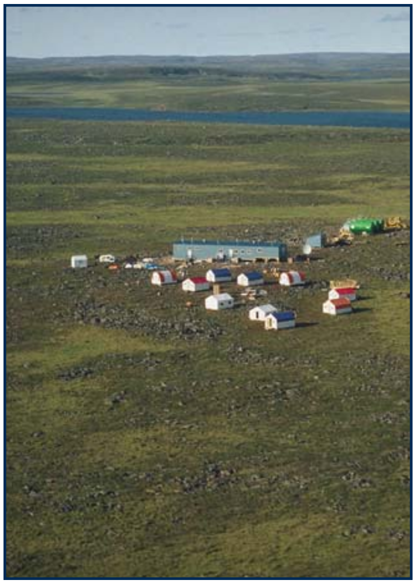


EXECUTIVE SUMMARY

Cumberland Resources Ltd. (Cumberland) is proposing to develop an open pit gold mine on the Meadowbank property. The property is located in the Kivalliq Region of Nunavut approximately 70 km north of the Hamlet of Baker Lake on Inuit-owned surface lands. Cumberland has been actively exploring the Meadowbank area since 1995. Engineering, environmental baseline studies, and community consultations have paralleled these exploration programs and have been integrated to form the basis of current project design. Cumberland has complied with all governmental policies and regulations pertaining to environmental and socioeconomic issues in developing the Meadowbank project, and has an exemplary local employment and safety record over nine years of exploration in Canada's Arctic.

This Final Environmental Impact Statement (FEIS) is submitted in accordance with the Nunavut Impact Review Board's (NIRB) requirements for proposed mine developments established by Part 5 of the Nunavut Land Claims Agreement. Cumberland has written this FEIS based on all guidelines and instructions issued by NIRB. The objective of the EIS and its supporting documents is to provide a detailed description of the proposed project, current physical, biological, and socioeconomic conditions, potential impacts, mitigation and management strategies, and long-term monitoring plans. The lead authorizing agency, NIRB, will facilitate a comprehensive review of the documents and determine whether additional information is required.

As of February 2005, the Meadowbank Gold project hosts estimated combined proven and probable open pit mining reserves containing 2,768,000 oz of gold. The economics of the project are sensitive to fuel prices and construction capital costs, both of which are common factors of northern mine development and operations. A feasibility study of the Meadowbank Gold project was completed in early 2005.

Many alternatives were considered in developing the Meadowbank project, including the “no-go alternative.” Environmental, traditional knowledge, and economic issues were important in evaluating the alternatives and deciding the preferred options.

Meadowbank is planned to have a 12-year project life. The project will have a 2-year construction period, followed by 8 years of mine operation and a 2-year closure period. During the construction period, up to 310 jobs will be created; approximately 370 jobs will be created through the operating mine. Similar to the gold and diamond mines currently operating in the Arctic, Meadowbank is planned as a “fly-in/fly-out” operation with personnel rotated every several weeks by air transportation. It is reasonable to expect that the operations could be extended as a result of continued exploration. Depending on local workforce capacity, skill levels and training programs during the early operational life of the mine direct project wages paid to workers from Baker Lake and the rest of the Kivalliq Region could exceed $4 M annually with 90 jobs.

Based on an estimate of total construction expenditures and operating expenditures of $304 M and $100 M per year, respectively, total expenditures on local wages, goods, and services could be in the order of approximately $224 M during the 12-year project life.

PROJECT DESCRIPTION

Meadowbank Deposits

Three significant gold deposits— Portage, Goose Island, and the Vault—have been identified on the property. These deposits have been defined by 111,576 m of drilling in 801 diamond drill holes. As of February 2005, the project hosts estimated proven and probable open pit mining reserves of 21.9 Mt grading 3.93 g/t of gold or 2,768,000 oz.

The Meadowbank gold deposits have relatively simple mineralogy consisting of pyrite and pyrrhotite hosted in oxide facies iron formation and intermediate volcanic rocks. The gold deposits and host rocks contain minor arsenopyrite and trace amounts of sphalerite and chalcopyrite.

Mining & Waste Rock Management

Open pit mining is planned in three separate areas. The Portage open pit (consisting of North Portage and Third Portage) is expected to be the largest, measuring 2,000 m long, 200 to 400 m wide, and 160 m deep. The Goose Island open pit is less than 500 m in diameter and 175 m deep. The Vault open pit, located 5 km north of Portage and Goose Island, is designed to be approximately 900 m long, 600 m wide, and 185 m deep.

Dewatering dikes will be constructed at the Portage, Goose Island, and Vault areas to allow mining of the ore where it occurs beneath shallow lakes. The dikes will be constructed in water approximately 2 to 16 m in depth, using appropriate rock selected from surface mining activities. Fish will be removed before dewatering. On closure, the pits will be flooded and fish will be allowed to return once water quality conditions are acceptable.

Dike construction will utilize floating sediment curtains as needed to minimize the release of suspended solids into surrounding lake waters. Mine waste rock will be placed in two land-based storage areas. As mine scheduling permits, some mine rock may be stored in mined-out pit areas and some will be used as cover for tailings. It is expected that superchilling in the cold northern climate will minimize surface runoff during operations. Where required, potentially acid-generating (PAG) waste rock will be covered with buffering waste rock material during progressive reclamation and closure activities. Permafrost will aggrade through the cover and waste rock, thereby encapsulating all potential contaminants. Waste rock that is geotechnically and environmentally suitable will be used in constructing the airstrip, roads, and site facilities. Some of the overburden material will be used as a low permeability central core material in constructing the dewatering dikes. During mining, water collected from the base of open pits will be collected and treated as required prior to discharge.

Ore Processing & Tailings Management

Metallurgical studies have been completed to support a conventional milling process flowsheet for the Meadowbank project. The preferred option leaches a total mill throughput of greater than 7,500 tpd, and includes standard crushing and grinding, gravity concentration, and carbon-in-pulp (CIP) cyanide leach technology, followed by cyanide destruction, and refining to doré bars.

In the proposed flowsheet, ore is delivered from the mine to a blending and surge pad at the crusher. Run-of-mine ore is crushed in a gyratory crusher and conveyed to an open coarse ore storage pile. The ore is reclaimed and ground in two stages: semi-autogenous grinding (SAG) and ball mill grinding.

The SAG and ball mills discharge the ground product to cyclones for size classification. Gravity separation of liberated gold particles is applied within the grinding circuit. A high-grade gravity concentrate suitable for treatment by intensive cyanidation in an Acacia reactor is then produced. The milled ore is pre-aerated prior to treatment in a CIP cyanidation circuit. The CIP circuit concurrently dissolves the gold and adsorbs it onto activated granular carbon. The loaded carbon from the CIP circuit is stripped in a pressure Zadra-type elution circuit. The stripped carbon is reintroduced to the CIP circuit. Gold is recovered from the strip solution in the Acacia reactor by electrowinning. The gold-laden cathodes are treated in an on-site refinery to produce gold doré bars. The overall gold recoveries will be approximately 93.5%.

Tailings from the CIP circuit will be treated with sodium metabisulphite and air, a combination that is effective and commonly used for cyanide destruction. To minimize the potential for ARD to develop, the treated tailings will be disposed of using a permanent freezing concept in the Second Portage Arm impoundment area. In addition to freezing, PAG tailings will be covered with acid-buffering material during progressive reclamation and through closure. According to the thermal model, permafrost will develop and remain intact under the current climate change predictions. The closed tailings facility will be re-contoured to blend into the landscape, having comparable relief with the adjacent natural topography.

Site Facilities & Services

The implications of the cold climate have been taken into account in the design of the process buildings, which will be supported on concrete foundations extending to bedrock. The foundations will be built at a suitable elevation to prevent frost damage. Recovered heat from the power plant will be used to heat the entire plant and camp building complex.

On-site infrastructure for the proposed mine will include a process plant, power plant, maintenance facilities, tank farm, accommodation facilities for approximately 250 personnel, sewage treatment facility, on-site access roads, airstrip, and potable water treatment plant. Barge unloading facilities, a laydown area, and tank farm will also be required in Baker Lake for storing and staging materials to be transported on the haulage road.

The mine and camp fresh water supply will be pumped from Third Portage Lake. Sewage will be collected and pumped to a sewage treatment plant that meets Nunavut guidelines for wastewater discharge. The treated sewage effluent will be discharged to the tailings pond. Mine process water will be primarily reclaimed from the tailings pond.

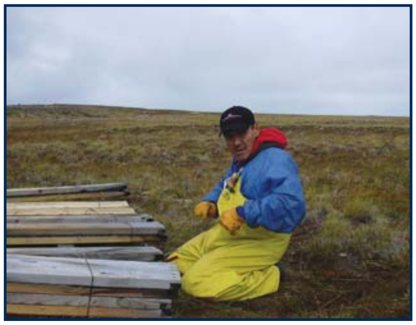
All construction and operating supplies for the project will be transported on ocean freight systems to marshalling and storage facilities constructed at Baker Lake. An overland all-weather haulage route will provide access and re-supply to the proposed mine from Baker Lake. The mine will produce gold doré (bars), which will be flown to southern sales destinations.

ENVIRONMENTAL BASELINE STUDIES

Cumberland began conducting extensive studies in the project area in 1996 in preparation for the environmental assessment process. These studies examined geology, ARD, climate, terrain and soils, fisheries, hydrology, vegetation, and wildlife, archaeology, and traditional knowledge and land use. The information gathered during these baseline studies has been integrated into current project design.

Valued ecosystem components (VECs) were identified in consultation with regulatory and governmental authorities, and members of the local community. Each VEC is of ecological importance, and is intimately connected with one or more of the other components. The VECs include:

- Permafrost
- Water Quantity
- Surface Water Quality
- Air Quality
- Noise
- Vegetation Cover (wildlife habitat)
- Ungulates (caribou and muskoxen)
- Predatory Mammals (grizzly bear, wolverine, and wolf)
- Small Mammals
- Raptors
- Waterfowl
- Other Breeding Birds
- Fish Populations
- Fish Habitat.



Valued Socioeconomic Components (VSECs) in the project area, as identified by consultation with regulatory and governmental authorities and residents of Baker Lake, consist of:

- Employment, Training and Business Opportunities
- Traditional Ways of Life
- Individual and Community Wellness
- Infrastructure and Social Services
- Sites of Heritage Significance.

Surficial Geology

Laterally extensive deposits of glacial till, a product of the Laurentide ice sheet, cover the central project area. Trenching, diamond drilling, and overburden drill data suggest an average thickness of 2.75 m, with local deposits in excess of 10 m.

Permafrost

Locally, the land surface is underlain by continuous permafrost, except under large bodies of water that are too deep to freeze entirely. The depth of the permafrost is estimated to be in the order of 450 to 550 m based on data collected since 1996 from thermistors. The depth of the active zone is estimated to be generally between 1.3 and 4 m, depending on proximity to lakes, overburden thickness, vegetation, snow cover, climate conditions, and slope direction.

Round lakes that do not freeze to the bottom in winter and have a diameter in the order of 570 m or greater, or elongated lakes that do not freeze to the bottom and have a width in the order of 320 m or greater, will have a talik that extends through permafrost.

Water Quantity

Hydrometric data have been recorded from the on-site meteorological weather station (operational since 1997) as well as through monitoring of lake levels and lake outlet discharges and snow surveys. Lakes in the Meadowbank project area are connected by short, small to medium width channels with diffuse flow. Snowmelt runoff in the region begins in the period from late May to mid-June. Third Portage Lake drains into Second Portage Lake via three small stream channels that flow across a narrow isthmus of land. The majority of the flow occurs beneath the surface, or between the large rock and boulder substrate that separates the lakes. Second Portage Lake, Vault, Wally, and Drilltrail lakes drain into the larger Tehek Lake via a single discharge channel.

In areas of continuous permafrost there are two groundwater flow regimes: a shallow groundwater regime located in the active layer near the ground surface, and a deep groundwater regime beneath the permafrost. Groundwater in the active layer flows to local depressions and ponds that drain to Second and Third Portage lakes or flows directly to Second and Third Portage lakes. The deep groundwater regime is connected by taliks located beneath large lakes. Movement of groundwater is extremely slow. At Meadowbank, analyses have predicted that open taliks exist beneath Third and Second Portage lakes, including Second Portage Arm. These analyses also suggest that the closed talik beneath Vault Lake does not extend to the deep groundwater flow regime because this lake is relatively shallow and much of the lake freezes to the bottom in winter.

Surface Water Quality

All conventional water quality parameters (e.g., pH, anions, nutrients), metals concentrations, and limnological data indicate that water quality of the project and reference lakes is high. Because the study lakes are situated in the uppermost reaches of the Quoich River system, they do not receive input from upstream lakes that might carry suspended and dissolved solids and/or nutrients. This helps explain why the lakes are so oligotrophic, nutrient–poor, and relatively unproductive.

Groundwater

Groundwater baseline data were collected from four monitoring wells installed within the three main rock types in the area of the Goose Island and Portage deposits (namely the Iron Formation (IF), Intermediate Volcanic (IV) and Ultramafic (UM) lithologies), and underneath the proposed tailings storage facility area at Second Portage Lake. The four wells were installed into through taliks. No wells were installed in the Vault area, as the main deposit area is not underlain by a talik and the talik under Vault lake is isolated (i.e., does not extend to the deep groundwater regime). The chemistry of groundwater demonstrates distinct signatures for each lithology.

Geochemistry

The relative potentials of the rock types to generate ARD or leach metals under neutral drainage conditions, and the implications on potential use as construction rock, are presented in the table below.

Summary of Geochemistry Considerations

Open Pit	Material Type	Quantities (Mt)	ARD Potential	Potential for ML	Restrictions for Storage/Use
All Pits	Overburden	9.8	None	Low	None
	Tailings	21.9	High	High	Requires measures to control ARD
Portage & Goose	Ultramafic & Mafic Volcanic Waste Rock	42	Very low (95% low; 5% uncertain to high)	Low	May require collection and treatment of drainage
	Intermediate Volcanic Waste Rock	25	Variable(65% low; 35% uncertain to high)	Moderate	Requires measures to control ARD
	Iron Formation Waste Rock	34	High	High under ARD conditions; Low under neutral conditions	Requires measures to control ARD
	Quartzite Waste Rock	4	High	Low	Requires measures to control ARD
Vault	Intermediate Volcanic Waste Rock	69	75% low; 25% uncertain to high	Variable (low to moderate)	May require collection and treatment of drainage

Water quality was calculated for each mine component by combining predicted water flow volumes with leaching rates derived from accelerated weathering tests and from tests conducted on site. These long-term weathering tests were conducted on representative samples of mine site materials. The chemical leaching rates derived in the laboratory were factored to account for the differences expected between the large-size waste containment facilities on site and those representative of small-scale laboratory and field conditions. Of particular importance are the lower ambient temperatures, larger size of rock fragments (tailings excepted), and expected water flow through the mine components.

Vegetation Cover

The Meadowbank study area lies at the lower end of the Northern Arctic Ecozone and is characterized by a continuous vegetation cover interspersed with bedrock outcroppings and continuously aggrading surfaces. Vegetative cover is composed of lichens, mosses, ericaceous shrubs and heaths, herbs, grasses, and sedges.

In the summers of 1999, 2002, and 2005, baseline vegetation studies were carried out to inventory the flora and plant communities in the project area. Vegetation plots showed that vegetation at the mine site is typical of upland tundra. No sensitive, rare, or endangered species or communities were identified.

Wildlife

Based on traditional knowledge, the Meadowbank site is considered to be a low usage area for caribou hunting due to low abundance and distance from Baker Lake.

Aerial and ground surveys for wildlife were conducted in 1999 and from 2002 to 2005. These surveys were used to establish baseline conditions and determine diversity, relative abundance, and distribution of wildlife species within the local and regional study areas. Additional information was obtained from on-site wildlife logs, from the Baker Lake Hunter's and Trapper's Organization (HTO), Department of Nunavut biologists, existing literature, and various Elders.

Based on existing information, baseline surveys, and traditional knowledge, the Meadowbank area and vicinity is not used as a calving area for caribou. The largest numbers of caribou occur between mid-August and March, with wintering caribou apparently originating from several herds including the Beverly, Ahiak (Queen Maud), Lorillard, Wager Bay, and possibly Boothia Peninsula and Qamanirjuaq. Muskoxen also occur in the Meadowbank area, with herds numbering in the 30s having been observed.

Grizzly bear has only been observed on two occasions since 1996. In May 1999, a sow and two cubs were spotted several kilometers to the north of the Meadowbank property and in May 2005, a single adult bear was seen near the Vault deposit. Wolverines have been observed on a few occasions, and wolves are seen on a regular basis, especially in winter. Arctic fox, Arctic hare, sik sik, and voles are other mammal species that are observed regularly.

Breeding landbirds include Lapland longspur, horned lark, rock ptarmigan, savannah sparrow, and several other less common species. Raptors, including peregrine falcon, rough-legged hawk, snowy owl, and gyrfalcon have been seen occasionally; however, no active nests have been observed due in part to the relative absence of suitable cliff habitat in the vicinity of the project. Waterbirds occur at low densities with Canada goose, long-tailed duck, and loons being the most common. Waterfowl confirmed as nesting within the local study areas include long-tailed duck, northern pintail, and Canada goose.

Fish Populations & Habitat

Key fish species in the Meadowbank region are lake trout, Arctic char, and round whitefish. Arctic char in the system are landlocked since there is an impassable falls (St. Clair Falls) on the Quoich River near Chesterfield Inlet. Traditionally, fish has been the secondary food source for Baker Lake residents after caribou meat. Fishing or "jigging" is a year-round activity that is pursued on lakes near the community and Whitehills Lake, south of Meadowbank.

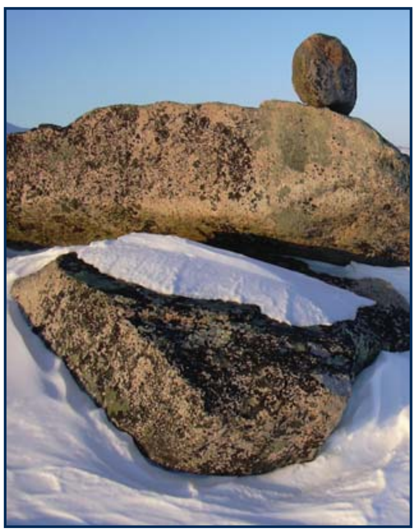
Since 1996, Second Portage, Third Portage, Tehek, and Turn lakes have been the subject of studies investigating seasonal and inter-annual trends in water and sediment quality, lower trophic level (i.e., phytoplankton, zooplankton, benthos, periphyton), community structure and abundance, and fisheries. In addition, regional studies were conducted to examine the physical, chemical, and biological features of several lakes on a broader geographic scale. All of the lower trophic level taxa identified from the project lakes are common, widespread species that are well known from this region of the Arctic.

Socioeconomic Conditions

The Kivalliq Region, one of three administrative regions in Nunavut, had an estimated population of over 7,500 people in 2001. The population is spread among seven communities. Baker Lake, with an estimated population of over 1,500 in 2001, is the only inland Kivalliq Region community.

In an economy that is predominantly based on traditional activity and government services, there are few employment opportunities for Baker Lake's growing labour force, with its constrained educational achievement. Unemployment levels are very high compared to the rest of Canada. Poor employment prospects have translated into a recent decline in family incomes, which in Baker Lake are substantially lower than in the region and the territory. The challenges to community health and wellness are large.

Traditional Knowledge & Archaeology



Participation in traditional ways of life is high, at about 50% both in Nunavut as a whole and in Baker Lake. Traditional activities shape social relationships and are a source of individual identity and values, sustaining Inuit culture.

During archaeological surveys in 1999, 2003, and 2005 a total of approximately 70 sites were recorded. Most of the sites identified were considered temporary campsites that had been occupied relatively recently. Tent rings, autumn houses (qarmait), hearths, shelters, inuksuit, markers, blinds, caches, storage features, kayak stands, fox traps, and other unidentified features are described in the Baseline Archaeology Report. No Pre-Dorset or Dorset sites were encountered in the study area, and only one Thule or early historic site was visited.

The area between Baker Lake and the mine site is considered primarily a transit route to Back River, a traditional winter hunting and fishing area. This is the likely origin of many campsites and other heritage features along the corridor, as supported by traditional knowledge. In the interviews conducted during Phases 1, 2, and 3 of the Baseline Traditional Knowledge study, only few people indicated the area around Tehek Lake was used for fishing, and this was usually an activity performed while enroute to somewhere else.

A lack of human activity in Meadowbank prevails today. The area is not used by trappers, outfitters, tourist operators, or any other commercial organizations.

Community Consultation

Cumberland has made it a priority to keep the community informed of project advancements or setbacks and to create constructive dialogue between all parties. Consequently, numerous mine elements have been planned based on community input. This practice of information sharing will continue and will provide a framework for addressing future opportunities and concerns. Cumberland has opened an office in Baker Lake and has appointed a full-time community liaison representative.

Inuit Impact Benefits Agreement

Before construction of the proposed mine begins, negotiation of an Inuit Impact Benefits Agreement (IIBA) with the Kivalliq Inuit Association (KIA) will be completed. Currently, Cumberland has a benefit agreement to accompany the exploration land lease, and is in the process of negotiating an IIBA for the full project. This agreement focuses on jobs, education and training, contracting, and community initiatives.

ENVIRONMENTAL IMPACTS

Overall, the proposed development is projected to have a negligible impact on the existing environment in a regional context, and a low to moderate impact on a local or site-specific context. The majority of the project impacts on the environment will be mitigated through project design and effective management and monitoring programs.

Permafrost

During the construction phase, dewatering activities resulting in lower water tables will cause the active layer area to increase, resulting in some combination of thaw subsistence, local thaw instability, and sediment production within the dewatered basin. These effects are expected to stabilize during operation. Ditches may also cause some localized degradation of permafrost, causing instability where ground ice is present. Mine facilities also have the potential to thaw permafrost if appropriate mitigation alternatives are not implemented.

Air Quality

Mining activities and ore processing facilities of the project will generate dust. The dust arises predominantly from inert soil, ore materials, and tailings. The main potential sources of dust will include the processing plant, stockpiles, ore hauling trucks, tailings and waste rock disposal, stripping, and overburden storage. Rather than occurring at specific locations, dust sources are generally dispersed. Dispersion modelling of fugitive dust originating at the coarse ore stockpile, tailings area, and waste rock disposal facility showed compliance with all applicable ambient air quality objectives.

Gaseous contaminants will be emitted by some equipment and power plant diesel engines.

Noise

Anticipated noise levels for the Meadowbank project were modelled using industry standards and the best available prediction models. The model output showed elevated (over 70 dBA) sound levels close to noise sources. The 70 dBA noise level is significant when compared to the low-level baseline noise at the project area; however, it is comparable with noise levels generated by industrial facilities. This estimate is based on a worst-case scenario in which all noise sources simultaneously contribute to the overall noise level. This is an unlikely situation at Meadowbank, because noise will be produced in subsequent stages of operation (i.e., blasting, rock breaking, and loading at the pit, as well as crushing, screening, and processing at the process plant). Mitigation measures will protect individuals in these areas.

Surface Water Quantity

Construction of the East and Bay Zone dikes will isolate and eliminate the westernmost and primary connecting channel between Third Portage and Second Portage lakes. Without mitigation, the natural flow outlet may be constrained, causing higher water levels in Third Portage Lake and increased discharge velocity through the remaining two channels, possibly leading to erosion during spring freshet.

Dewatering to create the Portage, Goose, and Vault pits will impact Second Portage, Third Portage, and Vault lakes, respectively. The transfer of 12 Mm^3 of water from Second Portage Lake into Third Portage Lake could increase the average water level of the latter by 4 to 5 cm depending on whether this occurs during a normal or 100-year wet precipitation event. The loss in Second Portage Lake (North Portage pit), Third Portage Lake (Portage and Goose pits), and Vault Lake (Vault pit) will be temporary, spanning the construction and operational phases only. The loss of the Second Portage North Arm to construction of the tailings impoundment will be permanent.

Rewatering will result in an increased size of Third Portage Lake, due to the addition of the Portage and Goose Island pits and former terrestrial areas. The overall size of Second Portage will be significantly reduced due to the presence of the permanent tailings deposit and loss of the Portage pit area to Third Portage Lake.

The impacts of Phaser Lake diversions to Turn Lake, installation of the Turn Lake culvert, consumptive use of fresh water, and effluent discharge will occur at a small scale and will not alter water balance in the project lakes.

Water Quality

Dikes will be constructed to isolate portions of Second Portage, Third Portage, and Vault lakes to allow open pit mining. Construction of the dikes is expected to temporarily alter local water quality of project lakes in the vicinity of dikes while they are being built. Potential impacts may arise from two aspects: lake bed sediments may be disturbed during placement of rock fill in the lake; and soluble constituents of the construction materials (particulates, metals, blast residues) may be released from the surfaces of the construction materials as they are placed into the water. Placement of material with low ARD and metal leaching potentials on final surfaces will minimize the effects to water quality in the project area.

The tailing and waste rock storage facilities will freeze, which will limit internal drainage as infiltrating runoff becomes frozen. Thermal modelling indicates that the tailings will freeze in time, and that the talik below Second Portage Arm will freeze before seepage from the tailings impoundment can reach the groundwater below the permafrost.

During mine operation, effluent will be discharged to the receiving environment through Wally Lake from two sources: from Vault Lake attenuation pond to Wally Lake (Years 4 to 8), and from Second Portage attenuation pond to Third Portage Lake north basin (Years 1 to 5). After initial dewatering of Vault Lake, annual discharge from the Vault attenuation pond is small (0.01 m^3/s, open water season only) and consists of non-contact runoff, pit inflow water, and seepage from the Vault rock storage facility. No treatment is required, and water quality in Vault Lake is not predicted to exceed water quality guidelines to protect aquatic life. Effluent discharged from Second Portage attenuation pond will consist of contact water (runoff collected from potential contaminant sources by ditches) and non-contact water. Effluent water quality will be well below MMER guidelines and is not predicted to adversely affect receiving environment water quality. Beginning in Year 5, the attenuation pond will be merged with the tailings reclaim water (containing grey water and treated sewage). This impoundment will be managed as the tailings reclaim pond until end-of-mine. During this time, attenuation storage will occur within the inactive Goose pit. The attenuation water within the Goose pit will be monitored and treated in situ by pH adjustment through in-line lime addition.

During later stages of operation and at post-closure, the Portage, Goose, and Vault pits will be re-flooded with dikes in place to prevent mixing between the pit water and receiving lakes. Dikes will be breached to allow mixing with adjacent lakes once water quality in the pits poses no harm to aquatic biota.

Receiving environment water quality is expected to remain very high throughout mine life and beyond.

Vegetation Cover

The overall vegetation loss to build Meadowbank is estimated to be approximately 703 ha. An additional 282 will be lost to build the all-weather access road. The Sedge unit will be subject to the greatest alteration within the Mine Site LSA. A total of 161 ha of Sedge habitat will be altered, which represents 4.1% of this habitat available in the LSA. Heath Tundra will be subject to the greatest alteration along the all-weather access road (107 ha; ~<1% of this habitat available within the access road LSA). Vegetation in the immediate vicinity of construction sites will receive fugitive dust deposition, primarily in downwind areas.

Wildlife

The primary potential effects of project activities on wildlife may include:

- Direct and indirect loss of habitat
- Avoidance of foraging habitat in areas of human activity (i.e., reduced habitat effectiveness due to sensory disturbance)
- Possible deflection from normal travel routes
- Potential health risk from drinking contaminated water from the tailings pond
- Possible injury or mortality from encounters with pits and other mine facilities
- Mortality due to collisions with vehicles or aircraft
- Contaminant loading from eating contaminated vegetation
- Possible attraction of predators with increased local depredation rates.

The domestic waste disposal facility may attract predators (e.g., wolverine) if waste is not properly disposed.

Based on survey information to date, no active raptor nesting sites will be affected by the proposed mine activities. Optimal nesting habitats for breeding raptors are limited in the Meadowbank area due to the absence of cliff topography.

Dewatering of portions of Second Portage and Third Portage lakes will likely have the greatest impact on waterfowl due to habitat loss. Development of the tailings facilities in Second Portage Lake may attract waterfowl to the tailings ponds with elevated levels of contaminated water. Ingestion of contaminants from water or emergent vegetation may have adverse effects on the health and reproductive fitness of waterfowl.

Fish Populations & Habitat

The direct loss of habitat as a result of dike footprints in Third Portage Lake, Second Portage Lake, and Wally Lake is very small relative to the lake area and will have insignificant impacts on lake productivity. Dike crests will be capped with acid-buffering rock, and will be engineered to provide quality fish habitat.

Fish passage between Second and Third Portage lakes will be temporarily affected as a result of the loss of one of three small connecting channels. An existing channel will be enhanced to accommodate typical flow from Third Portage Lake.

Operation of Portage, Goose, and Vault pits, and placement of tailings in Second Portage Lake, will result in the temporary loss of productive habitat area in portions of Second Portage, Third Portage, and Vault lakes during the mine life. Before these areas are drained, the fish will be removed. Fish that are alive and healthy will be transferred to adjacent lakes. Fish that do not survive the fish-out will be provided to the community of Baker Lake. After mining is completed and water quality is suitable, dikes will be breached and pits will be flooded, allowing fish to return to the newly created habitat.

The use of Second Portage Arm for tailings deposition represents a permanent loss of habitat.

The annual volume of effluent discharged to Wally Lake from the Vault Lake attenuation pond is small; water quality is not predicted to exceed CCME (2001) criteria in the receiving environment lakes. The annual volume of effluent discharged to Third Portage Lake north basin is relatively uncontaminated prior to Year 5 and is predicted to fall well within MMER guideline concentrations for all parameters. After Year 5, attenuation pond water will be directed to Goose pit and will not be discharged to Third Portage Lake.

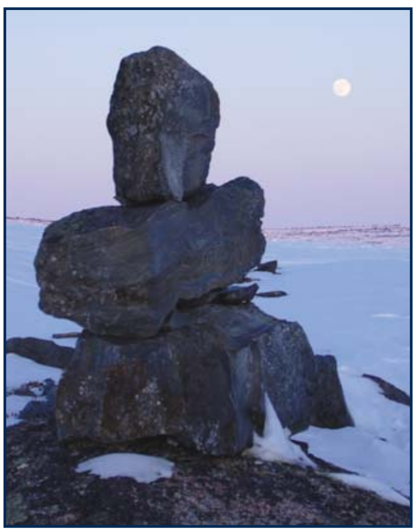
All-Weather Road

A 115-km all-weather road will be constructed between Baker Lake and Meadowbank camp. This proposed road will cross 19 streams using bridges and culverts. The route is contained almost exclusively within the Prince River drainage and attempts to avoid stream crossings wherever possible. Only six of these streams are used by Arctic grayling as a migration route and/or for spawning. Almost all streams containing Arctic grayling will be crossed using bridges to ensure that any impact to the migratory fish populations are minimized. One stream containing grayling will be crossed using a large culvert that will not prevent movement by grayling. Most of the remaining streams have little or no fisheries habitat value as they are mostly small in size and do not connect fish-bearing lakes upstream or downstream of the proposed crossing. The channels are active primarily during freshet and flow over grassy substrate or beneath or around large boulders that are not suitable habitat for fish. Installation of all culverts and bridges will take place during winter when the ground is frozen and there is no flow and no fish in the streams.

It is not expected that use of the road by mine staff or local people will result in undue harvest pressure on lakes or rivers in the vicinity of the road, as these are currently all accessible by ATV or snowmachine during winter.

Socioeconomic, Traditional Knowledge & Archaeology

During the 12-year project life, up to 310 jobs will be created through construction (2 years), and 370 jobs through operations (8 years). This translates into possible direct wages paid to people in Baker Lake and the rest of the Kivalliq Region of over $4 M annually.



Essential to realizing the positive benefits of increased income is the capacity to manage that income in the interests of the household. Income that is not spent wisely does not generate the anticipated quality of life improvements. There are concerns about the association between increased disposable income and poor lifestyle choices.

The project will not significantly restrict access to, or affect the productivity of land use for traditional activity. Project development will not affect traditional land use; however, with regard to potential project employees, there is concern that wage employment is a disincentive to traditional activity and that on-the-job cross-cultural contact may result in undervaluing of traditional ways of life.

The potential positive impacts of rotational employment include reduced cross-cultural contact within communities, increased time and resources for traditional ways of life, and workforce discipline while on the job, contributing to long-term capacity building. Potential negative impacts can include family stress, family conflict between generations and between spouses, breakdown of traditional values of sharing and mutual support, undervaluing of traditional ways of life, and increased substance abuse. Project design was adjusted to ensure that heritage resources sites are distant from planned infrastructure.

MITIGATION

Permafrost

The preservation of permafrost will be addressed in the design of mine facilities and other surface structures through accepted permafrost engineering methods, such as elevation of structures, insulation, ventilation, or refrigeration. Where possible, site facilities will be constructed in areas of "dry" permafrost, and in areas that are well-drained. Foundations may be constructed directly on bedrock in areas of poor drainage of poor quality fills.

Air Quality

Some of the primary measures that will be implemented to minimize air quality impacts include:

- Ensuring that all equipment (vehicles and power plant) operates efficiently
- Imposing vehicle speed limits to reduce fugitive dust; applying dust suppressants
- Minimizing blasting on windy days
- Ensuring complete combustion of organic wastes
- Avoiding fuel spills to avoid release of hydrocarbons
- Adequately collecting and venting any process emissions and designing the stack using best management practices
- Installing dust collectors at crushing and grinding facilities
- Enclosing feed conveyors
- Covering dewatered tailings with non-potentially acid generating (non-PAG) aggregates to control wind erosion.

Additional mitigation measures will be implemented on an ongoing basis when an opportunity for emission reduction is identified and technology development offers new tools for emission reduction.

Noise

Mitigation measures applicable to all noise sources include:

- Scheduling noisy construction activities during normal working hours to the extent possible
- Performing regular inspection and maintenance of construction vehicles and equipment to ensure that they have quality mufflers installed and worn parts are replaced
- Providing an air inlet silencer and exhaust silencers for combustion engines and other units
- Utilizing noise barriers, baffles or enclosures for particularly noisy equipment
- Developing a noise monitoring program
- Enforcing speed limits in relation to road conditions, and location of sensitive receptors such as camp site and important wildlife habitat
- Maintaining road surfaces in good repair to reduce tire noise
- Assuring continuous traffic flow to avoid prolonged idling.

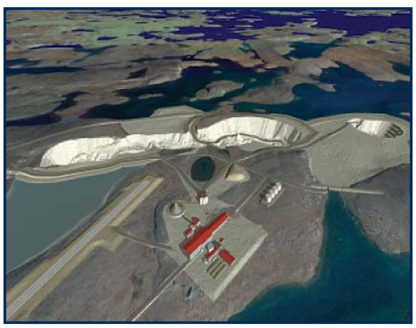
Surface Water Quantity

Potential impacts on surface water will be minimized through a series of measures that include the following:

- Maintaining free-flow through all culverts
- Grading all disturbed areas to manage and collect runoff in a controlled manner and direct flows to attenuation ponds
- Diverting clean, non-contact water away from facilities with stable engineered diversion facilities
- Collecting, containing, and treating (if required) any runoff and seepage from rock storage facilities, open pits, and other disturbed areas using attenuation ponds to control rates
- Pacing rates of treatment plant releases from the tailings facility to match receiving water flows

- Minimizing closure impacts by decommissioning roads, removing culverts, recontouring and reclaiming disturbed areas to restore natural uninterrupted drainage patterns
- Constructing permanent, stable drainage channels where required (e.g., tailings disposal facility, rock storage facilities).

To mitigate the loss of the westernmost connecting channel between Third Portage and Second Portage lakes, one of the remaining channels will be modified to handle increased flows. The new channel will have similar discharge relative to current conditions and improve fish passage to Third Portage Lake.



Instantaneous rewatering of the Vault, Portage, and Goose Island pits could lead to unacceptable drawdowns of Wally and Third Portage lakes. To ensure that drawdowns of these lakes fall within natural water level fluctuations, drawdowns will be occur during spring freshet over a number of years. Consideration is also being given to replacing some of the waste rock at the bottom of the pits, thus reducing the overall volume of water required to rewater the pits.

Water Quality

The water management plan is designed to minimize project impacts on the aquatic ecosystem of the lakes affected by the pits, including Third Portage, Second Portage, and Wally lakes. As part of the water management plan, infrastructure such as diversion ditches, sumps, and water flow attenuation facilities will collect and store surface water and groundwater that may have been physically or geochemically affected by mining activities. Water that can be intercepted and directed away from developed areas without contact with project facilities will be controlled by means of natural or constructed diversion channels draining to the neighbouring lakes. Any water that may come into contact with mining activities will be intercepted, contained, analyzed, and treated (as required), prior to discharge to the receiving environment. After Year 5, discharges of mine contact water are not expected to occur. The water in the reclaim pond will be treated in situ, completely contained within the mine footprint.

Vegetation

Mitigation measures for vegetation communities will include:

- Minimizing the footprint of mine facilities and clearly delineating the footprint in order to reduce habitat degradation in surrounding areas
- Minimizing potential degradation of vegetation by strict adherence to emissions and dust control protocols
- Constructing a containment berm around fuel storage areas and following hazardous materials handling guidelines
- Minimizing the potential for habitat degradation through fugitive dust fall and spills.

Where necessary, additional mitigation steps will be taken to facilitate natural revegetation by scarifying and/or re-contouring surfaces, stabilizing slopes, and restoring natural drainage patterns. Certain facilities will be reclaimed progressively during the life of the mine, such as camps, temporary workspace, marshalling yards, and storage areas. Other facilities will be reclaimed during the closure and post-closure phases of the project.

Wildlife

Important mitigation measures for wildlife include:

- Minimizing blast noises and engine noises
- Maintaining and ensuring vehicles are properly muffled
- Establishing speed limits
- Giving right-of-way on all roads

- Minimizing the number of take-offs and landings
- Dust suppression
- Proper containment of fuel storage areas and explosives
- Establishing contingency plans (for fires, spills, and explosions)
- Keeping wildlife away from harmful areas
- Complying with hazardous materials guidelines
- Establishing environmental awareness programs
- Incinerating all garbage and foods (domestic waste)
- Enforcing restrictions on hunting at the mine site and along the all-weather access road
- Establishing blasting windows if possible.

Upon closure, tailings impoundments will be capped with waste rock. The Portage rock pile will be capped with non-PAG material and contoured to allow passage of wildlife such as caribou through the site. The Vault rock pile will not require capping, but will be re-contoured as necessary to allow passage of wildlife such as caribou through the site.

To avoid “problem” animals (i.e., wolverine), all domestic waste and garbage will be incinerated, such that no residue that is attractive to wildlife remains. Domestic waste facilities will be tightly sealed to trap all odors. Care will be taken that aromatic substances (e.g., oil, grease, and paint), and other products (e.g., aerosol cans and batteries) are stored in sealed, bear-proof containers and eventually removed off site. A safety education program on procedures for dealing with bear-human interactions and avoiding interactions with wildlife in general will be implemented for all personnel.

To avoid dependence of small mammals (e.g., Arctic ground squirrel) on human food, feeding will be prohibited. Food will be properly and securely stored, and all food wastes will be incinerated.

Specific mitigation measures for birds include:

- Minimizing noise levels around active nests
- Using aversive methods to discourage birds from roosting on the runway and on road edges
- Eeterring shorebirds and waterfowl from utilizing potentially contaminated areas through aversive techniques such as bangers
- Pumping potentially contaminated water out of pits to a settling area
- Creating habitat for ptarmigan and passerines on slopes and waste dump areas if substrates are not toxic
- Verifying that new lake waters do not contain unacceptable levels of contaminants
- Treating contaminated water prior to discharge.

Fish Populations & Habitat

On-site compensation measures for fish habitat and fish populations during mine operation include modification of the external surface of containment dikes, and creation of finger dikes extending into low value habitat of Third Portage Lake from Goose dike. On-site compensation measures that are only feasible upon closure include enhancement of dike interiors, creation of shallow reefs and other habitat features within former lake habitat areas, and creation of new lake habitat as a result of flooding of former terrestrial habitat.

At closure, there will be more aquatic habitat created than destroyed. The No-Net-Loss plan forecasts that the total value of residual moderate- and high-value habitat will exceed the value of habitat lost as a result of tailings disposal into the northwest arm of Second Portage Lake.

Socioeconomic

The primary vehicle for project impact mitigation and benefit enhancement will be the final Inuit Impact and Benefit Agreement (IIBA) presently being negotiated between Cumberland and the Kivalliq Inuit Association (KIA). The main objectives of the IIBA are to:

- Mitigate the impacts and enhance the benefits of project development
- Create opportunities for the people of Baker Lake specifically and the Kivalliq Region generally to participate in the project, thereby enhancing self-determination
- Establish Cumberland's role as an active member of the community and participant in the sustainable development of Baker Lake
- Maintain goodwill and good relations with communities and their governments.

Sustainability criteria will be incorporated by emphasizing the need to enable local and territorial participation in employment and business opportunities, training, and partnerships with government and community.

Traditional Knowledge & Archaeology

According to traditional knowledge, historically there has been a lack of human activity in Meadowbank area. Presently, the area is not used by trappers, outfitters, tourist operators, or any other commercial organizations.

Project design was adjusted to ensure that heritage resources sites are away from planned infrastructure.

MONITORING

Permafrost

Ongoing monitoring of the permafrost with existing thermistors will continue and enable comparison with the current baseline data. Several of the Meadowbank project earth structures will benefit from freezing conditions. During construction, operation, and closure of these facilities, additional thermistor strings will be installed and ground temperatures monitored to compare the predicted geothermal performance with actual performance so that adaptive management strategies can be implemented as required.

Air Quality

Air quality monitoring will address one of the most prominent issues for mining projects: the concentration of suspended particle matter in the air surrounding the major areas of activity (dynamic monitoring) and the deposition rate of particles (static monitoring). Dynamic monitoring will be based on high-volume air sampling for particulate matter of diameter equal to or less than 10 µm (PM_{10}), 2.5 µm ($PM_{2.5}$), and total suspended particulate. Monitoring samplers will be deployed at the plant boundary in the direction of prevailing wind away from any taller structures or hills. Static monitoring of dust deposition will follow D1739-98 Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter). This method involves the installation of a dust canister to measure the amount of dust that settles out of the atmosphere by the effect of gravity deposited on a unit area over a certain length of time. Also, a nitrogen oxides (NOx) sampler will be installed and operated.

Noise

The ambient noise monitoring program during the construction and operation phase will include full-day (day and night) measurements taken

twice per year during the first year of development, and twice per year every second year thereafter. Measurements will be taken to determine noise parameters such as the equivalent continuous noise level (L_{eq}) in decibels (dBA); the A-weighted sound pressure level that is exceeded 50% and 90% of the time over which a given sound is measured (LA_{50} and LA_{90}); and frequency noise analysis. Measurements will be taken at noise-sensitive locations where noise levels are likely to be highest.

Surface Water Quantity

The hydrological monitoring program, which includes an on-site meteorological weather station (operational since 1997), as well as monitoring of lake levels, lake outlet discharges, and snow surveys, will be continued during construction, operation, and closure/post-closure. This monitoring program will be effective in documenting changes in lake discharge due to dewatering programs and re-filling of pits later in the operation. Runoff quantity from waste dumps, tailings facilities, site infrastructure, and roads will also be monitored.

During pit flooding, hydrological conditions of contributing lakes (e.g., Third Portage and Wally lakes) will be carefully monitored to ensure that withdrawals do not lead to unacceptably low water levels in contributing lakes.

A No-Net-Loss plan will examine how aquatic habitat lost due to the proposed mine activities will be created (or compensated) so that in the end, no habitat has been lost.

Water Quality

Water quality conditions in attenuation ponds will be monitored on a regular basis to assess treatment requirement and ensure that discharge water quality remains high. Water quality will be regularly monitored through the Aquatic Effects Management Plan (AEMP) and through application of the MMER. Groundwater quality will be monitored from the wells located within the three main rock types in the area.

Vegetation & Wildlife

There are four primary targets of the wildlife monitoring program: habitat distribution, wildlife distribution, wildlife abundance, and wildlife health. All of these components will be monitored during the operational life of the mine and during the post-closure phase. An adaptive management approach will be taken to ensure that mitigation actions are as effective and current as possible.

Regular surveys within the local and regional study areas will monitor habitat and wildlife conditions, distribution, and abundance before and after mine development and between mine facilities and control areas. Wildlife logs will be maintained. Opportunities to collaborate with other monitoring programs in the region (e.g., Nunavut Department of Sustainable Development) will be investigated.

A primary objective of the wildlife monitoring program will be to assess the success of preventative programs designed to proactively avoid the occurrence of “problem” animals. Wildlife health will be monitored by sampling soil and vegetation (e.g., lichens), which are known to assimilate metals and other substances in their environment, and comparing the samples to pre-development conditions. A screening level risk assessment will be conducted to determine whether contaminant levels in vegetation are unacceptable, and whether they represent a concern to wildlife utilizing the area.

Fish Populations & Habitat

There are three discrete monitoring programs specific to fish habitat and fish populations that have been designed and will be implemented upon initiation of the Meadowbank project. These are:

- The Aquatic Effects Monitoring Plan (AEMP), which describes the rationale, framework, strategy, methodology, and scope of management plans to be implemented during mine construction, operation, and post-closure in Meadowbank project area receiving environment lakes and streams
- A detailed framework document for the application of the federal Metals Mining Effluent Regulations (MMER), including Environmental Effects Monitoring (EEM), that provides a description of required environmental monitoring for effluent and receiving environment chemistry, toxicity testing, benthic community, and fisheries surveys
- A No-Net-Loss (NNL) document that quantifies the area and quality of receiving environment fish habitat that will be harmfully altered, disrupted, or destroyed as a result of mine development and proposes mitigation and/or compensation to ensure no net loss of habitat occurs.

Socioeconomic, Traditional Knowledge & Archaeology

The primary objectives of socioeconomic monitoring are to record the uptake of employment, business, and workplace training opportunities over time and analyze the trends in this uptake in relation to expectations and targets; monitor the implementation of the terms of the IIBA; and evaluate the trends in community wellness and the relationship to project operations. Vegetation, water quality, and fish health will also be monitored to ensure that fish, caribou, and other traditional foods are not affected by mining activities.

RESIDUAL EFFECTS

Minor residual effects of the project (i.e., the effects that remain after all efforts to reduce impacts have been carried out) include:

- Change in water movement and surface area of Second Portage Lake because of the tailings deposits and Portage pit
- Local changes in small mammal, bird, and fish populations due to temporary habitat loss)
- Increase in fish habitat at the mine site at closure (positive effect).

CLOSURE & DECOMMISSIONING

Cumberland's objective is to ensure that the environment is not unduly influenced after mining operations cease and that any materials that could potentially cause degradation to the land and/or waters of the project are stabilized, removed, and/or mitigated. A mine decommissioning plan, which is summarized in this EIS, will guide all aspects of operation and ensure compliance with all regulations concerning the environment.

CUMULATIVE EFFECTS

The Meadowbank project is designed to minimize the area of surface disturbance, stabilize disturbed land surfaces against erosion, and return the land to post-mining use for traditional pursuits and wildlife habitat. No measurable significant cumulative effects on VECs are expected to occur as a result of the proposed development.