranium ore and the production of uranium concentrate at the Wheeler River site.
- Construction, commissioning, and operation of a freeze wall and freeze plant, including all necessary components.
- Commissioning of necessary components prior to the commencement of commercial operation.
- Storage of clean waste (non-mineralized drill cuttings) and storage and/or transport of special waste (mineralized drill cuttings) to a licensed processing facility.
- Handling and storage of industrial and hazardous materials and disposal of hazardous wastes.
- Importation, possession, use, storage, transfer and disposal of nuclear substances and radiation devices that are required for or associated with construction and commissioning activities.

Denison is seeking a five-year licence term to provide contingency to accommodate any potential delays.

4.2 Site Preparation and Proposed Facilities to be Constructed

This section outlines the proposed activities, facilities, and components that comprise the licensed facilities for the Project. Information regarding the proposed facilities is presented to describe the purpose and role of the components during the future operational phase. Clarification has been provided as to when the facilities components will be constructed, and details have been added for facilities and components that will provide operational functions during the site preparation and construction phase.

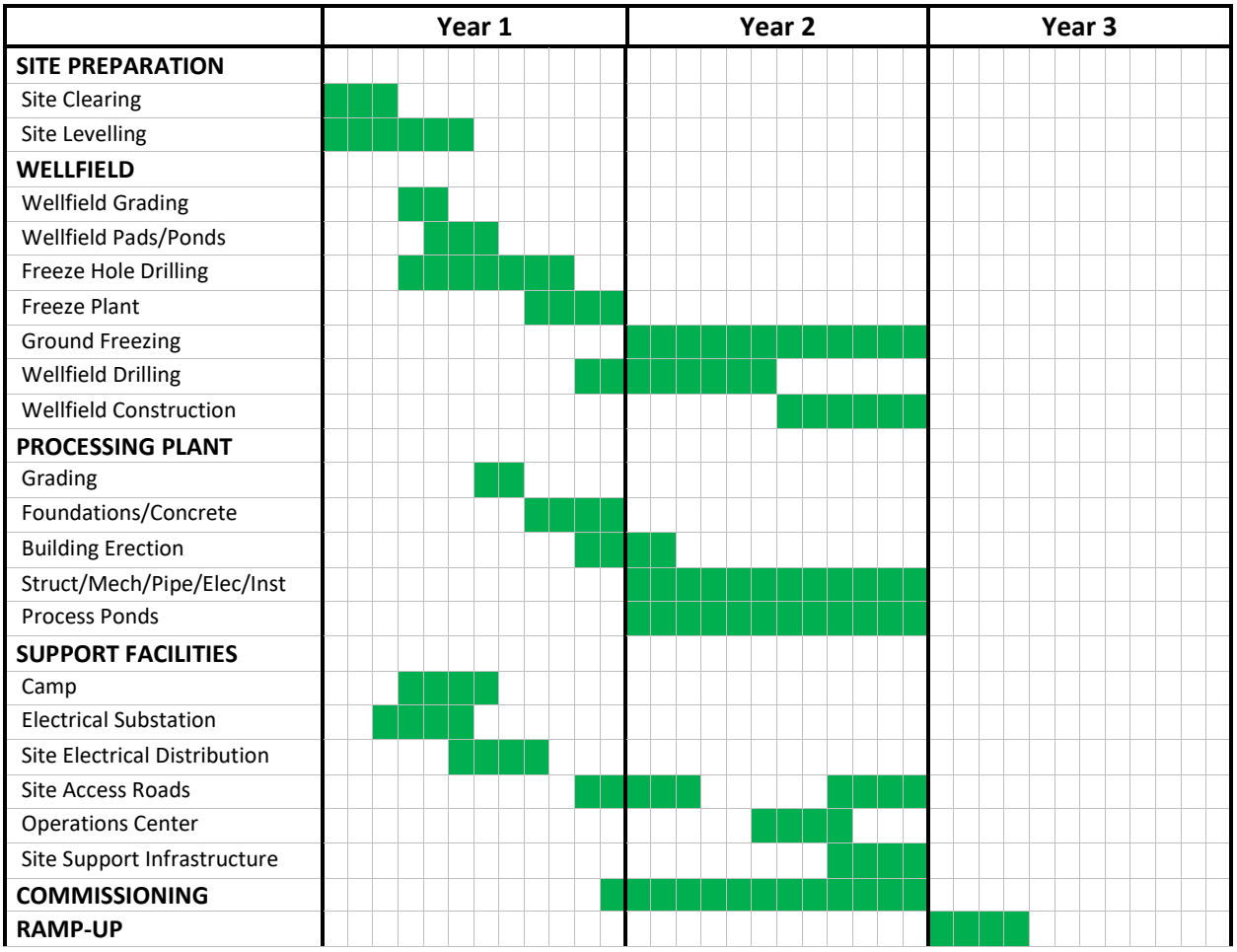
4.2.1 Construction of the Wheeler River Project

Construction activities will adhere to industry-best management practices to minimize effects on the environment and to keep risks to workers as low as reasonably achievable.

The Project schedule is construction-driven and based on logical construction frameworks, commissioning methodologies and work sequencing for each construction work package. The approved construction work packages and schedule establish the priorities of Denison's engineering and design, supply chain management and construction efforts. Construction work packages are aligned with the commissioning and turnover schedule. Construction can commence only when issued for construction (IFC) drawings are available from the discipline engineer of record.

The proposed site preparation and construction schedule currently assumes an early 2026 start. Table 4-1 shows a high-level breakdown of the site preparation and construction schedule for the Project.

Table 4-1 Wheeler River Project Site Preparation and Construction Schedule



4.2.2 Site Preparation

Civil earthwork consists of clearing and grubbing trees, as well as levelling the surface through cut and fill activities. Topsoil and brush will be stockpiled onsite for future use during reclamation. The exact location of the topsoil stockpiles will be determined ahead of site clearing.

Aggregate sources will consist of a combination of material crushed on site, local borrowed materials supplied by contractors and bulk shipments of specific material types from the closest source available. Aggregate materials will be required to support the construction of roads, foundations, pads and ponds.

4.2.3 Wheeler River Components

The components of Wheeler River can be broken down into:

- **Mining**, which includes all wellfield infrastructure, surface and subsurface components, injection wells, recovery wells, monitoring wells and freeze wells.

- **Processing**, which includes the circuits required to process the UBS received from the wellfield into a packaged uranium concentrate product.
- **Reagents, Plant Utilities & Ancillary Facilities**, which include but are not limited to processing reagents, laboratories, fire protection systems, compressed air and distributed control systems.
- **Waste Management Facilities**, including water treatment and other waste facilities related to processing.
- **Emission Control Systems,** including yellowcake, lime, and magnesium oxide silo emission systems.
- **Site Infrastructure**, which includes remaining non-CNSC licensed facilities such as the airport, electrical substation and power distribution, access road, domestic landfill, construction landfill, camp and related camp infrastructure.

4.2.4 Mining

The ISR method will require the establishment of several types of wells. Several drilling technologies have been considered and applied during development and exploration activities. Alternative drilling technologies will continue to be evaluated for Project use based on operational requirements, worker safety and environmental performance. Drilling and installation of the initial phase of the ISR wellfield, groundwater monitoring wells, and freeze hole drilling occur during the early stages of construction. Construction of subsequent mining phases will occur throughout the life of the mine in phased approach.

During well drilling activities, material will be recovered in the form of cuttings (i.e., small pieces of rock and debris). This material is defined as waste and will be classified as either clean drill waste or special drill waste. It is expected that cuttings generated from drilling at depths of 0 to 300 m will be considered clean waste, and those generated from drilling below 300 m will be classified as special waste.

4.2.4.1 Freeze Wall

Denison will install a freeze wall to support a defense-in-depth containment strategy for mining solutions and to prevent regional groundwater from entering the mining zone. Freeze wall construction and operation have been successfully used at other uranium mines in Saskatchewan in and various other mines and industrial applications.

Drilling of freeze holes will be the first step of construction following site preparation activities. Once freeze holes are constructed, the freezing process will begin, allowing the development of the freeze wall before operations commence.

The freeze wall will be established by drilling vertical or steeply dipping holes from the surface into the low permeability basement rock more than 410 m below the surface. The freeze holes will be spaced 6 m apart. The ground will be frozen from the surface down into the low permeability basement rock to create a continuous freeze wall around the mining area, isolating it from the immediate surrounding area. While the freeze wall isolates the mining zone from the regional groundwater system, it is not the primary means of containment for the mining zone. At completion, the freeze wall will be a nominal 10 m thick and will be installed approximately 25 m from the uranium deposit.

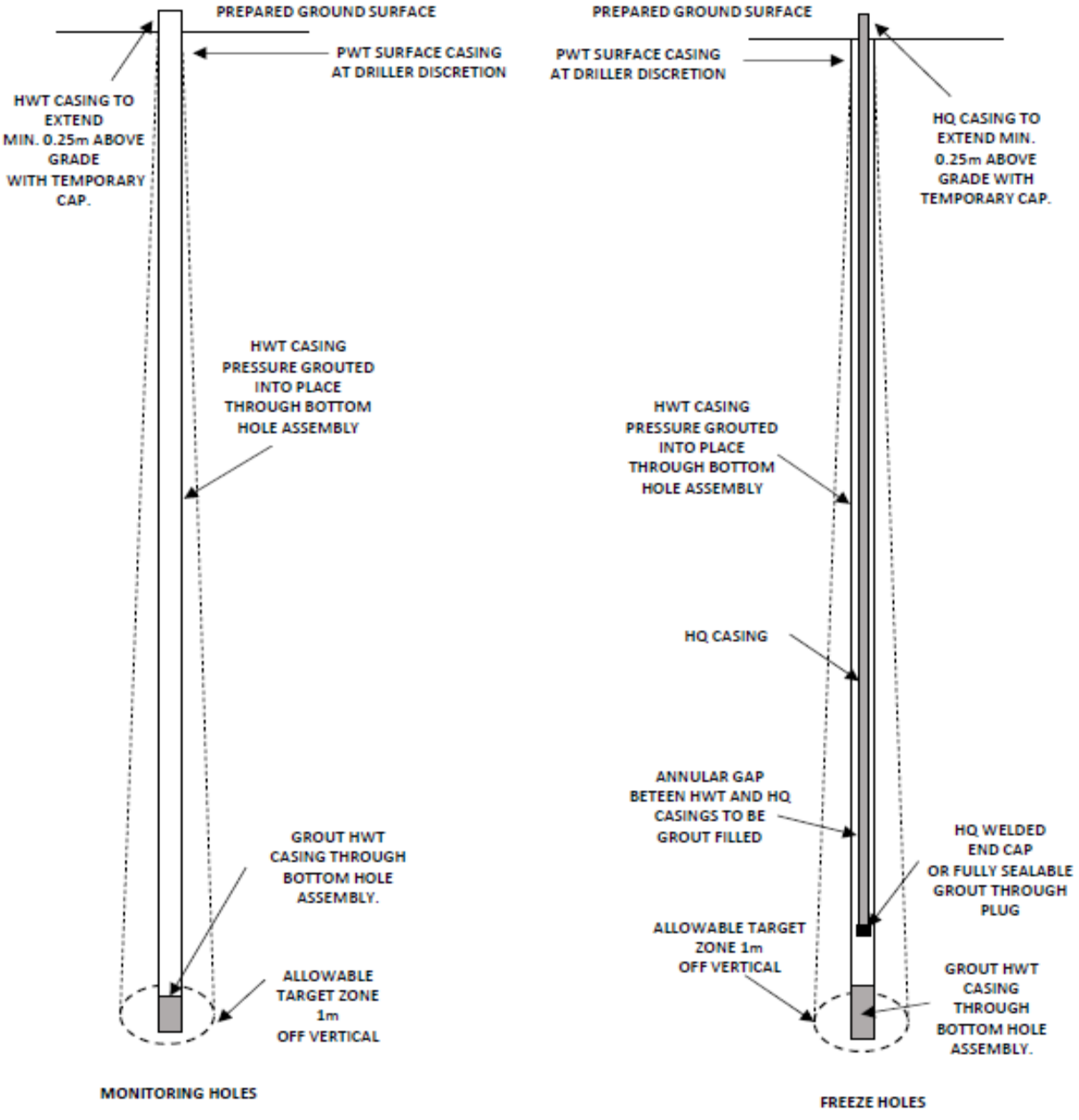


Figure 4-1 Schematic Diagram of Freeze Hole and Freeze Monitor Hole Design

A chilled brine solution (e.g., calcium chloride brine) will be circulated through cased holes to remove heat from the ground. A freeze plant will be constructed near the deposit on the surface where the freeze holes are collared. The freeze plant will be modular for ease of installation and operation, as more chiller units will be added as ground freezing needs increase. Each chiller unit produces refrigeration and contains an ammonia compound compressor. It is expected that six chiller units will be required at peak load during the mine's later life. The brine distribution system moves brine to the freeze holes at the required rates.

Temperature monitoring holes will be installed near the freeze holes to monitor the thickness of the freeze wall and to confirm that containment parameters are achieved.

4.2.4.2 Wellfield

Three types of wells will be installed:

- Injection wells to introduce solutions into the uranium mineralization
- Recovery wells to collect uranium bearing solution (UBS)
- Monitoring wells to assess ongoing operations and containment.

The well patterns are developed for a specific site, and installation for a given wellfield is based on the subsurface geometry of the ore deposit. The primary design layout for the Project is expected to consist of a pattern of one central recovery well surrounded by four injection wells. The spacing is anticipated to be approximately five m to 10 m. Ore body size and geometry will also influence the number of wells in a wellfield. The entire wellfield will cover an area measuring 90 m wide by 750 m long. The wellfield will be constructed in a phased approach to match the freeze wall mining phases. Pump tests and circulation tests will be conducted during the wellfield commissioning process to confirm hydraulic connectivity in the mining area.

4.2.4.3 Pumphouses

The pumphouse infrastructure will be installed in the wellfield area following the completion of the freeze hole and ISR well drilling activities.

Pumphouses distribute the mining solution to the injection wells and collect UBS from the recovery wells. Pumphouses will be connected to production pipelines. One of the pipelines will be used for receiving mining solution from the processing plant and another will transfer UBS to the processing plant.

Injection components will consist of mining solution mix tanks, pumps, flow meters, control valves, piping and pressure monitoring, which will control the delivery of mining solution through the pipeline to the required injection wells at the appropriate reagent concentrations. The mining solution, composed of hydrogen peroxide, ferric sulphate, sulfuric acid and water, will then enter the mining area and dissolve the uranium in place. All injected solutions containing reagents will be controlled by metering pumps and control valves to ensure the appropriate chemical composition is achieved, meeting process objectives. Each injection well will have its own dedicated method of controlling flow and selecting mining solution.

The recovery system will consist of downhole pumps that will draw the UBS from the mining area. These pumps are speed controlled based on flow measurements from each well to adequately manage the flow

conditions in the leaching zone. Recovered solution is received in radon purge tanks located in the wellfield area. These tanks provide the primary means to vent radon gas that is carried from the leaching zone with the recovered solution. The tanks include an internal air sparger, vent stack and exhaust blower to promote degassing the radon from solution. The degassed UBS is transferred to the UBS storage tanks located at the processing plant area.

4.2.4.4 Radon Purge Tanks

The ore zone is saturated with radon, which will degas when exposed to atmospheric pressures at the surface. To keep worker doses ALARA, radon purge tanks will be used to remove this initial volume of radon before the solution enters the processing plant. This process will be achieved by sparging air provided by a blower and ventilation fans which will pull air from the tops of the tanks and directs the sparger air and radon gas through a vent stack.

As part of the well development phase and periodically during the wellfield lifetime, it is expected that solids may be brought to surface. The radon purge tank has been designed to handle such occurrences.

4.2.5 Processing Plant

Construction of the processing plant will commence immediately following the completion of earthworks at the site. After the foundations are completed, building construction will begin.

The processing plant will use precipitation, thickening, dewatering and drying to recover a uranium product from the UBS. The recovery of uranium from the UBS obtained in the wellfield will involve a two-stage precipitation process to produce a uranium concentrate product.

The processing plant will be ventilated at a minimum of three air changes per hour. The maximum rate will be eight times per hour for areas with higher sources of airborne contaminants. Positive pressurization of buildings and spaces will be maintained by introducing outside air. Secondary ventilation air is taken from process tanks and exhausted directly to the atmosphere outside the processing plant building. Secondary ventilation rates will be six air changes per hour, based on the normal tank level.

Most of the equipment and materials inside the processing plant are small, enabling shipment of pre-assembled tanks and other vessels.

4.2.5.1 Uranium Bearing Solution Holding Area

ISR mining and subsequent uranium processing may occur at different rates and times. A UBS holding area will provide additional storage capacity to meet operational needs.

Recovered high-grade UBS will be delivered from the radon purge tanks and mixed with water if required. A water heat exchanger will heat the solution. A ventilation fan pulls air, including radon, off the top of the tank.

4.2.5.2 Stage One Precipitation

Stage one precipitation will use agitated tanks to remove contaminants from the UBS by adding reagents such as hydrogen peroxide, barium chloride and lime to raise the pH and precipitate iron hydroxides, associated metals, radium-226 and thorium-230.

The system is comprised of a series of four gravity-fed tanks. Each tank is equipped with an agitator and instrumentation for monitoring and controlling pH and oxidation-reduction potential (ORP). Uranium-bearing solution will be mixed with recycled thickener underflow (U/F) in reaction tank 1. Lime slurry will be added to each tank to maintain a controlled pH level. Hydrogen peroxide will be added to control ORP. Barium chloride will be added to tanks 3 and/or 4 to promote the precipitation of radium.

The discharge from tank 4 feeds the stage one thickener via gravity. A ventilation fan will pull air off the top of the stage one precipitation reaction tanks and discharge it outside of the processing plant.

4.2.5.3 Stage One Thickener

The stage one thickener will receive gravity feed from the stage one precipitation tank 4. The feed to the stage one thickener will be mixed with flocculant that promotes the settling of solids and with backwash from the sand filters, which contains particulates. The stage one thickener overflow (O/F) will be pumped through a set of sand filters for the removal of fine particulates, then into the stage two precipitation circuit. The stage one thickener has a rake mechanism that promotes settled solids (thickened slurry) migrate to the bottom of the cone where two U/F pumps are connected. One U/F pump recycles slurry back to the first reaction tank, while the other feeds a filter for washing and dewatering precipitated solids.

Ventilation fans pull air from the thickener O/F tank and purified leach surge tank. This air will be discharged outside the processing plant.

4.2.5.4 Stage One Dewatering System

Slurry from the stage one thickener feeds the stage one dewatering system. The stage one dewatering system will remove liquid from the stage one thickener U/F and wash the solids to recover residual aqueous uranium. The precipitates will then be transferred into the process precipitate hopper and the solution will be recycled back into the stage one thickener. A screw feeder will then move the precipitates for storage and future transport.

4.2.5.5 Stage Two Precipitation

Stage two precipitation occurs via a series of four gravity-fed tanks equipped with agitators. A water heat exchanger will heat the purified leach solution, which will then be fed into the stage two precipitation reaction tank 1. Hydrogen peroxide will be added to the reaction tanks to promote precipitation of uranium as uranyl peroxide, commonly referred to as yellowcake. Magnesia will be added to maintain pH setpoints throughout the tanks, as the precipitation of yellowcake generates acidic conditions. The flow will pass through tanks 2, 3 and 4 by gravity before it enters the subsequent yellowcake thickener. The precipitated uranium will then be mixed with a flocculant before being fed into the yellowcake thickener, where it is allowed to settle and dewater (thicken).

A ventilation fan will pull air from the top of all stage two precipitation reaction tanks and discharge it outside the processing plant.

4.2.5.6 Yellowcake Thickener

The yellowcake thickener will receive gravity feed from the stage two precipitation reaction tank 4, as well as backwash from the sand filters and filtrate from the yellowcake filtering system. The yellowcake thickener has a rake mechanism that migrates settled solids (thickened slurry) to the bottom of the cone, where two U/F pumps are connected. One U/F pump will recycle slurry back to the first reaction tank, and the other pump feeds a dewatering system for washing and dewatering yellowcake solids. The yellowcake thickener O/F will then drain into an O/F tank, where it will be pumped through a set of sand filters, then to the IWWTP.

4.2.5.7 Yellowcake Dewatering System

Slurry from the yellowcake thickener feeds the yellowcake dewatering system. The yellowcake dewatering system will remove liquid from the yellowcake thickener U/F as well as wash the solids of primarily sulphates left in solution. Yellowcake solids are transferred into the yellowcake hopper and the solution is recycled back into the yellowcake thickener. The dryer feed screw conveyor will deliver yellowcake from the hopper to the yellowcake dryer.

4.2.5.8 Yellowcake Drying

The dewatered yellowcake solids will then be transferred through an enclosed conveyor to the dryer where any remaining moisture will be evaporated. Off-gas from the dryer will go to the dryer venturi scrubber, where water sprays are used to capture any particulates from the dryer ventilation. This solution is then recycled to the yellowcake thickener and the scrubbed off-gas is discharged to the atmosphere via a stack. Once the moisture is sufficiently removed from the yellowcake product, the dried yellowcake is fed into a product storage bin to await packaging.

4.2.5.9 Yellowcake Packaging

The purpose of the yellowcake packaging circuit is to place uranium concentrate into steel drums for storage and transportation. The drying and packaging areas will be outfitted with industrial hygiene systems to capture any radioactive dust that may be generated during the handling of the product. The yellowcake packaging circuit will require minimal manual worker intervention, keeping radiation and worker doses ALARA. All equipment is selected to provide minimal dust generation and is outfitted with dust collection systems.

Drums are placed onto a rolling conveyor within the packaging enclosure, where they are filled with uranium concentrate from the product storage bin to a predetermined level, as well as sub-sampled as part of a lot-specific composite sample. The drum filling system places a clean drum under the screw feeder and fills it. The drum is forwarded to a lidding station, where a lid is placed on the drum and secured

with a ring, a bolt and a nut. The drum then proceeds through a cleaning and scanning process, followed by a weigh scale where the weight of the drum is recorded and a label printed, which includes but is not limited to the Lot number, Drum number, net weight, tare weight, and gross weight of the drum. The label printed and affixed to the drum along with any required safety and transportation labels. The drum is then forwarded to the drum storage area to await inspection and preparation for shipping.

4.2.6 Reagents, Plant Utilities and Ancillary Facilities

The reagents and plant support facilities include several key components that are integral to supporting the mining, processing, and overall operation and safety of the site.

4.2.6.1 Reagents

The Wheeler River facilities will require several reagents. The freeze plant will require specific reagents to establish the freeze wall during the early construction phases, and additional reagents will be needed later during commissioning activities. Table 4-2 lists these reagents and the ISR or processing plant circuit that will use them.

Table 4-2 Operation Reagents and Associated Components

Reagent	ISR or Processing Plant Circuit
Calcium Chloride Brine	Freeze Plant
Ammonia	Freeze Plant
Hydrogen Peroxide	Injection Leach Solution, Stage 1 and 2 Precipitation
Barium Chloride	Stage 1 Precipitation, Industrial Wastewater Treatment Plant (IWWTP)
Calcium Hydroxide	Stage 1 Precipitation, IWWTP
Flocculant	Thickeners, IWWTP Clarifiers
Sulphuric Acid	Injection Leach Solution, Stage 1 Dewatering System, IWWTP
Magnesium Hydroxide	Stage 2 Precipitation
Sodium Hydroxide	IWWTP
Iron Sulphate	Injection Leach Solution, IWWTP

4.2.6.2 Compressed Air

Rotary air compressors and associated equipment will be installed in the processing plant. The air compressors will be installed indoors and will operate continuously, except during scheduled preventative maintenance.

4.2.6.3 Fire Protection System

The fire protection system in the processing plant is designed and will be installed in accordance with National Fire Protection Association standards. A fire pump comprised of an electric motor, a fire water pump with a diesel engine, a diesel fuel tank, a fire water jockey pump and an enclosure that houses all pumps and diesel components, as well as heat, ventilation and a sprinkler system, is a component of the fire protection system.

4.2.6.4 Laboratory

There will be two main laboratory facilities on site: a metallurgy laboratory and a chemistry (assay) laboratory. These laboratories are required to conduct sample preparation, test work and analysis to verify continual improvement of wellfield and processing plant performance. Both laboratories will be appropriately designed to store necessary reagents, standards and samples to meet the long-term needs of the Project.

The metallurgy laboratory will conduct test work on process materials generally focused on ISR, the processing plant and effluent treatment performance, as well as sample preparation for the chemistry laboratory when required. The chemistry laboratory will be designated a basic level laboratory (i.e., an area for analyzing liquids and solids used or created on site) and will incorporate the use of various instruments.

4.2.6.5 Distributed Control System

The plant control system will consist of a distributed control system (DCS) with personal computer-based operator interface stations (OIS) located in a control room. In conjunction with the OIS, the DCS will perform all equipment and process control monitoring, optimization, dashboards, reporting, sequencing, unlocking, alarm management, safety interlocks, data storage, retrieval and reporting.

All areas of the facility will be operated from the OIS in the control room. The freeze plant will have a local, standalone control but will be monitored using the DCS. The DCS will also monitor the fire detection and fire suppression systems.

4.2.7 Waste Management

This subsection describes the waste management facilities that will be licensed by the CNSC for the Project.

4.2.7.1 Industrial Wastewater Treatment Plant

The IWWTP receives overflow solution from the yellowcake thickener and other liquid waste sources to remove dissolved metals and suspended solids. The IWWTP will consist of three treatment stages which employ various techniques and technologies to manage COPCs through processes such as chemical precipitation, co-precipitation and solid-liquid separation.

It is not expected that discharge of treated industrial wastewater will take place during site preparation and construction.

4.2.7.2 Release Ponds

The Project has three effluent monitoring and release ponds that will receive water from the IWWTP. There will be an option to recycle water from the ponds back to the processing plant via the process water pond. The three ponds will each have a capacity of 3,300 m^3 and a composite liner system.

The only release of water from ponds expected during site preparation and construction is collected stormwater.

4.2.7.3 Treated Effluent

The treated effluent discharge line will run from the effluent monitoring and release ponds into Whitefish Lake. The discharge line will be positioned in an area of the lake bottom to minimize disruption to fish habitat. A diffuser will be placed at the end of the line for effluent mixing within the lake.

No discharge of treated effluent will occur during site preparation and construction. Only necessary commissioning activities will be conducted prior to commercial operations.

4.2.7.4 Industrial Wastewater Treatment Plant Precipitate Pond

Precipitate generated in the IWWTP process is expected to be a non-radioactive, gypsum-type material, calcium sulphate. The IWWTP precipitate pond will initially be constructed to hold 50,000 m^3. The liner design proposed for the IWWTP precipitate pond consists of a geosynthetic composite liner system including a primary HDPE GM over a GCL. The GCL includes a layer of bentonite clay, which has extremely low permeability and very good longevity.

4.2.7.5 Process Precipitates Pond

The precipitates generated in the processing plant will be transferred to the process precipitate pond. Any radioactive precipitates generated during the first stage of the IWWTP will also be directed to the process precipitate pond. The precipitates will be stored in totes inside the pond. This pond design will allow the precipitate totes to be stacked below ground level.

The process precipitates pond will have a geosynthetic composite liner system with leak detection capabilities and will be designed to hold up to 50,000 m^3 of precipitates. Any runoff collected in the pond will be directed to the process water pond and recycled through the plant.

4.2.7.6 Process Water Pond

A process water pond with a geosynthetic composite liner system and leak detection has been designed to capture water from several areas, including the process precipitate storage pad and the special waste pad. The pond is designed to hold up to 30,000 m^3 of water and will be located next to the processing plant. The pond will be surrounded by a 2.0 m berm and have capacity for 0.5 m of storage from a probable maximum precipitation (PMP) event estimated at 493 mm, and allow for maintenance of 1.0 m of free board. The pond will be able to receive water from all site ponds and monitoring wells. Water in this pond can be used directly in the processing plant or can be directed to the IWWTP.

4.2.7.7 Industrial Waste Landfill

Industrial waste is defined as waste with chemical or radiological contamination. Waste stored in the industrial waste landfill will originate from the site's operation. The landfill will consist of a double-liner design that includes a primary high-density polyethylene geomembrane liner atop a geosynthetic clay liner and a secondary high-density polyethylene geomembrane liner atop an additional geosynthetic clay liner.

4.2.7.8 Hazardous Substances and Waste Dangerous Goods

Waste oil and hazardous wastes (e.g., paints, solvents and hydrocarbons) will be collected in the temporary storage pad, which will have a composite liner and a capacity of 250 m^2. Waste oil and other hazardous substances will be removed by a licensed carrier and delivered to a licensed recycling facility.

4.2.7.9 Special Waste Pad

The special waste pad is expected to contain special waste that will be comprised primarily of mineralized core and cuttings from wellfield development. Special waste from drilling activities is defined as uranium-containing materials that cannot be disposed of in the clean waste pile.

The special waste pad is estimated to have a capacity of 2,500 m^2 and will be constructed with a geosynthetic composite liner system with leak detection capabilities. Any contact water coming off the special waste pad will flow to the wellfield runoff pond.

4.2.7.10 Wellfield Runoff Pond

The wellfield runoff pond has been designed to capture runoff from the wellfield and the special waste pad. It is designed to hold up to 38,200 m^3 of water and will have a geosynthetic composite liner system with leak detection. The water in this pond will be routed to the process water pond for recycling through the processing plant and eventually for treatment at the IWWTP.

4.2.7.11 Clean Waste Rock Pad and Pond

Clean waste rock will be generated as sandstone cuttings and core from drilling activities. Clean waste rock will be stored on a 2,500 m^2 single geomembrane liner. A pond may be constructed beside the pad to collect runoff, if required, and would also have a geosynthetic composite liner. The water in this pond will be routed to the process water pond for recycling through the processing plant and eventual treatment at the IWWTP.

4.2.8 Emissions Control Systems

Two stacks will be constructed for emission control in the yellowcake drying and yellowcake packaging areas. Ventilation from the yellowcake drying and packaging circuits goes to the appropriate emissions control system for cleaning before discharge into the atmosphere. The fans draw air through the system to collect particulate matter, which is then either misted with water to capture the particulates or filtered through a filter system. The water used in the scrubber is flow-controlled. Water from emissions control is recycled back to the yellowcake dewatering wash solution mix tank.

The lime and magnesium oxide silos will receive crushed quicklime or magnesium oxide from a transport truck. The lime or magnesium oxide shall be pneumatically unloaded from the truck to the silo via a local unloading blower. The silos will have a roof-mounted vent filter with replacement cartridge-type filter elements.

The lime detention slaker will have an induced draft wet dust scrubber for trapping fugitive particles leaving the slaker.

4.2.9 Site Infrastructure

4.2.9.1 Electrical Power

The Project's electric power will be supplied through the SaskPower grid. Denison owns the on-site fenced substation. The substation includes 138 kV incoming equipment, 138 kV/4160 V transformer(s), and 4160 V switchgear located in an electrical house.

Emergency standby, diesel-fired generators will be available for the Project. The emergency backup power will consist of two 4160 V generators with a total available capacity of approximately 2.6 MW. The generators will be located near the freeze plant and will electrically tie into the main substation's 4160 V switchgear. There will also be 450 kW, 600 V diesel generators providing backup power for the camp and the operations center.

4.3 Safety and Control Areas

Denison has developed a management system for the Wheeler River Project that consists of 12 programs based on Denison's organizational structure and the CNSC's 14 safety and control areas (SCAs). These programs organize areas of the Project, describe how regulatory requirements are met, provide an initial level of detail required for construction of the Project and introduces the plans and procedures that follow in the document framework hierarchy.

The management system will also consider future incorporation of a CNSC licence to prepare the site and construct infrastructure, as well as the subsequent creation of a Licence Condition Handbook.

The following subsections outline the 14 SCAs and how the Wheeler River management system has been developed to align with those areas.

4.3.1 Management

4.3.1.1 Management System

The Wheeler River *Management System Program* provides the framework for managing licensed activities at the Project. The *Management System Program* and its supporting programs, plans, procedures and work instructions describe the systematic management of activities during site preparation and construction activities, as required. It establishes management practices that will carry forward into the operation and decommissioning phases. The *Management System Program* ensures that Denison will operate in a safe, effective and efficient manner with safety as the paramount consideration. This program will be achieved by:

- Promoting a healthy safety culture.
- Ensuring continual improvement by learning from experience.
- Demonstrating leadership and accountability.
- Clearly defining roles and responsibilities.
- Ensuring that processes and outcomes will meet regulatory requirements.

Denison is the owner and will be the licensee accountable for execution of licensed activities proposed for the Project. Denison is utilizing an integrated project delivery (IPD) contract model that allows integration and collaboration between contract partners for the Project. Adherence to Denison's management system and project specific implementation documents ensures that regulatory requirements will be met through licensed activities during site preparation and construction phases of the Project.

Denison is working with third parties to support the design, construction and procurement activities for the Project. The Project team brings a diverse range of development and operational experience to support the engineering, design and construction of the Project and its components. Denison authorizes execution of the Project, including the scope, budget, schedule and contractual arrangement. The organization of the Integrated Project Team (IPT) can be seen below:

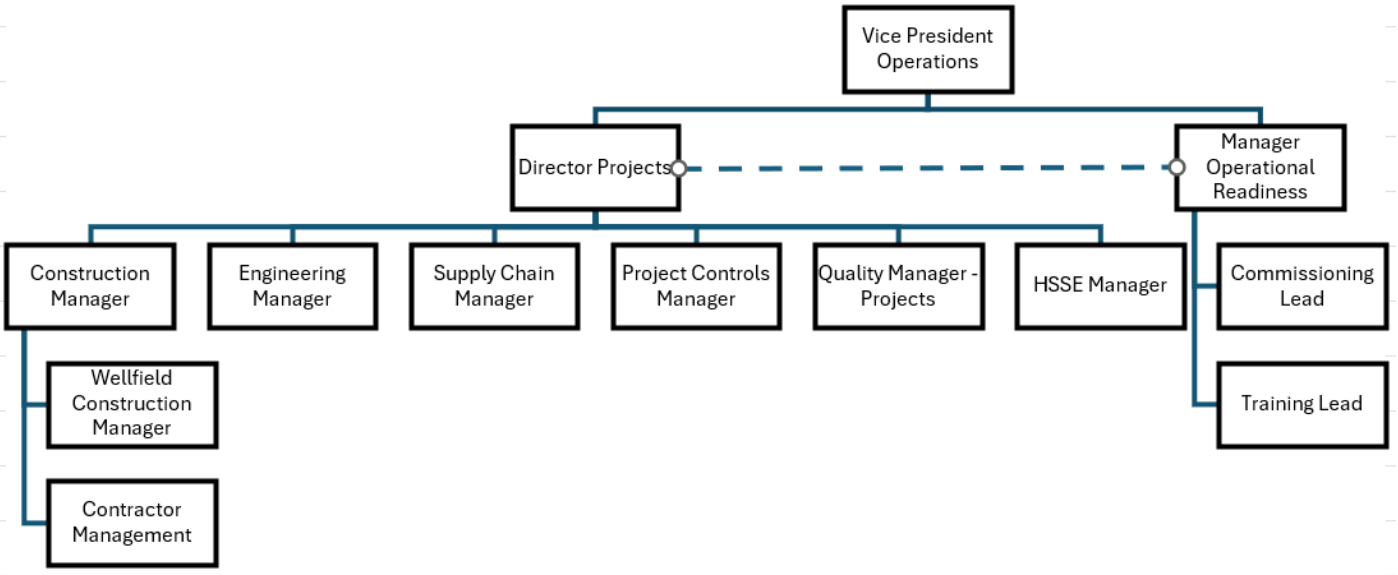


Figure 4-2 Wheeler River Project Integrated Project Team Organization Chart

Contractor management for the Project is aligned with the Wheeler River management system. Adherence to the documented and controlled process ensures that contractors and sub-contractors meet Project objectives regulatory requirements and safety protocols.

Contractor selection is also completed through a controlled and documented supply chain management process. This process ensures that supply chain activities for the Project:

- Conform to the highest ethical, safety, health, environmental and quality standards.
- Are executed in a consistent and efficient manner and that the process is utilized to achieve required outcomes.
- Comply with all relevant laws and regulations.
- Ensure that the equipment, materials and services are provided in conformance with technical and quality specifications.
- Procurement of items accommodates engineering and construction schedules and shipping requirements.

This ensures consistent alignment with Denison's supply chain processes, policies and practices including local/Indigenous engagement, ethical sourcing, health and safety, community responsibility, quality and business conduct guides.

Denison will also ensure that change from established processes, components, structures, systems, requirements or organizational structure is managed in a systematic manner following the change management process. The change management process includes identifying and providing the reason for the change. Subject matter experts then review the justification, the plan to accomplish the change and if needed, identify controls for any risks created. Changes are approved and assessed for associated regulatory requirements prior to implementation. Following implementation, the change is reviewed to verify that it is effective and does not create any unforeseen risk. Denison ensures change is managed to protect workers, the environment and property, and to ensure that regulatory requirements are met.

The *Management System Program* follows guidance and requirements of the CNSC REGDOC-2.1.1, *Management Systems,* and REGDOC-2.1.2, *Safety Culture.*

Additionally, the Program meets Sections 4 and 5 of CSA N286-12 *Management system requirements for nuclear facilities.*

4.3.1.2 Human Performance Management

The Wheeler River *Human Performance Management Program* describes and documents how Denison manages human performance and how it is integrated with all other programs within the management system. The *Human Performance Management Program* applies to all workers including contractors performing work at the site, and includes planning, delivering, evaluating and improving processes to manage and improve human performance effectively. Denison takes a systemic approach to human performance management by analyzing the interaction and relationships between workers, technology and Denison's organization to provide the support necessary to safely and effectively carry out their duties.

Denison believes the safety of workers, the public and the environment must guide the company's decisions and actions. A primary responsibility of leadership is promoting a strong safety culture and providing the resources and processes to support work practices that demonstrate Denison's commitment to safety.

Denison recognizes the value of having properly trained and fully competent workers to construct, commission, operate and decommission the Project safely and reliably. The Project's *Training Management Program* verifies that all workers are competent and qualified to perform duties related to the licensed activities being performed. The program applies to all Project workers including contractors at the site, and includes planning, delivering, evaluating and improving processes to manage and improve training-related activities effectively.

Denison ensures that all positions are systematically analyzed using the Systematic Approach to Training (SAT). The development of training follows a defined process which includes training analysis, design, development, implementation and evaluation.

Contractors are responsible for the training and qualification of their staff, supervisors, contractors and sub-contractors under their respective management systems. Documentation and verification of training records are required for all site workers. The qualification verification process applies to contractors and

is performed after a contract is awarded and before beginning work. Contractors hired for their specialized training and knowledge and must provide documentation of these qualifications prior to work initiation.

Denison ensures the Project maintains sufficient qualified and certified workers to carry on the licensed activities safely and in accordance with the Nuclear Safety and Control Act.

Denison's *Human Performance Management Program* and *Training Management Program* follow the guidance and requirements of the CNSC REGDOC 2.1.2, *Safety Culture*, REGDOC-2.2.1, *Human Factors* , REGDOC-2.2.2, *Personnel Training*, both REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue,* and *Fitness for Duty, Volume II: Managing Alcohol and Drug Use* and REGDOC-2.5.1, *General Design Considerations: Human Factors.*

Additionally, the Program meets provincial requirements from The Saskatchewan Employment Act, The Occupational Health and Safety Regulations, 2020, and The Mines Regulations, 2018.

4.3.1.3 Operating Performance

Adherence to the Wheeler River management system ensures that Denison has established sufficient measures, policies, methods and procedures for carrying out proposed activities. The Wheeler River *Management System Program* and *Human Performance Management Program* ensure Denison reviews the conduct of licensed activities and the activities that enable effective performance.

The *Facility and Equipment Management Program* ensures the performance of structures, systems and components throughout the facility's lifecycle. It also addresses the development, verification, validation and implementation of processes within the management system related to commissioning, reliability testing, maintenance, operation and decommissioning.

Construction management for the Project is aligned with Denison's management system and the requirements of its programs. The management system and project-specific implementation documents will be used to manage construction and commissioning activities effectively and consistently and ensure the design requirements for the project are achieved. Confirmation of these requirements includes ensuring facilities are built in accordance with the design basis, regulatory requirements and codes and standards applicable to the Project. Denison is responsible for the construction, commissioning and operational organization, which may be internal to Denison or from a contracted external organization.

Commissioning management is controlled and details documenting the methodology for verifying that the Project's operational specifications and requirements have been met. Commissioning refers to the activities from the point in the project when construction is complete and facilities and equipment are installed, until the equipment is placed into service and handed to the operations team for continued operation and maintenance. Commissioning management is also aligned with Denison's management system and the requirements of its Programs. Adherence to the management system ensures that Denison and its contractors and subcontractors meet project objectives, regulatory requirements and safety protocols.

The Project will employ a staged commissioning process consisting of four stages:

Stage 1: construction verification against design specifications and drawings
Stage 2: individual subsystem testing
Stage 3: integrated system testing
Stage 4: process commissioning.

The first two stages of commissioning are initiated following the completion of specific construction work packages, with Stage 3 advancing as integrated systems become available for execution of inspection testing plans. Stage 4 activities would advance in a controlled manner with limited introduction of process materials as necessary to ensure functionality of systems. All commissioning activities will be completed before commercial production and receipt of operating licences and permits.

Denison is requesting that commissioning activities be covered by this licence to prepare and construct the site and anticipates that process commissioning activities in the fourth stage will need to be discussed further with the CNSC staff, to allow these activities to progress before the transition to an operating license.

Programs within the Wheeler River management system follow guidance and requirements of the CNSC REGDOC 2.3.1 *Conduct of Licensed Activities: Construction and Commissioning Programs*, REGDOC-2.3.2, *Accident Management*, and REGDOC-2.3.3, *Periodic Safety Reviews*.

4.3.2 Facility and Equipment

4.3.2.1 Safety Analysis

Denison systematically evaluated the potential hazards associated with the proposed operations and facilities and considered the effectiveness of preventive measures and strategies in reducing the effects of such hazards. The safety analysis included a hazard and operability (HAZOP) study and risk assessment (including identification, characterization and integration into the Project's risk management processes). These analyses and integration into the management system confirm that the Project's design is abundantly robust to meet Denison's health, safety, radiation and environmental protection goals through the establishment of engineering and administrative control measures.

The development of pilot test studies, modelling exercises, baseline environmental data, the derivation of design criteria and the progress of detailed engineering have also supported the technical basis for the Project.

The *Facility and Equipment Management Program* adheres to the guidance and requirements outlined in the CNSC Safety Analysis SCA.

Additionally, the Program meets provincial requirements from the *Occupational Health and Safety Regulations* and *The Mines Regulations, 2018.*

4.3.2.2 Physical Design

The *Facilities and Equipment Management Program* verifies the ability of the structures, systems and components to meet and maintain their design basis, remain effective and perform as intended. This program also ensures that risk and hazard analyses have been applied to the design.

Denison's engineering design control plan is managed and details documented within the *Facility and Equipment Management Program* and throughout the Wheeler River management system. The plan ensures that engineering design completed both by Denison and by contractors is managed in accordance with The Engineering and Geosciences Professions Act (including the regulatory bylaws and code of ethics)

and meets the expectations and requirements of the CNSC REGDOC-2.5.1 *General Design Considerations: Human Factors,* as well as requirements from relevant sections of CSA N286. The plan applies to all acts of professional engineering on the project including:

- Civil engineering.
- Mechanical and structural design engineering.
- Maintenance engineering.
- Metallurgical engineering.
- Geological engineering.
- Geoscience, electrical, instrumentation and control system engineering, project engineering and human factors engineering.

The engineering and design process has seven stages: pre-feasibility, feasibility, front-end engineering and design (FEED), detailed engineering, construction, commissioning and close-out. Engineering and design work progresses through these stages considering the complexity, risk, scope and scale of engineering. The process guides the selection of the appropriate engineering stage in which to start, the stage(s) to include and the deliverable(s) for a given engineering scope. A stage gate review and approval process controls the progression of engineering from one stage to the next. All engineering and geoscience work must be reviewed and approved by a Denison Mines employee or authorized representative before its formal issue and use. Individuals are designated as technical reviewers and/or approvers in specific knowledge areas or disciplines by the licence holder. A list is maintained of technical reviewers and approvers classified by knowledge area and discipline.

Engineering design at Denison or completed by contractors on Denison's behalf is managed in accordance with the requirements of The Engineering and Geosciences Professions Act, including the regulatory bylaws and code of ethics. Engineers responsible for approving and validating work at Denison will be registered as Professional Engineers with the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS).

Denison considers human factors in facility design to help ensure that interfaces between humans and structures, equipment or substances during licensed activities occur without unacceptable impacts on workers, the public or the environment. The *Facilities and Equipment Management Program* and the engineering design process describes the systematic approach to considering human factors in design, ensuring that Denison's safety concepts are met.

The *Facility and Equipment Management Program* follows guidance and requirements of the CNSC REGDOC-2.5.1, *General Design Considerations: Human Factors*, and REGDOC-2.5.4, *Design of Uranium Mines and Mills: Ventilation Systems, Version 1.1.*

Additionally, the Program meets provincial requirements from the Occupational Health and Safety Regulations and The Mines Regulations, 2018.

All applicable buildings for the Project are designed to meet the *National Building Code,* the *National Plumbing Code,* and the *National Energy Code for Buildings,* which serve as the minimum standards for constructing buildings in Saskatchewan under *The Construction Codes Act.* The Project structures are subject to the jurisdiction of the Saskatchewan Ministry of Government Relations and the surface lease agreement at all times.

4.3.2.3 Fitness for Service

The Project's *Facility and Equipment Management Program* addresses fitness for service, ensuring that actions are taken to keep assets in safe operating condition, to extend their reliable lifespan or return them to safe operation following failure. Denison's overall maintenance process follows a structured workflow and systematic approach to defining asset specific maintenance plans and controls. Asset aging management is established to detect and arrest degradation before it becomes a hazard or significant risk.

The *Facility and Equipment Management Program* follows the guidance and requirements of CNSC REGDOC-2.6.3, *Aging Management* as well as provincial requirements from the *Occupational Health and Safety Regulations* and *The Mines Regulations, 2018.*

4.3.3 Core Control Processes

4.3.3.1 Radiation Protection

The Wheeler River *Radiation Protection Program* was designed and will be implemented such that Denison complies with or exceeds the level of radiation safety required by the applicable regulations and Denison's Environment, Health, Safety and Sustainability Policy. The *Radiation Protection Program* describes its purpose, scope and principles through the concept of ALARA. The program details the plan for risk management, sets radiation protection objectives and targets and identifies necessary qualifications and training. The program also describes the processes for controlling radioactive releases, emergency preparedness and response and the packaging and transport of radioactive materials. The *Radiation Protection Program* describes requirements for exposure risk controls, contamination monitoring, bioassay monitoring, equipment purchase and maintenance controls, contractor management and deviation and incident reporting.

During construction, workers involved in the development of the wellfield are expected to be categorized as nuclear energy workers (NEWs). As work advances towards commissioning, it is expected that additional worker types will be categorized as NEWs. Routine area monitoring and radiation risk assessments will be used to identify whether conditions warrant status changes for workers.

External gamma radiation doses will be monitored in all work areas by means of:

- Personal dosimeters worn by all workers (dose recorded daily in µSv/day).
- Hand-held meters used by radiation technicians to characterize key sources.

Radon exposure levels will be monitored in all work areas by means of:

- Air grab samples taken in all work areas (results in working levels (WL)).
- Continuous air monitors (CAM) in key work areas (colour warnings indicate WL range).

Low level radioactive dust (LLRD) exposure levels will be monitored in all work areas by means of:

- Air grab samples taken in all work areas (results as fraction of derived air concentration (DAC)).
- Dust pumps worn by workers in key LLRD work areas (results given as fraction of DAC).

Worker effective dose will be calculated as the sum of three components: gamma radiation, radon and LLRD. A licensed dosimetry service will be used to measure and monitor doses for all NEWs who have a

reasonable probability of receiving a total effective dose above 5 mSv/year. Doses for all NEWs requiring licensed dosimetry will be reported to the National Dose Registry.

Facility design has incorporated features intended to reduce radiation exposure, including:

- Sparging to off-gas dissolved RnG from the UBS and venting it to atmosphere.
- Ventilation in all enclosed work areas (six exchanges per hour) to control worker exposure to LLRD and to RnG and RnP.
- Negative pressure enclosure of key LLRD sources in the drying area and the packaging/loading area (drum loader).
- Shielding around source materials including steel in tanks and drums, HDPE in totes and piping and berm around the special waste pad to reduce external radiation exposure.

Zones of potential surface contamination will be defined as a basis for understanding potential for radioactivity transport by workers between zones and for the design of access controls to prevent contamination of clean areas.

Equipment for measuring radiation exposure and procedures for use and maintenance of such equipment are important in control of exposures. In addition, personal protective equipment such as respirators will be available for unusual situations that may require additional exposure control.

During the initial construction phase, most work areas will not have contact with radiological material and therefore will not require specific radiological monitoring and control. The movement and accumulation of all forms of radioactive contamination will be monitored via dosimetry and area monitoring. Contamination control measures will be in place to minimize the spread of radioactive materials into unintended locations.

Denison's comprehensive *Radiation Code of Practice* has established a conservative interim action level; it explicitly defines mitigation plans and reporting procedures that will be implemented immediately if these action levels are reached. This ensures a predefined and controlled response to any potential loss of control of radiation dose.

The *Radiation Protection Program* follows guidance and requirements of the CNSC the *Uranium Mines and Mills Regulations (SOR/2000-206)*, REGDOC-2.7.1, *Radiation Protection*, REGDOC-2.7.2, *Dosimetry, Volume I: Ascertaining Occupational Dose*, REGDOC-2.7.2, *Dosimetry, Volume II: Technical and Management System Requirements for Dosimetry Services,* and REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy.*

Additionally, the program meets provincial requirements including the *Occupational Health and Safety Regulations, 2020.*

4.3.3.2 Conventional Health and Safety

The Wheeler River *Health and Safety Management Program* is designed to provide protection for workers and public health and safety in relation to the Project. The program promotes employee participation in implementing safety and health processes and procedures designed to minimize risk to the health and safety of workers posed by conventional workplace hazards.

The *Health and Safety Management Program* defines processes for managing workplace safety hazards, maintaining health and safety records, investigating and reporting safety-related incidents and training and integrating employees and contractors.

Controls identified during risk assessments are used to eliminate, prevent or reduce the risk of injury, illness or disease to workers. Controls corresponding to the level of risk are selected and implemented with consideration of the hierarchy of controls as outlined in the *Health and Safety Management Program*. Examples of controls include guards, signage, equipment, processes, products, safe work practices and PPE.

The *Health and Safety Management Program* follows guidance and requirements of the CNSC REGDOC-2.1.2*, Safety Culture*, and REGDOC-2.8.1, *Conventional Health and Safety*, REGDOC-2.2.2, *Personnel Training*, and both REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue* and *Fitness for Duty, Volume II: Managing Alcohol and Drug Use.*

Additionally, the Program meets provincial requirements including The Saskatchewan Employment Act, S-15.1, the Mines Regulations, 2018 and the Occupational Health and Safety Regulations, 2020.

4.3.3.3 Environmental Protection

The Wheeler River *Environmental Management Program* provides a framework for environmental monitoring and management plans and a means to demonstrate compliance with regulatory requirements and other environmental objectives including performance targets that Denison has set. The *Environmental Management Program* identifies environmental aspects associated with Denison's licensed activities and develops and maintains operational controls over them.

The *Environmental Management Program* is used to integrate Denison's environmental protection measures into a documented, managed and auditable process, and encompasses:

- Identifying and managing environmental risks.
- Identifying, implementing and maintaining pollution control activities.
- Effluent and emissions monitoring.
- Environmental monitoring.

The *Environmental Management Program* is supported by several more detailed plans:

The *Environmental Monitoring Plan* has been developed to meet REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*, and to follow guidance from CSA N288.4:19. The *Environmental Monitoring Plan* will assist in the collection of data required to assess potential biological effects to the environment from contaminants and physical stressors of concern arising from activities by Denison, to demonstrate compliance with applicable limits of contaminants and/or physical stressors in the environment and to confirm the effectiveness of containment and effluent control.

The *Effluent and Emissions Monitoring Plan* has been developed to meet effluent and emissions monitoring as described in REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures,* REGDOC-2.9.2, *Controlling Releases to the Environment* and to follow guidance from CSA N288.5. The *Effluent and Emissions Monitoring Plan* provides information to support assessment of potential risks to people, the environment and radiation dose risks, and to provide early warning of any unusual or unforeseen releases of nuclear or hazardous substances to the environment. Effluent and emissions monitoring will be risk-based, focused on both nuclear and hazardous substances and providing

a characterization of released COPCs sufficient to support the ongoing risk assessment, and to demonstrate adequate control of releases for environmental and human health, including the public and Indigenous Nations and communities, protection.

The *Groundwater Protection and Monitoring Plan* is one component of overall environmental protection under REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*, as well as addressing CSA N288.7-23, *Groundwater protection and monitoring programs for nuclear facilities and uranium mines and mills.* The *Groundwater Protection and Monitoring Plan* is informed by the understanding of existing groundwater conditions at the site, the reactive transport modelling of groundwater constituents associated with the decommissioned mining zone and the commitments made within the Geology and Hydrogeology chapters of the EIS for the Project. The plan outlines the protection of groundwater end use and the receiving environment, as well as how Denison ensures excursions from the mining zone are not occurring. If an excursion were to occur, the plan details the early warnings/signals of time and location so that appropriate evaluation and actions can be undertaken.

The *Environmental Code of Practice* was developed following guidance of CSA N288.8-17, *Establishing and implementing action levels for releases to the environment from nuclear facilities*. It defines the administrative and actions levels for selected nuclear and hazardous substances for the future release of treated mine effluent from the IWWTP to the environment. Exceedances of these levels will trigger responses outlined in the Wheeler River management system appropriate to the potential loss of control.

The *Biodiversity Management Plan* establishes the requirements for managing biodiversity throughout licensed activities, in accordance with regulatory obligations. The plan considers IK and LK as well as monitoring objectives, key performance indicators and evaluation of biodiversity conditions. The *Biodiversity Management Plan* is supported by the *Pre-clearance Wildlife Monitoring Plan*. The *Pre-clearance Wildlife Monitoring Plan* establishes the requirements and methods of pre-clearance wildlife surveys to identify possible wildlife site-specific habitat features in the Project Footprint. If features are identified, appropriate setbacks and/or timing windows will be implemented.

The *Spill Management Plan* establishes the requirements Denison will fulfill in the management of any potential environmental spills, including spills to land, air, and water, as defined in applicable legislation. The plan provides responses for both radiological and non-radiological hazardous material spills. Throughout the site preparation and construction activities of the Project, Denison will fulfill reporting requirements of the *Saskatchewan Discharge and Discovery Reporting Standard.*

Additionally, the Program meets provincial requirements under the Environmental Management and Protection (Saskatchewan Environmental Code Adoption) Regulations in accordance with The Environmental Management and Protection Act, 2010 and the Regulations stemming from it.

4.3.3.3.1 **Environmental Risk Assessment**

To support the environmental assessment process, an environmental risk assessment (ERA) was prepared in compliance with CNSC REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* and Canadian Standards Association (CSA) N288.6:22, *Environmental Risk Assessments at Nuclear Facilities and Uranium Mines and Mills*. The ERA included a human health risk assessment and an ecological risk assessment. The objectives of the ERA for the Project were to:

- Predict and assess the risk to representative human and ecological receptors resulting from:

- Exposure to physical stressors resulting from the project, and
- Exposure to radiological and non-radiological substances expected to be released throughout project phases.

- Inform decision making in the EIS.
- Inform development of monitoring and mitigation measures.

The ERA identifies requirements for the control and monitoring of physical stressors and releases to the environment which are managed through the *Environmental Management Program.*

The exposure to radiological and non-radiological component of the ERA focused on COPCs that exceeded screening values in air and water based on predicted atmospheric and aqueous releases from the Project.

An environmental transport and pathways model (IMPACT^{TM}) was used to assess the effects of COPCs on the local environment, including human and ecological receptors. The selection of human and ecological receptors was informed by Indigenous and Local Knowledge.

The ERA estimated dose and risk to human and ecological receptors during all project phases and for the future-centuries' scenario.

The HHRA focused on members of the public potentially exposed to low levels of airborne or waterborne constituents. The selected human health receptor groups included a camp worker, a seasonal resident, a recreational fisher/hunter and a fisher/trapper. In the future-centuries' scenario, a hypothetical permanent resident rather than a camp worker was assessed at the former mine site.

A subset of VCs identified for the EA was used as ecological receptors for the ERA so that results from the ERA could be used in the effects assessments for fish, vegetation, wildlife, human health, Indigenous land and resource use and other land and resource uses. Recommended monitoring is supported through the *Environmental Management Program* to reduce uncertainty over time through an iterative process. Monitoring will focus on collecting data to verify ERA model predictions as well as providing data to improve model predictions as the operation progresses.

4.3.3.4 Emergency and Fire Protection

The Wheeler River *Emergency Preparedness and Response Program* identifies how Denison will prepare for and address emergencies to protect the health and safety of people and the environment and property. The program describes the framework, principles and processes used to prevent, plan for and respond effectively and safely to emergencies.

Additionally, the Wheeler River *Fire Protection Program* describes the activities and methods required to manage fire protection for the Project. The program applies hazard and risk analyses and demonstrates compliance with applicable fire protection codes and standards.

Both programs follow guidance and requirements in the CNSC REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response* as well as CSA N393 *Fire protection for facilities that process, handle, or store nuclear substances*, requirements of the Environmental Emergency Regulations, and provincial requirements including the Occupational Health and Safety Regulations, the Fire Safety Act and The Mines Regulations.

4.3.3.5 Waste Management

The Wheeler River *Waste Management Program* provides the framework for the processing, storage and disposal of wastes to protect workers, the public and the environment and to assure compliance with applicable regulatory and licence requirements.

The *Waste Management Program* includes the characterization of wastes at the Project (radiological and hazardous non-radiological) and requirements for waste segregation, packaging and transfer and plans for storage or disposal. *The Waste Management Program* outlines the principles of reduction, reuse, recycle and recovery (the 4 Rs) applied at the Project.

Special waste is defined as mineralized materials that cannot be disposed of in the clean waste pile. It is made primarily of drill cores, cuttings, muds and related drilling products from wellfield development. Special waste will be determined by a radiometric scan and sorted onto the special waste pad. The details of disposing mineralized/special waste rock and overburden are provided in the *Waste Management Program.*

Clean waste rock will be generated as sandstone cuttings from drilling activities. Clean waste rock will be stored on the clean waste rock pad. Clean waste is expected to be encountered from surface to 300 m below surface. The clean waste pile will be assayed and tested for potential acid generation (PAG) during operations to ensure the material can be re-used when required.

Release ponds for the Project consist of three effluent monitoring and release ponds. The ponds will eventually receive water from the IWWTP. The water received by the release ponds from the industrial treatment plant will be retained in ponds and will not be released into the environment until appropriate approvals are established.

Domestic wastewater drained from sinks, showers, washing machines and sewage will be generated at the camp, processing plant, airstrip terminal and operations centre. Domestic wastewater from camp, processing plant and operations centre will be directed to a domestic wastewater treatment plant (DWWTP) for onsite treatment. For the remaining areas there will be holding tanks installed in those buildings and domestic wastewater will be transported to the DWWTP by vacuum truck for treatment. Reject solids from DWWTP will be collected, dewatered and disposed of at an onsite landfill or at the site composting system.

Domestic waste is defined as waste materials generated from the camp facility and offices in other non-contaminated areas. Domestic waste is collected in garbage bins and recycling bins distributed around the site. Recyclable materials are collected and sent to an approved recycling depot. Clean combustible material may be burned only when authorized by a provincial Permit to Burn. Denison proposes to use a composter for the disposal of food wastes; this will be a Brome composting system which is enclosed in a sea container. After composting is complete, a summer outdoor curing phase will be required. A domestic waste landfill will be used to manage non-recyclable inert wastes (including non-recyclable plastics, broken furniture, textiles and other non-recyclable items from the camp and operations site). The landfill will be developed as per the regulations set out by the SK MOE. Site runoff from non-contaminated areas will be diverted away from the facilities. Site runoff from potentially contaminated areas including the process precipitates storage pad and special waste pad will be collected and stored in double-lined ponds prior to treatment in the IWWTP.

Denison is considering decommissioning planning through the site preparation and construction phases of the Project by considering the waste hierarchy, including waste minimization, reducing radioactivity,

reusing and recycling materials and components and disposing of waste. Waste will be moved from the decontamination and dismantling areas to the areas designated for subsequent steps of waste management. The monitoring and processing areas should be designed and operated to keep recyclable and reusable materials separate from waste materials.

The *Waste Management Program* follows guidance and requirements in the CNSC REGDOC-2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada*, REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*, REGDOC-2.11.1, *Waste Management, Volume II: Management of Uranium Mine Waste Rock and Mill Tailings*, and REGDOC-2.11.2, *Decommissioning.*

Additionally, the Program meets CSA N288.4, *Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, CSA N288.5, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*, the Transportation of Dangerous Goods Regulations, and provincial requirements including The Environmental Management and Protection Act, 2010 and the Saskatchewan Hazardous Substances and Waste Dangerous Goods Regulations, Chapter E-10.2 Reg 3.

4.3.3.6 Security

The Wheeler River *Security Management Program* outlines a risk-based approach to managing security activities including facilities, equipment and materials. The program provides the framework and describes the processes to verify compliance, enable continual improvement and support effective security management.

Wheeler River is considered a remote location, therefore, fencing surrounding the property is not deemed necessary. An 8-foot fence security gate will be installed to prevent vehicles from having uncontrolled access to the Project site. The security office will have an unobstructed view of approaching vehicles, control over entrance gate lighting, and closed-circuit television (CCTV). By its very nature, the Project's remoteness assists with access control.

All personnel, including employees of the Project and contractors, visitors and service and delivery personnel, will enter the site either via the airport terminal or by vehicle at the security gate. Air transportation arriving and departing from the site will be controlled and monitored utilizing prior access authorizations, approval of manifests, airport check-ins and visitor instructions. Any inbound or outbound aircraft will be managed in accordance with the Transport Canada Canadian Aviation Regulations.

Road access to the Project is from Highway 914and will lead to the gatehouse where entrance and exit from the site is controlled by pre-authorized gate passes and vehicle inspections. Security personnel are responsible for controlling the gate access and for logging all data pertaining to inbound and outbound vehicles.

The *Security Management Program* follows guidance and requirements in the CNSC REGDOC-2.1.2, *Safety Culture*, and REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy.*

Additionally, the Program meets the requirements of the International Atomic Energy Agency (IAEA) *Nuclear Security in the Uranium Extraction Industry, 2016* and the provincial requirements of The Private Investigators and Security Guards Act, 1997 and The Private Investigators and Security Guards Regulations, 2000.

4.3.3.7 Safeguards and Non-Proliferation

The Wheeler River *Security Management Program* and *Radiation Protection Program* set out detailed processes to protect and manage nuclear substances and radiation devices. This includes radiological surveys of equipment exiting the Project site. Mandatory material inventory summaries will be completed for Group 2 materials as per CNSC nuclear material accounting requirements.

The *Security Management Program* follows guidance and requirements in the CNSC REGDOC-2.1.2, *Safety Culture*, and REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy.*

Additionally, the Program meets the requirements of the International Atomic Energy Agency (IAEA) *Nuclear Security in the Uranium Extraction Industry, 2016* and provincial requirements of The Private Investigators and Security Guards Act, 1997 and The Private Investigators and Security Guards Regulations, 2000.

4.3.3.8 Packaging and Transport

Transportation of uranium concentrate beyond the Project boundary is not within the scope of activities Denison is requesting be conducted under the licence to prepare a site and construct a uranium mine and mill.

4.4 Other Matters of Regulatory Interest

4.4.1 Public and Indigenous Engagement

The Wheeler River *Public and Indigenous Information Program* identifies the Indigenous and local communities and members of the public who will be communicated with and informed about aspects of the Project through licensed activities. The program summarizes how Denison will communicate with northern Saskatchewan's Indigenous and local communities. The *Public and Indigenous Information Program* also outlines the processes for monitoring and measuring program performance and for continual improvement.

The *Public and Indigenous Information Program* follows the guidance and requirements outlined in the CNSC REGDOC-3.2.1, *Public Information and Disclosure* and REGDOC-3.2.2, *Indigenous Engagement.*

Engagement with Indigenous communities and organizations, the public and regulatory agencies has been a crucial aspect of the Project since 2016. Denison adopted a collaborative approach to develop meaningful relationships. Engagement was designed not only to comply with regulatory requirements, but also to meet the expectations of interested parties. Section 2 provides details pertaining to Public and Indigenous engagement for the Project.

4.4.2 Other Regulatory Approvals

4.4.2.1 Mineral Surface Lease Agreement

Before constructing surface facilities, Denison must obtain a mineral surface lease agreement authorizing the company to occupy Crown land. Surface leases are coordinated through the Saskatchewan Ministry of Government Relations, Northern Engagement Branch and the SK MOE, Lands Branch with input from other ministries or branches as required.

4.4.2.2 Provincial Permitting

Denison must obtain an Approval to Construct a Pollutant Control Facility and a permit to construct a facility to handle hazardous substances or waste dangerous goods from the SK MOE.

4.5 Decommissioning and Financial Guarantee

4.5.1 Decommissioning

The Wheeler River *Preliminary Decommissioning Plan* (PDP) ensures that decommissioning and reclamation are considered at the outset of the Project to support effective planning and to meet federal and provincial regulatory requirements. Key reference documents for the PDP include CNSC's REGDOC-2.11.2, *Decommissioning* (CNSC 2021a) and the SK MOE's *Northern Mine Decommissioning and Reclamation Guideline* (SK MOE 2008).

Denison's commitment is to return the land to the Government of Saskatchewan for unrestricted surface land use after decommissioning and a period of monitoring. The PDP outlines how radiological, physical and chemical risks will be managed during decommissioning. Denison will prioritize passive versus active controls to reduce long-term risk.

Broadly, the PDP outlines physical decommissioning and reclamation activities. Decommissioning is expected to take approximately five years. The main physical decommissioning activities are:

- Mining area remediation.
- Asset removal.
- Decontamination, demolition and disposal.

Progressive reclamation will be completed throughout the life of the Project when feasible and reported to the regulatory agencies throughout the Project. Progressive decommissioning activities will focus on the decontamination, demolition and disposal of unused buildings and infrastructure, as well as the removal of unused equipment and machinery. Reclamation of inactive areas will occur when these areas become available.

Closure of the entire Project will be conducted in accordance with provincial and federal regulations and guidance documents with the goals of protecting human health and the environment and confirming the physical and chemical stability of the site.

4.5.2 Financial Guarantees

Denison will provide a financial guarantee to ensure that identified decommissioning activities will be completed as planned. Consistent with other uranium mining projects in Saskatchewan, it is Denison's intention to use a surety bond as the financial guarantee instrument for the Project.

Preliminary decommissioning cost estimates have been prepared based on the activities and assets proposed to be constructed. The SK MOE has provided confirmation that the ministry has reviewed and deemed the preliminary decommissioning cost estimate acceptable at this time.

The schedule of contributions for decommissioning is based on the annual plan of construction activities from the date of commencement to completion of construction. Financial assurance will be provided based on the expected milestone construction activities that are expected to be completed and the assurance based on a percentage of the total cost estimate. Guaranteed figures for each phase will be established at the start of each of the two phases proposed for the Project's site preparation and construction, totalling a guaranteed $42.7 million for the final year of anticipated activities.

Denison understands that the Government of Saskatchewan and the CNSC have a memorandum of understanding to work collaboratively to determine the appropriate financial credit but that the Government of Saskatchewan holds the responsibility for the financial guarantee.

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6 Glossary

6.1 Definitions

Accident and malfunction scenarios	Potential non-routine events that could affect human health or the biophysical environment
Adaptive Management	A systematic process for continuously improving management policies and practices by learning from the outcomes of implemented management strategies.
Aging management	Actions taken to detect degradation and prevent it from becoming a hazard or significant risk to maintain safe operating condition or extend asset lifespan
Ambient air quality	The quality of air in a remote area, influenced by Project activities like clearing, construction, drilling, fuel combustion, and plant operations
Aquatic environment	Assessed through Valued Components such as Surface Water Quantity, Surface Water Quality, Fish and Fish Habitat, Sediment Quality, Benthic Invertebrates, and Fish Health
Aquitard	A geological formation that slows down groundwater flow.
Athabasca Basin	A region in northern Saskatchewan, Canada, known for its uranium deposits, where the Wheeler River Project is located
Baseline Conditions	The existing environmental, social, and economic conditions in an area prior to the commencement of a project, against which potential changes are measured.
Benthic invertebrates	Organisms living in or on the bottom sediments of water bodies, whose community structure and health are sensitive to sediment quality changes
Biophysical environment	One of the two main assessment areas in the Environmental Assessment, covering atmospheric/acoustic conditions, geology/groundwater, aquatic environment, and terrestrial environment
Bounding Scenarios	Hypothetical situations used in risk assessment to represent the plausible worst-case or most extreme conditions for analysis.
CALPUFF Model Platform	A predictive modeling tool used to assess changes in air quality resulting from Project activities and emissions
Chilled Brine Solution	A liquid (e.g., calcium chloride brine) circulated through holes to freeze the ground, forming a containment barrier known as a freeze wall
Climate Change	Long-term changes in weather patterns attributed to increased atmospheric greenhouse gases, leading to shifts in extreme climatic events and regional weather
Community Cohesion	The degree of connectedness and solidarity among members of a community.
Constituents of Potential Concern	Radiological and non-radiological substances that could affect ambient air quality or local surface water environments.

CORMIX	A software platform used for near-field water quality modeling to evaluate the initial mixing of treated effluent at a discharge point
Country Foods	Traditional foods, such as moose, woodland caribou, fish, and berries, culturally important to Indigenous communities, whose availability and perceived suitability can be affected by the Project
Crown's Duty to Consult	The government's obligation to consult with Indigenous communities when a project may impact Indigenous and Treaty Rights
Cultural Expression	Activities and practices that Indigenous people consider necessary to support their cultural continuity, including knowledge transmission and traditional diet.
Cumulative Effects	Changes to the environment that are caused by an action in combination with other past, present, and reasonably foreseeable human actions.
Decommissioning	The phase of a project lifecycle where facilities are removed or made safe, and the site is returned to a pre-determined state.
Defence-in-depth approach	A multi-layered safety strategy using successive barriers to protect against potential hazards.
Ecosite	A distinctive and repeating unit of land that is characterized by a specific combination of soil, vegetation, and climate.
Ecosystem Function	The processes or interactions that occur within an ecosystem, such as nutrient cycling, water purification, or habitat provision.
Edge Effects	Changes in environmental conditions (e.g., light, temperature, wind, moisture) at the boundary between two distinct habitats or land uses.
Effluent	Liquid waste or wastewater discharged from a facility, often after treatment.
Effluent Treatment	The process of treating contaminated waters, including process water and wastewater, to meet regulatory standards before discharge or reuse
Existing environment	The current conditions of the biophysical and human environments, serving as a baseline against which Project-related changes are measured
Freeze Wall	An engineered barrier created by freezing the ground, used to contain fluids and prevent groundwater flow into or out of a mining area.
Fugitive Particulate Emissions	Dust emissions arising from unpaved roads, open areas, and material stockpiles
Fur Conservation Blocks	Designated areas established in Saskatchewan for managing and conserving fur resources, often historically used by specific Indigenous communities for trapping
Geomorphology	The study of physical features on the Earth and their relationship to underlying geological structures
Groundwater Flow Regime	The pattern and direction of groundwater movement within geological formations.

Hazard Scenarios	Project-specific events identified as having the potential to cause harm to human health or the biophysical environment
Heritage Resources	Archaeological and culturally significant sites or artifacts important to Indigenous communities.
Human Health	An attribute of the human environment evaluated in the EA, assessing potential health impacts on people from Project activities
Hydraulic Conductivity	A measure of a material's ability to transmit water.
Hydraulic Fracturing	An oil production method that was distinguished from In-Situ Recovery (ISR) during community engagement, with Denison clarifying the differences in pressure, technique, and environmental control
Hydraulic Gradient	The rate of change in hydraulic head per unit of distance, indicating the direction and magnitude of groundwater flow.
Hydrological Flow Model	A site-specific model developed from hydrological records to support the assessment of surface water quantity changes caused by the Project
IMPACTTM platform	A regional water quality model used to evaluate the effects of Constituents of Potential Concern (COPCs) on human and ecological receptors and to predict sediment quality
Interested Parties	A collective term for local and Indigenous communities, residents, businesses, organizations, land users, and regulatory authorities affected by or interested in the Project
Intermediate VC	An environmental feature (e.g., air quality, groundwater) that acts as a pathway for Project-environment interactions leading to effects on a Receptor VC, and for which significance is not directly determined
Knowledge Transmission	The process of sharing cultural knowledge, skills, and practices, often across generations within Indigenous communities.
Leaching	The process in In-Situ Recovery (ISR) mining where an acidic solution dissolves uranium from the host rock, which is then recovered at the surface
Metallurgical testing	Studies conducted to confirm the chemistry of leaching and processing, and to define design criteria for uranium production and effluent treatment
Mitigation Measures	Actions taken to eliminate, reduce, or control the adverse effects of a project on the environment or human well-being.
Mud Rotary Drilling	A common drilling technique planned for use in developing ISR wells, groundwater monitoring wells, and freeze holes
Natural Attenuation Mechanisms	Processes that contribute to the conclusion that there is no significant long-term geological risk to aquatic or terrestrial systems
Numerical Groundwater Model	A rigorous predictive tool used to simulate the movement of dissolved constituents in remediated groundwater over extended periods, assessing interactions with surface water

Ore Zone	The specific geological area containing minerals that are economically feasible to extract.
Permeability	A characteristic of rock or soil indicating how easily fluids can flow through it; the sandstone hosting the uranium deposit is permeable, requiring containment measures like a freeze wall
Post-Decommissioning	The phase following the completion of active decommissioning, typically involving long-term monitoring and site inspections.
Process Precipitates	Solid materials that separate out from a liquid solution during the chemical processing of uranium.
Progressive Decommissioning and Reclamation	Ongoing activities throughout the Project's life cycle, including decontamination, demolition, asset removal, and the restoration of disturbed areas as they become available
Project-Specific Effects	Direct environmental changes resulting from the Project's footprint, components, and activities, assessed in the context of proposed mitigation
Radiation Protection	Design features and administrative controls implemented in the wellfield and processing plant to minimize worker radiation doses to As Low As Reasonably Achievable (ALARA)
Radon	A radioactive gas that naturally degasses from uranium-bearing solution at the surface; managed using a purge tank to reduce worker exposure
Radon Purge Tank	A component in the processing plant designed to remove initial volumes of radon gas from the uranium-bearing solution, reducing worker radiation exposure
Reagents	Chemical substances added to water to create the mining solution or used in the processing plant for uranium precipitation and wastewater treatment
Receptor Valued Component (VC)	An environmental feature or human attribute that is a biological or integrated assessment endpoint, and on which significance determinations are made.
Receptor VC	A Valued Component (VC) that is a biological or integrated assessment endpoint (e.g., Fish Health, Human Health), on which the significance of Project effects is determined
Reclamation	The process of restoring disturbed land to a functional ecological state or a pre-determined end use.
Residual Effects	The environmental or social effects that remain after all planned mitigation measures have been implemented.
Risk Matrix	A tool used in risk assessment to graphically represent the likelihood and consequence severity of potential events, often used to determine overall risk levels.
Sensitive Receptor Locations	Specific points or areas identified in an environmental assessment where potential project impacts on human health or ecological targets are most likely to occur and are closely monitored.

Significance Determination/Thresholds	The process of evaluating whether a residual effect is important enough to be considered significant, based on predefined criteria or benchmarks.
Significance Thresholds	Pre-defined criteria used to evaluate whether residual environmental effects, after mitigation, are considered significant
Subsidence	The gradual caving in or sinking of an area of land due to underground material removal or other geological processes.
Tailings Management Facility	A waste storage facility typically associated with conventional mining, but not required for the Wheeler River Project due to the In-Situ Recovery (ISR) method
Temporal Boundaries	The timeframes considered in an environmental assessment, typically encompassing all project phases (construction, operation, decommissioning, post-decommissioning) and potentially future scenarios.
Terrestrial Environment	The land-based components of the environment, including geology, soil, vegetation, and wildlife.
Traditional Diet	The foods regularly consumed by Indigenous peoples that are sourced from traditional harvesting practices (e.g., hunting, fishing, gathering).
Traditional Harvesting	Indigenous practices such as hunting, fishing, non-commercial trapping, and gathering of plant resources for subsistence and cultural purposes
Uranyl peroxide	The chemical compound, commonly known as 'yellowcake,' which is the final uranium concentrate product produced during processing
Valued Components (VCs)	Environmental features or human attributes that may be affected by a project and are identified as being of concern by stakeholders, government agencies, or the proponent.
Venturi Scrubber	An emissions control system used in the processing plant to capture particulates from off-gases before discharge to the atmosphere
Watershed	An area of land that drains all the streams and rainfall to a common outlet, such as a lake, river, or ocean.
Wellfield	In the context of ISR mining, an array of injection and recovery wells used to extract minerals from an ore body.
Yellowcake	A common name for uranium concentrate, the final product of uranium processing.

6.2 Acronyms

AAQC	Ambient Air Quality Criteria
AECL	Atomic Energy of Canada Limited
ALARA	As Low As Reasonably Achievable
Bq/m^3	Becquerel per cubic meter
CAAQS	Canadian Ambient Air Quality Standards
CEA	Cumulative Effects Assessment
CEAA	Canadian Environmental Assessment Agency (now Impact Assessment Agency of Canada)
CMD	Commission Member Document
CNSC	Canadian Nuclear Safety Commission
COI	Community of Interest
COPC	Constituents of Potential Concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA	Canadian Standards Association
DWWTP	Domestic Wastewater Treatment Plant
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Environmental Management System
ERA	Environmental Risk Assessment
ERFN	English River First Nation
FFT	Feasibility Field Test
GHG	Greenhouse Gas
HAZOP	Hazard and Operability
HHERA	Human Health and Ecological Risk Assessment
HHRA	Human Health Risk Assessment

HQ	Hazard Quotient
IK	Indigenous Knowledge
ILRU	Indigenous Land and Resource Use
IPP	Indigenous Peoples Policy
ISR	In-Situ Recovery
IWWTP	Industrial Wastewater Treatment Plant
KI	Key Indicator
kV	Kilovolt
KML	Kineepik Métis Local #9
Ldn	Total Day Night Levels
Ld	Daytime
Ln	Nighttime
LK	Local Knowledge
LSA	Local Study Area
MDMER	Metal and Diamond Mine Effluent Regulations
MW	Megawatt
mGy/d	milligray per day
MN-S	Métis Nation–Saskatchewan
MOU	Memorandum of Understanding
NSCA	Nuclear Safety and Control Act
OLRU	Other Land and Resource Use
ORP	Oxidation Reduction Potential
PM_{10}	Inhalable particulate matter
$PM_{2.5}$	Respirable (fine) particulate matter
RSA	Regional Study Area

SAAQS	Saskatchewan Ambient Air Quality Standards
SAR	Species at Risk
SARA	Species at Risk Act
SCA	Safety and Control Area
SK CDC	Saskatchewan Conservation Data Centre
SK MOE	Saskatchewan Ministry of Environment
SO_2	Sulphur Dioxide
TK	Traditional Knowledge
U_3O_8	Triuranium octoxide, a standard reference compound for production purposes
$UO_4 \bullet 2(H_2O)$	Uranyl peroxide, uranium concentrate, Yellowcake, the primary chemical formula of dried product produced in the Phoenix process
TSP	Total Suspended Particulate
UBS	Uranium bearing solution
VC	Valued Component
WTP	Water Treatment Plant
YNLR	Ya'thi Néné Lands and Resources Office