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Abbreviations, Acronyms, and Units of Measure

Agency (the)	Agency (the)Canadian Environmental Assessment Agency
AIR	Application Information Requirements
Application (the)	Application for an Environmental Assessment Certificate/Environmental Impact Statement
ARD	Acid Rock Drainage
AuEq	gold equivalent
BC	British Columbia
BC EAO	British Columbia Environmental Assessment Office
BC MEM	British Columbia Ministry of Energy and Mines
BC MFLNRO	British Columbia Ministry of Forests, Lands and Natural Resource Operations
BC MOE	British Columbia Ministry of Environment
BGC	biogeoclimatic
BMP	Best Management Practices
CCME	Canadian Council of Ministers of the Environment
CCTC	Carrier Chilcotin Tribal Council
CEA	Cumulative Effects Assessment
CEAA, 2012	*Canadian Environmental Assessment Act, 2012*
CHR	Cultural Heritage Resource
CLC	Community Liaison Committee
CLRUTP	Current Land and Resource Use for Traditional Purposes
CO	Carbon Monoxide
CSTC	Carrier Sekani Tribal Council
CWD	coarse woody debris
dBA	decibel A-scale
°C	degrees Celsius
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
BC *EAA*	British Columbia *Environmental Assessment Act*
EAC	Environmental Assessment Certificate
EC	Environment Canada
ECD	Environmental Control Dam
EIS	Environmental Impact Statement
EIS Guidelines	Environmental Impact Statement Guidelines

EMP	Environmental Management Plan
EMS	Environmental Management System
EPCM	Engineering, Procurement, and Construction Management
ESPRP	Emergency and Spill Preparedness Response Management Plan
FSR	Forest Service Road
g/t	gram per tonne
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
Granges	Granges Exploration Ltd.
ha	hectare
HC	Health Canada
BC *HCA*	British Columbia *Heritage Conservation Act*
HHERA	Human Health Ecological Risk Assessment
HHRA	Human Health Risk Assessment
HHSA	Human Health Study Area
HSRC	Health, Safety, and Reclamation Code for Mines in British Columbia
ICMC	International Cyanide Management Code
IFN	Instream Flow Needs
ISQG	Interim Sediment Quality Guidelines (CCME)
km	kilometre
kV	kilovolt
L	litre
L/s	litre per second
LDN	Lhoosk'uz Dene Nation
LEL	Lowest Effects Level
LHA	Local Health Area
LRMP	Land and Resource Management Plan
LSA	Local Study Area
m	metre
masl	metres above sea level
MERP	Mine Emergency Response Plan
ML	Metal Leaching
MNBC	Métis Nation British Columbia
Moz	million ounces
MPB	Mountain Pine Beetle
Mt	million tonne

Mt/y	million tonnes per year
NAG	Non-Acid Generating
NFN	Nazko First Nation
NO_2	nitrogen dioxide
NPR	Net Potential Ratio
NTLRU	Non-Traditional Land and Resource Use
NTS	National Topographic System
NWFN	Nadleh Whut'en First Nation
oz	ounce
PAG	Potentially Acid Generating
PCIC	Pacific Climate Impacts Consortium
PEA	Preliminary Economic Assessment
PEL	Presumed Effects Level
PM	Particulate Matter
PM_{10}	PM up to 10 µm in diameter
$PM_{2.5}$	PM up to 2.5 µm in diameter
PPA	Potential Problem Analysis
ppm	parts per million
Project (the)	Proposed Blackwater Gold Project
Proponent (the)	New Gold Inc.
PY	Person Year
QRA	Qualitative Risk Assessment
RCP	Reclamation and Closure Plan
RFI	Recreational Features Inventory
ROW	Right-of-Way
RSA	Regional Study Area
SAG	Semi-Autogenous Grinding
SARA	*Species at Risk Act*
SC	Statistics Canada
SEL	Severe Effects Level
SERSA	Socioeconomic Regional Study Area
SFN	Saik'uz First Nation
SMU	Soil Map Unit
SO_2	sulphur dioxide
StFN	Stellat'en First Nation
STN	Skin Tyee Nation
3D	three-dimensional

t/d	tonnes per day
TDG	Transportation of Dangerous Goods
TDG Act	*Transportation of Dangerous Goods Act*
TK/TLU	Traditional Knowledge and Traditional Land Use
TNG	Tsilhqot'in National Government
TRV	Toxicological Reference Values
TSF	Tailings Storage Facility
UFN	Ulkatcho First Nation
UWR	Ungulate Winter Range
VC	Valued Component
VLI	Visual Landscape Inventory
VSA	Vital Statistics Agency
VSC	Visual Sensitivity Classes
WG	Working Group
WHO	World Health Organization

1.0 INTRODUCTION AND ENVIRONMENTAL ASSESSMENT CONTEXT

New Gold Inc. (the Proponent) is submitting an Application for an Environmental Assessment Certificate / Environmental Impact Statement (the Application) as part of the requirements to develop the proposed Blackwater Gold Project (the Project). The Project is a proposed new open pit gold and silver mine and associated ore processing facilities. The Project will be located 110 kilometres (km) southwest of Vanderhoof in central British Columbia (Figure ES 1). The mine is expected to have a nominal milling rate capacity of 60,000 t/d (22 Mt/y) and operate over 17 years.

The scope and details of the effects assessment have been prepared in accordance with the requirements of British Columbia Environmental Assessment Office (BC EAO) Application Information Requirements (AIR) and the final Environmental Impact Statement Guidelines (EIS Guidelines) prepared by the Canadian Environmental Assessment Agency (the Agency).

One environmental assessment (EA) has been conducted to meet both provincial and federal requirements. On 9 July 2013, the BC EAO issued an Order under section 11 of the BC *Environmental Assessment Act* (*EAA*) describing the formal scope, procedures, and methods concerning the provincial review of the Project's EA.

With the implementation of the *Canadian Environmental Assessment Act, 2012* (*CEAA, 2012*), the harmonized provincial and federal assessments have been replaced by coordinated processes. The Agency and BC EAO have confirmed that the principles of the Canada-BC Agreement for Environmental Assessment Cooperation (2004) will guide the coordinated review of the Application.

This Application is organized in four sections:

Part A — Introduces the Project and provides background information;

Part B — Elaborates the Project's potential environmental, economic, social, heritage, and health effects, including cumulative effects and the significance of residual effects, in accordance with the provincial and federal EA processes;

Part C — Identifies Aboriginal groups, and their rights and interests, that could potentially be affected by the Project, and how effects will be addressed and mitigated; and

Part D — Provides the conclusions of the assessment and demonstrates that all potential adverse effects of the Project have been identified, assessed, and avoided or mitigated where practicable.

The Application provides information to satisfy the requirements of the final approved AIR for the Project, formally issued by BC EAO on 15 May 2014. The Application further provides information to satisfy the requirements of the Blackwater Gold Project Guidelines for the preparation of an EIS for an EA issued by the Agency on 19 February 2013.

Figure ES 1: Project Location

2.0 PROJECT DESCRIPTION

2.1 Project Proponent

Proponent contact information is as follows:

Project Name:	Blackwater Gold Project
Proponent:	New Gold Inc.
Proponent Address:	Suite 1800, Two Bentall Centre 555 Burrard Street, Box 212 Vancouver, BC, V7X 1M9 Telephone: (604) 696-4100 Facsimile: (604) 696-4110 Internet: www.newgold.com
Principal Contact:	Tim Bekhuys, R.P. Bio, Director, Blackwater Project E-mail: Tim.Bekhuys@newgold.com Telephone: (604) 696-4100 Facsimile: (604) 696-4110

2.2 Purpose, Rationale, and Location

The main objective of the Project is the economic extraction of the gold and silver resources from the Blackwater deposit. The Project is situated approximately 110 km southwest of Vanderhoof (straight-line distance) in central BC, approximately 160 km southwest of Prince George, and approximately 15 km southwest of the Tatelkus Lake Indian Reserve 28 (the closest Indian Reserve to the mine site). The Lhoosk'uz Dene Nation Tatelkus Lake Indian Reserve 28 is approximately 1 km from the proposed transmission line. The Stellaquo 1 Reserve (Stellat'en First Nation) and the Seaspunkut 4 Reserve (Nadleh Whut'en First Nation) are located 3 km and 9 km respectively from the proposed transmission line. The closest Indian Reserve to the Kluskus FSR is the Clustalach Reserve 5 (Saik'uz First Nation), approximately 1.8 km to the east. The proposed mine site is centred at 53° 11' 22.872" N, 124° 52' 0.437" W (5893000 N and 375400 E), and is located in National Topographic System (NTS) sheet 93F/02.

Photo ES 1: Aerial View of Blackwater Exploration Camp

Figure ES 2 presents the locations of the proposed mine site, transmission line corridor, and access roads.

Figure ES 3 provides the general orientation of the plant facilities and layout within the entire mine footprint.

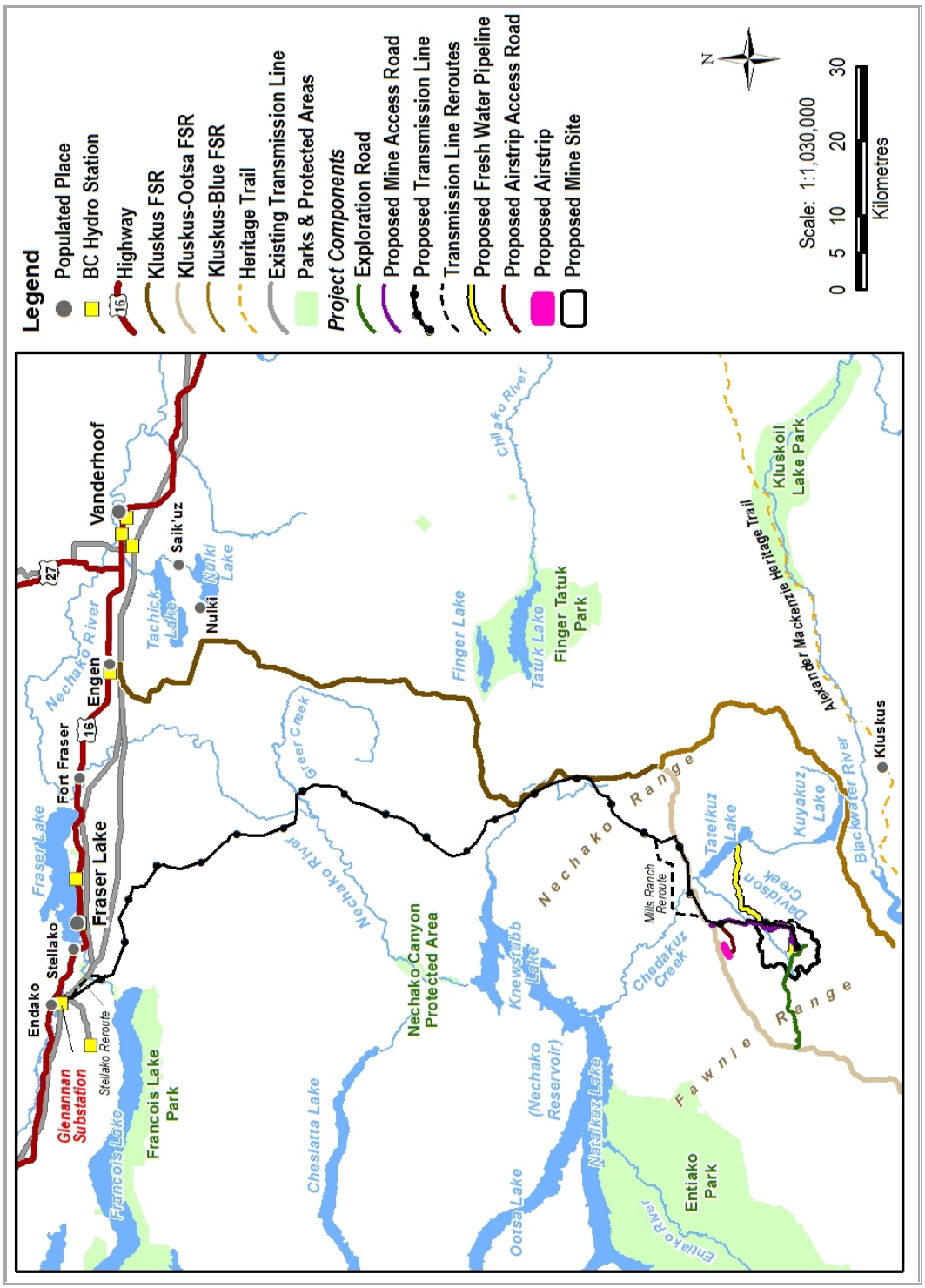


Figure ES 2: Proposed Mine Site Location with Mine Access Road, Transmission Line, and Freshwater Supply Pipeline

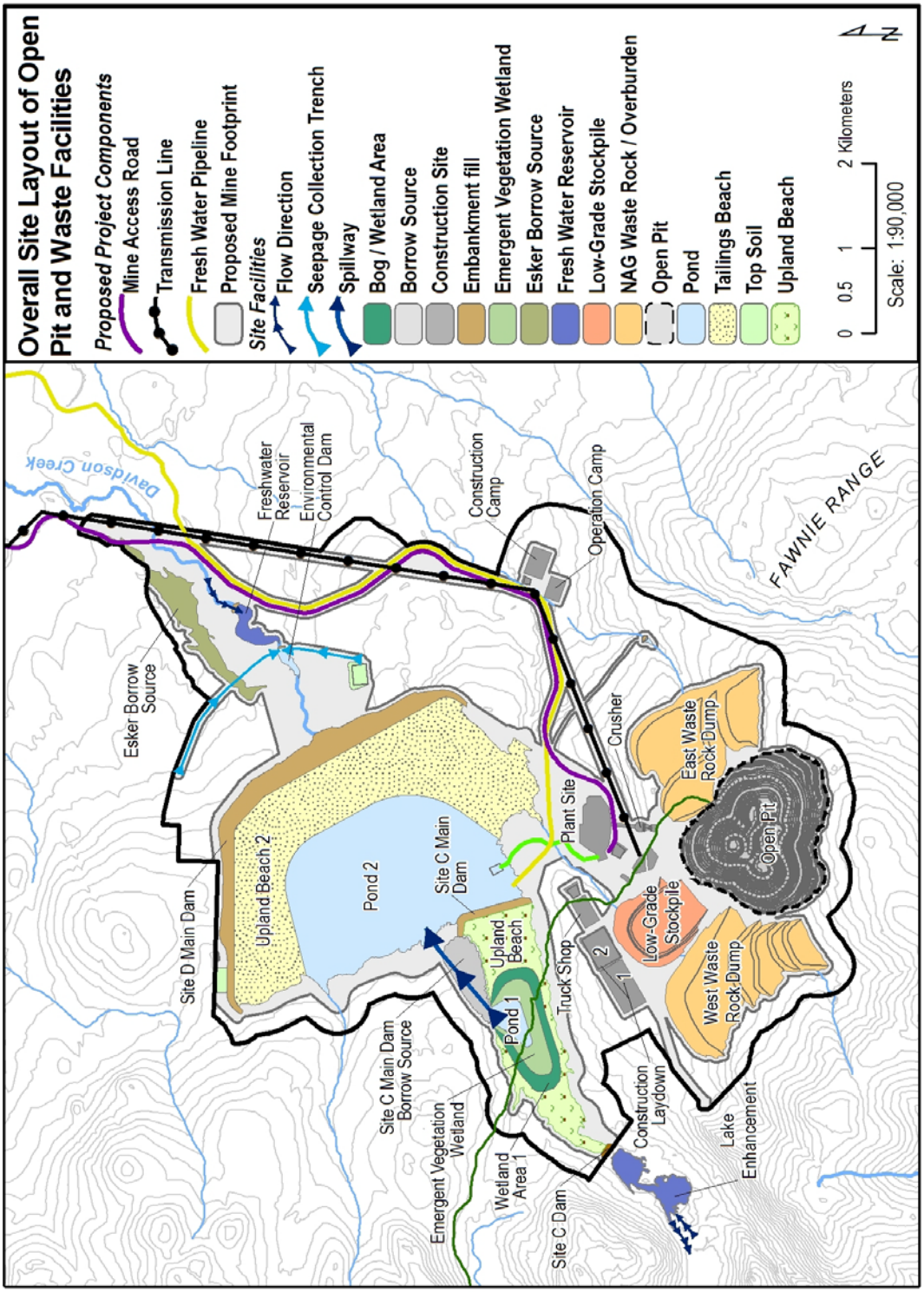


Figure ES 3: Mine Site Layout

2.3 Project Overview

Granges Exploration Ltd (Granges) conducted mineral exploration activities in the Project area starting in 1973. Richfield Ventures Corporation (Richfield) acquired the Blackwater mineral claims in 2009, and conducted additional drilling and baseline environmental programs. The Proponent purchased Richfield in 2011, acquiring the Blackwater mineral claims, and continued major exploration drilling, metallurgical testwork and engineering, and environmental studies.

Exploration activities undertaken by the Proponent to support the Preliminary Economic Assessment (PEA) of the Project were completed in May 2012, and involved drilling 449 holes for approximately 160,000 m. The Proponent's environmental baseline studies began in May 2011, and were conducted until 2013 with some baseline studies continuing into 2014. Results from the 2011 to 2013 environmental baseline studies are included in the Application.

The Project is based on a conventional diesel-powered truck-shovel open pit mine, which will feed a plant where the ore would be processed by whole ore cyanide leaching. The gold and silver would be recovered into a gold-silver doré product, and shipped by air or by road. The Project would represent an annual average production of 507,000 troy ounces of gold, and 2,039,000 oz of silver over 17 years of operations, and would generate positive economic effects, including employment and business opportunities, and tax payments. The main physical activities associated with the Project include the construction, operations, closure, and post-closure monitoring of an open pit mine, ore processing facilities, mine waste management facilities, and associated on-site and off-site infrastructure.

The Project incorporates several design measures to avoid sensitive areas (i.e., Blackwater basin, Ungulate Winter Range (UWR)). Further, the Proponent proposes to manage the mine waste in a manner that protects water resources and aquatic biota, including kokanee and rainbow trout, by avoiding surface water discharges during operations and closure phases and by co-disposal of potentially acid-generating (PAG) waste rock under water with tailings in order to achieve water quality objectives during the post-closure phase.

Five sites for the tailings storage facility (TSF) were examined and site investigations conducted. Two sites were rejected as they were in the Blackwater River drainage and with those locations, two watersheds would have been affected. The final location was based on extensive geotechnical and hydrogeological site investigations to determine the suitability of dam foundations and permeability of the subsurface, as well as the ability to store all process water during operation and closure.

Proposed mitigation measures go beyond adopting best practices. For example, innovative approaches have been incorporated to use the freshwater supply system to mitigate stream flow effects. Further, a Fisheries Mitigation and Offsetting Plan is proposed to compensate for loss of fish habitat.

2.3.1 On-Site Components and Infrastructure

Table ES 1 presents a summary of the main Project components and facilities with their approximate dimensions and capacities.

It is anticipated that materials transported to the proposed mine site will include reagents (such as cyanide), fuel and lubricants, explosives, and blasting agents. Goods to be transported on highways and FSRs will adhere to federal Transportation of Dangerous Goods (TDG) classifications under the *Canadian Transportation of Dangerous Goods Act* (*TDG Act*) and *Regulations*. A preliminary Hazardous Materials Management Plan has been developed and presented in the Application, which will include a description of management practices for the TDG.

The TSF will act as the main water storage facility for ore processing. In addition to the TSF and its associated Environmental Control Dam (ECD), the Project proposes the construction of a freshwater reservoir, which will serve the dual purpose of supplying make-up water to the plant and providing for instream flow needs of downstream aquatic resources. The design of all dams for the Project will follow the Canadian Dam Association Dam Safety Guidelines, and will be presented in the Application. There will be a total of seven sediment ponds required during construction. Three of these sediment ponds will drain into creeks (Davidson Creek and Creek 661). The remaining four will drain to land. Only two of the sediment ponds (draining to land) will remain beyond the closure phase.

Given the large size and the disseminated nature of the mineralization within the Project footprint, open pit mining is the only feasible option for economic extraction of the ore. The current resource estimate indicates combined Indicated and Inferred resources of 7 million troy ounces of gold and 29.6 Moz of silver at a 0.3 g/t AuEq cutoff grade. The mine plan involves mining 344 Mt of ore, 598 Mt of waste rock, and 92 Mt of overburden for a total production of 1,034 Mt of material.

Table ES 1: Project Components and Facilities – Approximate Dimensions and Capacity

PROJECT COMPONENT OR FACILITY	DIMENSIONS AND/OR CAPACITY
ON-SITE	
Mine Site	4,400 hectares (ha) to accommodate all mine, ore processing, mine waste, water supply and management, and on-site infrastructure
Open Pit	238 ha with approximate dimensions 2 km long from east to west and 1.5 km long from north to south, with an anticipated depth of 550 m below ground surface
West Waste Rock Dump	172 ha to store 87 Mt of Non-Acid Generating (NAG)4, NAG5, and overburden, with an elevation of 1,535 metres above sea level (masl) (160 m high)
East Waste Rock Dump	158 ha to store 50 Mt of NAG5 and overburden with an elevation of 1,590 masl (105 m high)
Low-Grade Ore Stockpile	76 ha to store 50 Mt of low-grade ore
Construction Laydown	31 ha
Construction Camp	8 ha with the capacity to accommodate 1,000 to 1,500 personnel during construction phase
Truck Shop	6 ha
TSF[(1)]	1,117 ha including 192 ha for TSF Site C and 925 ha for TSF Site D. The maximum elevation of TSF Site D dam will be 1,339 masl (149 m) The TSF is designed to store a total of 784 Mt of tailings, Potentially Acid Generating PAG1 and PAG2, and Potentially Metal Leaching (ML) NAG3 waste rock, as follows: 344 Mt of tailings; 366 Mt of PAG1 and PAG2 waste rock; and 74 Mt of NAG3 waste rock
Plant Site	35 ha with industrial buildings to process 60,000 t/d (22 Mt/y) of ore. This area will include the crusher and the conveyor. The plant site will be located at an elevation of 1,425 masl. The plant site will have an area for storage of hazardous materials (e.g., cyanide), and will also include the core logging area
Operations Camp	5 ha, with buildings to accommodate up to 500 personnel during the operations phase
Topsoil Stockpile	10 ha distributed in two locations within the mine site
Borrow Areas	73 ha, comprising 30 ha for the Site C main dam, and 43 ha for the Site D main dam. The borrow areas will also include a sand and screening plant
OFF-SITE	
Transmission Line	561 ha for a 140 km long, 230 kV line over a right-of-way (ROW) 40 m wide. There will be a total of 134 km of transmission line access roads, of which approximately 93 km will be new roads and 41 km will be upgrades to existing roads.
Mine Access Road	Starting at km 124.5 of the Kluskus-Ootsa FSR, this road will occupy approximately 28 ha and be 15 km long with a ROW 20 m wide
Freshwater Supply System	20 km long pipeline to supply freshwater from Tatelkuz Lake to a 400,000m^3 capacity water reservoir located east of TSF Site D. Water will be used for ore processing and for flow maintenance in Davidson Creek. Pipeline will be placed adjacent to a road approximately 5 m to 10 m wide. The pumping station located on the shores of Tatelkuz Lake will include an approximately 100 m by 100 m construction laydown area
Airstrip	2 km long and 200 m wide airstrip built in the proximity of the mine site, with its location selected in consideration of existing land use, access, and environmental conditions

Note: PAG1: PAG waste rock with NPR ≤ 1
PAG2: PAG waste rock with 1 < NPR ≤ 2
NAG3: NAG waste rock with NPR > 2 and solid zinc concentrations ≥ 1,000 ppm
NAG4: NAG waste rock with NPR > 2 and solid zinc concentrations < 1,000 and ≥ 600 ppm
NAG5: NAG waste rock with NPR > 2 and solid zinc concentrations < 600 ppm
[(1)] The TSF has the potential to store larger quantities of tailings and waste rock. The tonnages reported correspond to the mine plan within the scope of the Application.
ha = hectare; km = kilometre; kV = kilovolt; m = metre; masl = metres above sea level; Mt = million tonnes; Mt/y = million tonnes per year; NAG = non-acid generating; NPR = Neutralization Potential Ratio; PAG = potentially acid generating

Ore will be processed in a mill, to be constructed north of the open pit. Tailings from the mill will be treated by a SO_2/air treatment plant to destroy cyanide and precipitate heavy metals prior to disposal in the TSF. Extensive geochemical testing of mine wastes has been conducted. Waste rock will be segregated and managed according its Acid Rock Drainage (ARD) and Metal Leaching (ML) potential. Geochemical characterization of the waste rock has been conducted, and it is proposed that PAG (PAG1 and PAG2) and potentially ML (NAG3) waste rock will be disposed underwater in the TSF or left in the open pit during the later stages of mining. Overburden and NAG5 waste rock, with limited amounts of NAG4 waste rock, will be used to construct the Dam D shell. Residual overburden, NAG4 and NAG5 waste rock will be placed in the West Dump while only overburden and NAG5 waste rock will be placed in the East Dump. A portion of the overburden and waste rock from the East Dump will be reclaimed at mine closure for use in reclamation.

Photo ES 2: Aerial View of BC Hydro Substation, south of Endako

The location of the mine waste storage facilities was primarily selected based on discussions with local Aboriginal groups and the Proponent's environmental analysis, as per the Guidelines for the Assessment of Alternatives for Mine Waste Disposal.

Specifically, the TSF avoids the Blackwater River drainage to the south, whitebark pine to the extent feasible (listed on Schedule 1 of the *Species at Risk Act* (*SARA*)) to the south, and the UWR to the west.

2.3.2 Off-Site Infrastructure

A 140 km transmission line connecting the mine site with an existing BC Hydro substation south of the community of Endako will be required to provide power to the Project. The transmission line alignment presented in Figure ES 2 was selected as the preferred alternative among six different options. A new 16 km long road will be constructed to access the mine site starting at KM 125 of the Kluskus-Ootsa FSR.

Freshwater requirements will be met by pumping water from Tatelkuz Lake via a 20 km long pipeline to a water reservoir downstream of TSF Dam D. This water will be used for ore processing and flow maintenance in Davidson Creek.

An airstrip will be built in the proximity of the mine site, with its location selected in consideration of existing land use, access, and environmental conditions.

2.4 Reclamation and Closure

Key Project objectives relevant to reclamation and closure include the design of the mine for closure, and progressive rehabilitation to the extent feasible of areas impacted by its activities.

The Application includes a conceptual Reclamation and Closure Plan (RCP) that describes proposed reclamation measures that address reclamation standards as outlined in Section 10 of the Health, Safety, and Reclamation Code for Mines in BC. The reclamation objectives conform to land and resource management objectives and strategies presented in the Vanderhoof Land and Resource Management Plan (LRMP).

During development of the RCP, applicable legislation, criteria, and guidelines were considered. Methods to achieve these objectives include soil management and use, landform design, decommissioning and site preparation, revegetation prescriptions for specified ecotype targets, and seeding and planting densities. The RCP and Follow-up Monitoring and Compliance Reporting sections include proposed performance standards, management, and monitoring strategies to verify reclamation success, and a timeline for reclamation and monitoring activities. Opportunities for reclamation research are also described. The plan describes management strategies for temporary closure (including a description of the conditions under which temporary closure will occur). Temporary closure would be for a short period, e.g. one year or less and could be due to commodity price drops or a major accident or fire that decommissioned the process plant. Premature closure is the permanent closure of the mine before completion of the mine plan contemplated in the Application. In that case, the closure plan for scheduled closure described previously, modified as required for the waste facilities in place at that time, will be implemented. The plan emphasizes soil, vegetation, and wildlife habitat reclamation, and provides a cross-reference to relevant management plans. Estimated conceptual reclamation costs as well as salvage value were prepared and are summarized in the Application.

Photo ES 3: Wetland in Upper Davidson Watershed

2.5 Project Schedule

The Proponent completed a Feasibility Study (FS) in the fourth quarter of 2013, and the Application was submitted in mid-2014. Provincial and federal decisions are expected during 2015. The construction phase of the Project is expected to take two years. The operations phase is expected to continue for seventeen years. The closure phase will start once the operations are finished, and will last until the pit lake is full and discharges to the TSF. The post-closure phase will commence once the TSF starts discharging surface water to Davidson Creek, approximately 18 years after the cessation of milling.

2.6 Project Benefits

2.6.1 Changes in the Project from the EA Process

A number of key changes were made to the project design as a result of the pre-application process. These included:

- Concerns regarding the Tweedsmuir-Entiako caribou herd wintering ground expressed by regulators, First Nations and the general public were part of the reason for selecting a mine access road that avoided this area rather than upgrading the existing exploration road that cuts through part of the winter range.
- Concerns about the transmission line proximity to private property led to an alternate route around the Davidson Creek ranch area.
- Concerns about the transmission line crossing the Stellako River Wildlife Management Area led to an

alternate route that minimizes crossing of the management area.

- Concerns expressed by regulators, First Nations and the general public led to elimination of two TSF alternatives in the Blackwater River watershed.
- Concerns expressed about increased access along the transmission line led to a design that maximizes use of existing road right-of-ways.
- Rejection of the southern access option from Anahim Lake to Blackwater because of concerns expressed by First Nations and the general public due to the sensitivity of the environment along this access corridor, potential effects on the Blackwater River and Grease Trail, and potential that the FSR would be upgraded to highway status with a connection to the Kluskus FSR.

2.6.2 Benefits

This section provides an overview of the benefits predicted for the Project. Specifically, this section summarizes the potential positive implications of the Project for employment (direct, indirect, and induced effects), personal and business income, and government revenues. Focus is placed on the regional and provincial contexts. The summary is organized primarily by phase of Project development: construction, operations, and closure.

The Project will make a major contribution to social and economic well-being in BC, especially in central BC, where Project spending on labour, goods, and services will provide opportunities for regional residents, and bring additional workers and their families into the region. By providing well-paying jobs, reducing local unemployment levels, purchasing goods and services from regional businesses, and contributing to economic and population growth, the Project will improve economic and community stability, and offset some of the employment losses that have recently occurred in the region due to declines in the forest industry. The District of Vanderhoof and the City of Prince George will be the major beneficiaries of the Project, although Project benefits will occur in other communities, both Aboriginal and non-Aboriginal, within central BC.

According to the feasibility study (or the PEA where values were not revisited for the feasibility study), there are numerous economic and social benefits associated with the Project:

- Project life. The Project will generate approximately 37 years of economic activity, including two years of construction activity, 17 years of operations, and 18 years of closure activities, although monitoring will continue over a further extended period.
- Capital cost. The capital cost of construction is estimated at $1.865 billion over the two-year construction period, with approximately 88% of construction expenditures being made within BC ($1.294 billion, excluding contingencies), including $398 million within central BC.
- Construction phase employment. The construction phase will create an estimated 3,480 person years (PYs) of direct employment at the mine, with 70% estimated for BC residents (3,435 PYs), including an estimated 20% for regional residents (485 PYs). At peak, the Project will employ approximately 1,500 workers at the site. Approximately 20% of construction-related employment will be hired directly by the Proponent; contractors will supply the other 80% of the construction workforce.
- Operations phase employment. During operations, the Project will employ approximately 495 people, with 80% of these (396) being BC residents, including 320 residents of central BC. These new jobs would at least partially offset the loss of jobs in central BC that occurred between 2006 and 2011, and will help maintain and enhance economic diversity and decrease dependency on the forestry sector.
- Annual operating expenditures. Project expenditures on goods and services during operations will average $243 million annually, with $152 million made within BC, including $75 million within the region. The purchases will generate 405 PYs of indirect employment in BC, including 200 PYs for regional residents.
- Ongoing capital expenditures. Approximately $572 million in sustaining capital purchases will be made over the operating life of the Project, and this will create another 2,200 PYs of indirect employment in BC. Of this, 17% ($98 million) will be purchased from businesses in central BC, resulting in 375 PYs of employment.

- Provincial revenues. The Project will generate approximately $43.3 million in provincial revenues during construction through income taxes and taxes on products, and approximately $21 million annually during operations.
- Regional and municipal revenues. Annual revenues (direct, indirect, and induced) accruing to local and regional governments will total approximately $13 million during construction, and approximately $4 million per year during operations, including approximately $2.3 million per year in property taxes.

Photo ES 4: Subalpine View to Mount Davidson

Over the life of the Project, it will directly and indirectly contribute $4,729 million to the economy of BC, as measured in terms of Gross Domestic Product (GDP). The distribution of GDP effects over time is shown in the following graph.

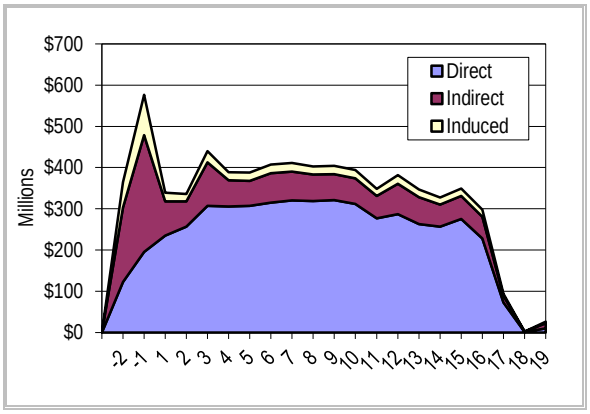


Figure ES 4: Estimated Contributions to the British Columbia Gross Domestic Product

Over its entire life, the Project will create nearly 30,000 PYs of employment for BC residents. Total tax revenues over the life of the Project will amount to approximately $1.2 billion, of which $656 million will accrue to the federal government, and $83 million will go to local governments. Total revenues for BC will be approximately $511 million, which includes $450 million in taxes and $61 million in royalties.

2.7 Investing in the Community

The Proponent intends to continue to operate the Blackwater Community Liaison Committee (CLC) throughout the duration of the Project to facilitate discussion between community members and the Proponent in order to maximize the positive benefits and minimize the negative impacts of the Project throughout the mine life.

3.0 SCOPE OF PROJECT AND ASSESSMENT

3.1 Coordinated Provincial and Federal Process

The Project requires an Environmental Assessment Certificate (EAC) under the BC *EAA*. Additionally, the Project is subject to an EA under the *CEAA, 2012*, and Canada's Minister of the Environment must issue a Decision Statement. The Agency and the BC EAO have agreed to coordinate the federal and provincial EAs to the extent possible pursuant to the Canada-British Columbia Agreement for Environmental Assessment Cooperation. Under the Coordinated Federal and Provincial Environmental Process, the Proponent prepares a single Application containing the information required to fulfill both provincial and federal requirements. The provincial and federal assessment processes are concurrent, as described in the graph below. The provincial and federal authorities will evaluate the document independently, and each jurisdiction will render its own decision about the Project.

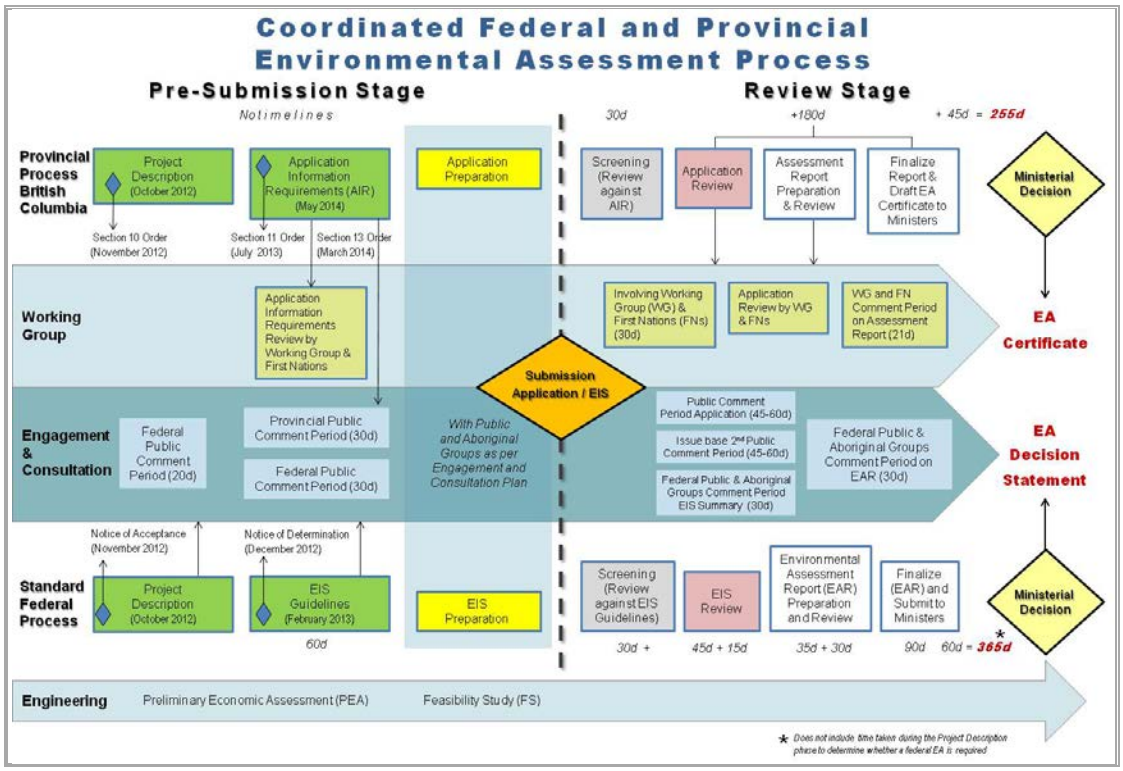


Figure ES 5: Coordinated Federal and Provincial Environmental Assessment Process

3.2 Assessment Methodology

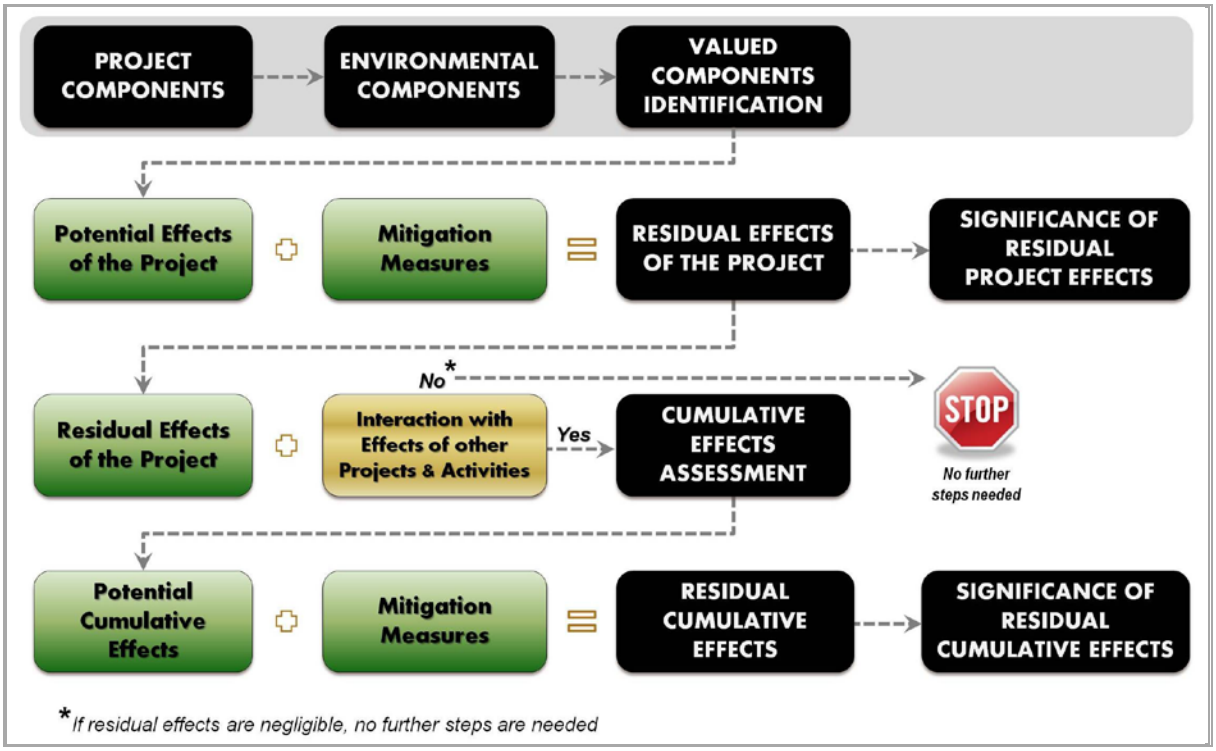
This section presents an overview of the methodology used to identify and assess the potential effects from the interaction of the Project with the five pillars of assessment (environmental, economic, social, heritage, and health).

The general approach used to determine potential Project effects, appropriate mitigation measures, anticipated residual effects, and their significance, is illustrated in Figure ES 6. Effects on the environment assessed both provincial and federal concerns.

This approach is consistent with the Guideline for Selection of Valued Components and Assessment of Potential Effects (BC EAO, 2013). Figure ES 7 presents a simplified version of the steps in the assessment process.

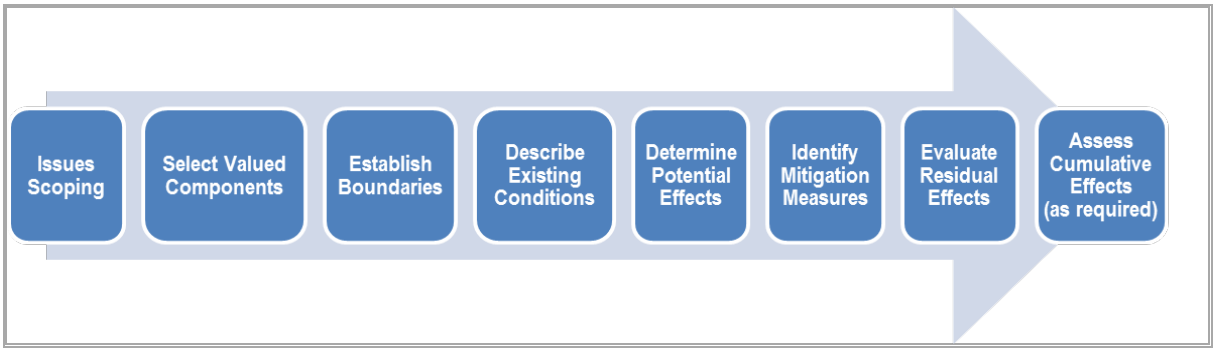
Baseline characterization and the results of consultation and engagement activities provided the information to allow for the identification of the Valued Components (VCs) representative of the five pillars.

The baseline characterization also provided information on the important features of each of the five pillars and associated processes, their interrelationships and interactions, as well as the variability within and among resources, processes, and interactions over the temporal scale as identified in the Application. This information is presented in sufficient detail to allow characterization of each component before any disturbance to the environment due to the Project. In describing the environmental components, both scientific and available traditional knowledge have been included, as well as the indicators and measures of component health and integrity used for the analysis. The baseline characterization addresses the resilience of the subject area, and relevant historical information. Where little or no information existed, specific studies were designed to gather further information. The baseline characterization covers all relevant seasonal and temporal variations. Detailed information is provided in the appendices of the Application and is summarized in the Application. This summary will focus on representative factors and/or indicators of each of the five pillar components that may be affected by the Project.



Note: Modified from BC EAO (2013a)

Figure ES 6: Effects Assessment General Approach Flow Chart



Source: BC EAO, 2013

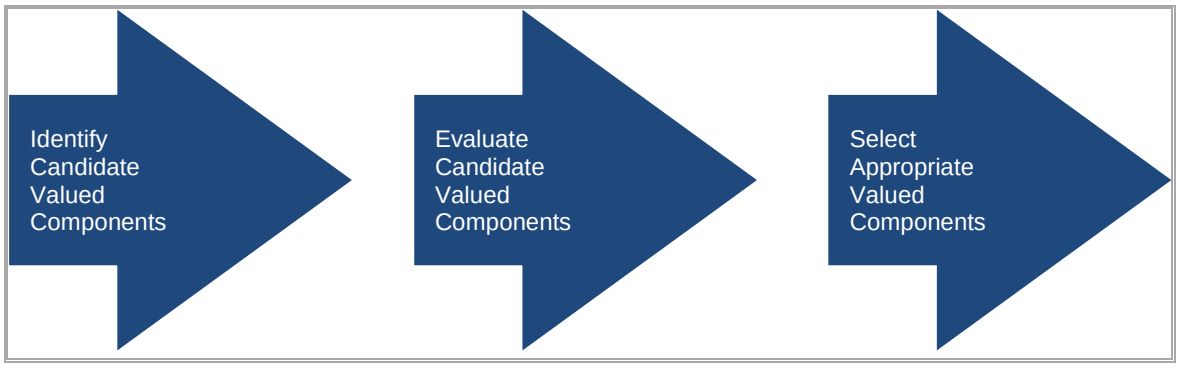
Figure ES 7: Effects Assessment Process Flow Chart

Once the identification of VCs was completed, the potential and residual effects of the Project on the VCs were assessed. Mitigation measures were proposed for each VC as required, taking into consideration the magnitude and duration of the potential effects of the Project. The mitigation measures are discussed in relation to their expected effectiveness and the associated risk.

Following the assessment of the residual effects of the Project, a Cumulative Effects Assessment (CEA) was conducted for each VC for which a residual effect was predicted, taking into consideration projects and activities past, present, certain future, and reasonably foreseeable future (Agency, 2013a). The rationale for the selection of projects and activities (both included and excluded) is presented in the Application. Uncertainties and assumptions used in the significance assessment of residual effects and cumulative effects are presented under each VC.

Under this approach, the potential effects are considered as pre-mitigation effects, while the residual effects are expected to occur subsequent to the application of mitigation measures. The residual effects are the basis for the determination of significance.

The selection of VCs for the EA began with an issues-scoping process through which available information was compiled and analyzed in consultation with government, Aboriginal groups, and stakeholders, to identify an initial list of issues. These Project-specific issues were generally indicative of local and regional values held by the public, Aboriginal groups, and other stakeholders. An initial list of key issues and concerns was presented in the Blackwater Project Description filed with BC EAO 5 November 2012 (AMEC, 2012). Building on this list, candidate VCs were identified through EIS guidelines and the AIR process, incorporating additional guidance from the BC EAO and the Agency, issues raised by government, Aboriginal groups, and stakeholders, and professional knowledge of the area.



Source: BC EAO, 2013

Figure ES 8: Steps in the Selection of Valued Components Flow Chart

The candidate VCs were examined to confirm if they would interact with Project components and activities, and if those interactions would result in an environmental effect. Key interactions were identified as those that had a greater potential to result in adverse effects of higher significance. Additional evaluation of the candidate VCs to selected VCs applied a confirmation of the VC attributes and key questions. If all attributes and questions were confirmed and answered with "yes," the candidate VC became a selected VC. If "no" was answered to one or more of the attribute or evaluation questions, the candidate VC was not considered as a selected VC, unless it was a confirmed to be a component of concern. The outcome of the interactive process was a shorter list of VCs that appropriately reflects the concerns raised and the aspects of the broader environment that are of most value to society. This list allowed the assessment to focus on key issues for decision-makers and to address key concerns. The final list of selected VCs was confirmed by BC EAO in issuance of the final AIR.

Table ES 2 provides a list of VCs selected for the assessment.

Table ES 2: Selected Valued Components

PILLAR	VALUED COMPONENTS	INDICATORS/FACTORS FOR ASSESSMENT
Environmental	• Noise and vibration	• Overall sound levels
	• Climate change	• Greenhouse gas (GHG) emissions
	• Air quality	• Measured parameters (e.g., particulate matter and combustion gases)
	• Surface water flow	• Water flow • Lake level
	• Surface water quality	• Measured parameters (e.g., pH and heavy metals) • Acid Rock Drainage / Metal Leaching • Geochemistry
	• Sediment quality	• Measured parameters (e.g., pH and heavy metals) • Acid Rock Drainage / Metal Leaching • Geochemistry
	• Groundwater quantity	• Groundwater flow • Groundwater level
	• Groundwater quality	• Measured parameters (e.g., pH and heavy metals) • Acid Rock Drainage / Metal Leaching • Geochemistry
	• Wetlands	• Hydrological function • Biochemical function • Ecological function • Habitat function
	• Fish habitat	• Surface water flow • Surface water quality • Sediment quality • Ecological health • Wetlands (riparian habitat)
	• Fish	• Rainbow trout • Kokanee
	• Physiography and topography	• Terrain stability
	• Surficial geology and soil cover	• Soil availability and depth
	• Soil quality	• Reclamation suitability
	• Ecosystem composition	• Ecosystem distribution • Riparian • Old growth • Sparsely vegetated ecosystems • Traditional use plant habitat
	• Plant species and ecosystems at risk	• *SARA* listed whitebark pine • Ecosystems at risk

PILLAR	VALUED COMPONENTS	INDICATORS/FACTORS FOR ASSESSMENT
Environmental (cont'd)	• Amphibians	• Western toad • Western toad habitat
	• Waterbirds	• Ring-necked duck • Ring-necked duck habitat • Yellow rail • Yellow rail habitat
	• Forest and Grassland Birds	• Olive-sided flycatcher (songbird) • Olive-sided flycatcher habitat • Clark's nutcracker (songbird) • Clark's nutcracker habitat • Red-tailed hawk (raptor) • Red-tailed hawk habitat
	• Moose	• Moose • Moose habitat
	• Caribou	• Caribou • Caribou habitat
	• Grizzly Bear	• Grizzly bear • Grizzly bear habitat
	• Furbearers	• Marten • Marten habitat • Beaver • Beaver habitat
	• Bats	• Little brown myotis • Little brown myotis habitat
	• Invertebrates	• Jutta arctic (butterfly) • Jutta arctic habitat • American emerald (dragonfly) • American emerald habitat
Economic	• Provincial economy	• Provincial economy activity (Gross Domestic Product) • Provincial employment and labour income • Provincial government revenues
	• Regional and local employment and businesses	• Direct employment of local and regional residents • Contract and business opportunities (Project purchasing from local contractors and businesses) • Changes in regional unemployment • Local and regional labour income and costs • Training and education
	• Regional and local government finance	• Municipal tax revenues • Costs to regional and local governments

PILLAR	VALUED COMPONENTS	INDICATORS/FACTORS FOR ASSESSMENT
Social	• Demographics	• Population
	• Regional and community infrastructure	• Regional/municipal infrastructure (water supply, communications, water/sewage treatment, landfills, electricity, and recreational facilities) • Community housing and temporary accommodation • Regional transportation (road, rail, air)
	• Regional and local services	• Regional and local services and conditions (educational, health, social and protective services)
	• Family and community well-being	• Economic hardship • Crime (including drug and alcohol abuse) • Family relationships
	• Non-traditional land and resource use	• Protected areas and parks • Recreation/tourism use (e.g., all terrain vehicle use) • Mining exploration , and mineral tenures • Forestry and timber resource use • Hunting,trapping, and guide outfitting • Fishingand aquaculture • Agriculture and grazing (includes range use) • Land ownership [1] • Recreational and commercial use of waterways • Groundwater resource use • Surface water resource use
	• Current Land and Resource Use for Traditional Purposes	• Hunting and trapping activities • Fishing activities • Plant gathering activities • Other cultural and traditional uses of the land (e.g. cultural and spiritual places, trails, navigation)
	• Visual resources	• Visual record • Demonstrated aesthetic value
Heritage	• Archaeological sites	• Landmarks • Buildings • Religious features • Human remains • Culturally modified trees • Subsistence features

[1] This includes private land and *Land Act* tenures

PILLAR	VALUED COMPONENTS	INDICATORS/FACTORS FOR ASSESSMENT
	• Historic heritage sites	• Landmarks • Buildings • Religious features • Human remains • Culturally modified trees • Subsistence features
	• Paleontological resources	• Fossil sites
Health	• Environmental exposures	• Noise and vibration • Air quality • Surface water and sediment quality • Groundwater quality • Fish • Soil quality • Contamination of country foods
	• Workers health and safety	• Occupational exposures • Safety in the workplace • Noise when workers are at rest (construction and operations)

The EA included an assessment of the potential effects on Aboriginal rights and interests as required by the Agency and BC EAO. Three chapters of the EA are dedicated to this discussion. VC's include SARA-listed species which are federally regulated. A fish mitigation and offset plan was developed as part of *Fisheries Act* requirements and included in the EA.

4.0 ALTERNATIVE MEANS OF UNDERTAKING THE PROJECT

The alternative means of undertaking the Project corresponds to specific Project components whose location or type are subject to an assessment of alternatives using technical and economic criteria. The specific Project components subject to an assessment of alternatives are identified and briefly described in Table ES 3.

The methodology used for assessing the alternative means of undertaking the Project considered the following:

- Alternatives for mine waste management were assessed consistent with Environment Canada (EC) Guidelines for the Assessment of Alternatives for Mine Waste Disposal (EC, 2011); and
- Other Project components identified in Table ES 3 were assessed using comparisons that considered environmental performance objectives and approaches that have been used for mining projects in Canada. Alternatives were rejected if they attained an unacceptable rating for any single performance objective in recognition that all performance objectives are essential to the decision making process.

Table ES 3: Alternative Means of Undertaking the Project

PROJECT COMPONENT	DESCRIPTION
Mine Waste Management	Eight potential locations for tailings storage and five waste rock dump sites were evaluated within 10 km of the deposit. Six potential low grade stockpile locations including a "no stockpile" option were also considered. The locations chosen for tailings storage, low grade stockpile and waste rock dumps were selected as they permit optimal control of drainage and seepage within a compact site layout.
Main Project Access	The Proponent assessed two different alternatives for road access to and from the proposed mine site from Highway 16 (between Prince George and Fraser Lake) and Highway 97 (between Prince George and Quesnel) (Figure ES 2). The alternatives were assessed considering the presence of the existing FSRs versus the potential need for new roads or bridges where access was not available.
Mine Site Access	Two options were considered: the existing exploration road through the UWR, or a new road. The new road option was selected as it reduces travel distance to the mine site and avoids the UWR.
Transmission Line	The Project requires electrical power and interconnection to the BC Hydro grid through construction of a transmission line (Figure ES 2). Six alternatives for the alignment were considered to link the mine site with potential connection points along the BC Hydro power corridor running between Vanderhoof and Endako, parallel to Highway 16. The preferred alignment was selected based on the existence of a sub-station at Endako (which avoids the need for a new facility), and current land use (the existing corridor runs largely along Crown land, minimizes overprinting private parcels, and avoids federal lands). Where the transmission line will cross the Stellako River and at the Tatelkuz Lake Resort, alternative re-routes are considered for the assessment. The re-route at the Stellako River provides an alignment closer to the existing BC Hydro transmission line. At the Tatelkuz Lake Resort, the re-route option does not follow the Kluskus FSR in order to avoid affecting the existing Tatelkuz airstrip. This alignment crosses Chedakuz Creek and a series of wetlands. A new access road would be required along this alignment. Both re-routes are included in the effects assessment.
Freshwater Supply	Three lake options (Tatelkuz Lake, Kuyakuz Lake, and Top Lake) were assessed for Project water supply. Tatelkuz Lake was selected, as it is the most reliable source of freshwater and can accommodate the withdrawal.
Airstrip	Twenty-eight potential sites were initially identified for the airstrip in consideration of local knowledge, previous work, and preliminary terrain analysis. Screening and field investigations were conducted to identify the selected location of the airstrip, which will be developed on an already logged area, with limited additional direct disturbance to the environment.

Note: FSR = Forest Service Road; Hwy = Highway; km = kilometre; UWR = Ungulate Winter Range

5.0 CONSULTATION AND ENGAGEMENT ACTIVITIES

5.1 Introduction

The EA process aims to ensure that major projects meet environmental, economic, social, health, and heritage sustainability goals while considering the issues and concerns of the public, Aboriginal groups, interested stakeholders, and government agencies. In that regard, the EA process implemented by the Project includes the following elements:

- The provision of opportunities for all interested parties to identify issues and provide input;
- Consultation with Aboriginal groups, which includes opportunities to identify issues and provide input; and

- Consideration of the input of all interested parties in compiling assessment findings and making decisions about the Project's acceptability.

Comprehensive consultation with public, government, and Aboriginal groups was conducted in the pre-Application stage in order to understand the comments and concerns of these parties and satisfy provincial and federal consultation requirements. Stakeholders were provided the opportunity to gain an understanding of the Project and have been afforded the opportunity to effectively participate in the environmental assessment process. The Proponent began the formal consultation process with respect to the Project in 2012, and has led or participated in over one hundred public consultation meetings, presentations, government agency and local government meetings, community events and open houses. The Proponent has also directly engaged with Aboriginal groups who are potentially affected by the Project. A comprehensive record of consultations has been maintained, and issues and concerns raised through these consultations have informed: Project planning and design; and have been reflected in the selection and characterization of VCs within the effects assessment as well as proposed mitigation measures.

5.2 Working Group

The BC EAO established and chairs a Working Group (WG) comprising provincial and federal regulatory agencies, Aboriginal groups, and identified stakeholder groups likely to be involved in or affected by the Project. The WG meets at various stages of the EA process to provide direction to the Proponent regarding assessment methodologies including inputs, analysis, results, and potential effects mitigation. In turn, the Proponent supplies the WG with data and information regularly as the WG requests it. Table ES 4 provides a listing of members of the WG.

Photo ES 5: Community Liaison Committee Meeting

The WG first met on 30 April 2013. A sub-working on caribou was established for the Project in July 2013. The WG's involvement in the pre-Application stage has focused primarily on reviewing the draft AIR (dAIR).

Table ES 4: Working Group Members

Aboriginal Groups	Lhoosk'uz Dene Nation
	Nadleh Whut'en First Nation
	Saik'uz First Nation
	Stellat'en First Nation
	Ulkatcho First Nation
Provincial Government Agencies	BC Environmental Assessment Office (chair of the Working Group)
	Ministry of Aboriginal Relations and Reconciliation
	Northern Health
	Ministry of Energy and Mines
	Ministry of Environment
	Ministry of Environment - South Coast Region
	Ministry of Forests, Lands, and Natural Resource Operations
	Ministry of Jobs, Tourism and Skills Training

	Ministry of Transportation and Infrastructure
Local Government Agencies	Cariboo Regional District
	District of Fort St. James
	District of Vanderhoof
	Regional District of Bulkley-Nechako
	Village of Fraser Lake
Federal Government Agencies	Canadian Environmental Assessment Agency (Agency)
	Environment Canada (EC)
	Fisheries and Oceans Canada (DFO)
	Health Canada (HC)
	Natural Resources Canada (NRCan)
	Transport Canada (TC)

5.3 Aboriginal Groups Information Distribution and Consultation

In April 2011, following acquisition of the mineral claims for the Project, the Proponent began communications with potentially affected Aboriginal groups. Pre-Application consultation focused on having early discussions with Aboriginal groups and ensuring that each group is engaged in the Project in a way that is respectful and meaningful. The pre-Application consultation program provided the Proponent with insight into the rights and interests of Aboriginal groups that may be affected by the Project, as well as any concerns or comments about the Project.

The BC EAO formally delegated aspects of its consultation responsibilities to the Proponent through a section 11 Order distributed on 9 July 2013. The Order directed the Proponent to consult five Aboriginal groups (Schedule B Aboriginal Groups):

- Lhoosk'uz Dene Nation (LDN);
- Nadleh Whut'en First Nation (NWFN);
- Saik'uz First Nation (SFN);
- Stellat'en First Nation (StFN); and
- Ulkatcho First Nation (UFN).

The BC EAO also identified three Aboriginal groups that are to be provided with notification of, and relevant information pertaining to, key Project milestones (Schedule C Aboriginal Groups):

- Nazko First Nation (NFN);
- Skin Tyee Nation (STN); and
- Tsilhqot'in National Government (TNG).

The Proponent continues to consult the Métis Nation of BC, as directed by the federal EIS Guidelines for the Project. In addition to consulting with the Aboriginal groups identified above, the Proponent continues to engage in discussions with the Carrier Chilcotin Tribal Council (CCTC) and the Carrier Sekani Tribal Council (CSTC). The CSTC provides political and technical support to eight First Nations belonging to the CSTC Association including the Nadleh Whut'en, Saik'uz, and Stellat'en First Nations. The CCTC provides support services to four communities including the LDN and UFN.

The Proponent is committed to open and transparent communication with Aboriginal groups. The following methods have been employed during the pre-Application stage: Project website; direct communication; site tours; community meetings and open houses; formal meetings; and Project office in Vanderhoof staffed with a Community Relations Manager, a First Nations Coordinator, and an Office Administrator.

Primary concerns and comments raised by Aboriginal groups related to potential Project effects on:

- Fish and fish habitat, as expressed through reduction in water quality and quantity, effects from tailings leakage and tailings spills on fish and aquatic habitat, general concern about areas used traditionally for fishing, damage to spawning areas
- Water quality and quantity, including potential effects on drinking water, contaminants (particularly arsenic and cyanide) in water fish and food, effects of tailings on water quality, effects on the Nechako Reservoir and watershed, effects of acid rock drainage, potential for decreased flows to the Nechako Reservoir and lowered Tatelkuz Lake levels, project effects on groundwater,
- Caribou, including general effects of project disturbance on caribou, effects on the caribou winter range, potential increase in wolf predation,
- Wildlife and wildlife habitat including the effects of increased hunting pressure due to improved access, effects of clearing of old growth forests on marten populations, effects on traditional harvesting and diets, effects on bear denning, effects of noise on small mammals and birds,
- Increased vehicular traffic including effects of dust on medicinal plants, watersheds and fish, animal kills from increased traffic, effects of increased traffic in general on the FSR including safety, effects on wildlife, improved access (of both the road and transmission line), effects on traplines from increased traffic, and
- Increased social problems (substance abuse, strain on services) from an influx of people and employment revenues, potential effects on cultural and sacred sites.

Consultation with Aboriginal groups during the Application review stage will be tailored to meet requirements. The goals of Application review consultation include:

- Continue to engage Aboriginal groups in the Project;
- Involve Aboriginal groups in assessing and verifying the results of environmental studies and effects assessments;
- Verify and involve Aboriginal groups in assessing the effectiveness of proposed mitigation;
- Invite Aboriginal groups to offer input into culturally appropriate approaches to avoid, reduce, mitigate, or otherwise accommodate potential adverse effects to traditional and current use of land and resources; and
- Identify opportunities for longer-term participation in economic, employment, training, and other capacity-building interests.

During the Application review stage, the Proponent will continue to work with Aboriginal groups to understand potential Project effects and respond to information requests in compliance with the requirements of the BC EAO section 11 Order and the *CEAA, 2012*. The Proponent will endeavour to resolve outstanding issues through continued dialogue with Aboriginal groups including the consultation activities identified above. In some cases, outstanding issues and concerns may be addressed in agreement negotiations.

5.4 Public Information Distribution and Consultation

The strategic goals of the Proponent with respect to public consultation are:

- Consult with stakeholders and the public to ensure key issues of concern and potential adverse effects are assessed and addressed in the Application and identify mitigation and/or avoidance measures;
- Actively consult with elected officials, community leaders and citizens to ensure they understand the Project and have shared their local and regional knowledge about consequences, challenges and potential benefits;
- Work closely with local government staff and elected officials to align the Project with regional aspirations and priorities;
- Work to resolve emerging environmental, community, land-use and other issues in timely, face-to-face meetings that actively respect and respond to stakeholder concerns;

- Partner to achieve mutual benefits early in the cycle of the Project and continue building partnerships and benefits throughout the life of the Project; and
- Provide accessible, transparent, and timely information about Project phases, the mining process, the EA process, Project-related opportunities, and challenges.

Photo ES 6: Project Open House in Vanderhoof, 2013

For the purposes of this section, 'public' includes local, regional government, communities, key stakeholders, property owners, and the general public. 'Stakeholders' are individuals and groups with a direct interest in the Project. These are described as: communities (Vanderhoof, Fort St. James, Burns Lake, Fraser Lake, Quesnel, Prince George, Williams Lake, Houston, Anahim Lake, and Smithers); local and regional governments; tenure holders and landowners; business organizations; community and environmental organizations; economic development organizations; education and training organizations; and health and safety organizations.

The Proponent utilized a broad range of tools and methods to disseminate information about the Project including: project website; project office (in Vanderhoof, which is staffed with a Community Relations Manager, a First Nations Coordinator, and an Office Administrator); open houses; project newsletters and stakeholder E-mails; direct communication; media notices, releases and articles; project presentations; stakeholder meetings; Community Liaison Committee; meetings with local and regional elected officials; economic development workshops; citizens forums; focus groups; and site tours.

The Proponent has carefully documented and integrated comments and concerns raised by the public as well as responses to the comments. Key concerns and comments primarily relate to potential effects on fish and fish habitat, land use, potential effects on wildlife and habitat, concerns related to the use of cyanide, and reclamation plans as well as potential effects from increased traffic. Interests primarily focus on potential employment and economic opportunities and opportunities for economic diversification in the region.

5.5 Agency Consultation

The Proponent began engagement with federal and provincial agencies in 2011. Since that time, consultation has focused on gaining input into development of the Project description, design and development.

Communication between the Proponent and the agencies included site visits, conference calls, meetings, presentations, e-mails and phone calls, which served to both provide information and address concerns and issues raised by agencies.

Consultation activities with government agencies aided in identification of issues. Bilateral meetings between the Proponent with the BC EAO and the Agency, BC EAO led working group meetings, and one-on-one meetings as required.

Key issues, comments, and concerns raised by agencies include:

- Potential effects on wildlife, such as effects on raptor nesting, salmon spawning, and ungulate disturbance/predation;
- Potential effects on caribou migration and seasonal use areas;
- Potential grizzly bear displacement from mine footprint;
- Potential increases to access and hunting effects on moose populations;
- Supporting habitat security for BC Blue-listed whitebark pine and associated birds;

- Potential effects on rare grassland ecosystems by the transmission line corridor;
- Maintenance of adequate water flow in fish bearing water courses;
- Potential effects of mine seepage on groundwater and surface water quality;
- Tailings facility management in relation to ARD and dissolved metals; and
- Cyanide transport security.

6.0 SUMMARY OF EFFECTS ASSESSMENT

6.1 Environmental Effects

6.1.1 Noise and Vibration

Noise and vibration impacts were assessed by defining noise and vibration criteria, appraising background noise by review of similar projects and on-site monitoring at the Project area, identifying noise sources, and predicting operational noise and vibration with sound mapping software. The results show that the highest sound pressure levels would be observed in the pit, due to high-level noise activities such as drilling, blasting, loading, and trucking. However, due to the mitigation effect of the pit walls, the noise levels on the surface near the pit would be at lower levels and would decrease with distance away from the pit. The metallurgy and process building would be the second greatest noise source, as it accommodates the primary sources, including SAG mills, pebble crushers, and vibrating screens. Cumulative indoor noise would be partially absorbed by the building's steel walls prior to entering the surrounding environment. Because sound waves are absorbed in the air and mitigated by hills and forests, the noise levels will decrease to background levels with distance. Model predictions of the distribution of Project noise in the area show permissible levels at the fence line and background levels at 4 km to 6 km from the open pit. No human receptors live in the affected area. The airstrip noise and vibration assessment confirmed that no issues are expected due to the short duration and infrequent nature of aircraft operations. Blasting noise will be instantaneous. Associated ground vibration will be confined to the pit area and will be immediately mitigated. In summary, the Project has been assessed as complying with relevant legislation and will not significantly impact the acoustic environment. Proposed noise mitigation measures will assure that Project noise will be kept at the lowest possible levels.

6.1.2 Climate Change

Climate change was assessed by estimating Project-induced greenhouse gas (GHG) emissions and comparing these to provincial and national emissions inventories. Project GHG emissions are estimated to be about 1% of total provincial and 0.1% of total national GHG emissions.

Overall, potential effects of the Project on climate change were assessed as not significant.

6.1.3 Air Quality

Air quality was assessed by estimating Project emissions, predicting changes in the ambient concentrations of sulphur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter (PM, $PM_{2.5}$ & PM_{10}) using dispersion modelling, and comparing them to listed regulatory objectives and standards. Predicted concentrations of all substances were elevated relative to background concentrations, but only predicted concentrations of TSP and $PM_{2.5}$ exceeded listed regulatory guidelines or standards and only at the fence line. However, no receptors were present in the areas where TSP and $PM_{2.5}$ exceeded these regulatory guidelines or standards.

Air quality mitigation measures focused on PM control, as that is the aspect of most concern for mining developments.

Overall, potential effects of the Project on air quality were assessed as not significant.

6.1.4 Surface Water Flow

The Project is located in the headwaters of the Nechako River watershed, which is part of the Fraser River drainage albeit isolated from the Fraser River by the Kenny Dam. The surface water flow LSA of the Project includes the following watersheds: Turtle Creek, Davidson Creek, Creek 661,

Creek 705, and lower Chedakuz Creek. These watersheds are either within or adjacent to the Project surface footprint. Hence, the Project has the potential to affect surface water flow in these watersheds and Tatelkuz Lake levels during the construction, operations, closure, and post-closure phases. In addition, the alteration of surface water flows and Tatelkuz Lake levels has the potential to affect other Project VCs, such as Surface Water and Sediment Quality, Fish and Fish Habitat, Groundwater Quantity and Quality, and Wetlands. Therefore, surface water flows and lake levels are key indicators/factors for assessment of the Surface Water VC.

Figure ES 9 shows the watershed boundaries for the Project.

The Turtle Creek watershed is a sub-watershed of the Chedakuz Creek watershed that drains into the Nechako Reservoir. The Turtle Creek watershed is located north of the Project. No mining facilities are located within this watershed. Nevertheless, the airstrip and limited portions of the proposed mine site access road and transmission line will be located within the Turtle Creek watershed; no effects on the Creek are expected as facilities do not drain to the Creek.

The Davidson Creek watershed is a sub-watershed of the Chedakuz Creek watershed. The Davidson Creek watershed contains most of the mine facilities, including the TSF, open pit, waste rock dumps, low-grade ore stockpile, supporting mine infrastructure, and other mine site water management features. The extreme upper extents of the Davidson Creek watershed will be permanently diverted to the Creek 705 watershed due to the proposed TSF. Portions of the proposed mine site access road and transmission line will be located within the Davidson Creek watershed.

Photo ES 7: Kokanee in Davidson Creek, September 2012

The Creek 661 watershed is a sub-watershed of the Chedakuz Creek watershed. Creek 661 drains into upper Chedakuz Creek, which then drains into Tatelkuz Lake. The majority of the Creek 661 watershed is located east of the Project. Nevertheless, one of the Creek 661 tributaries is within the footprint of the mining facilities, including a portion of the open pit, the East Dump, and both the construction and operations camps. Portions of the proposed mine site access road and transmission line will be located within the Creek 661 watershed.

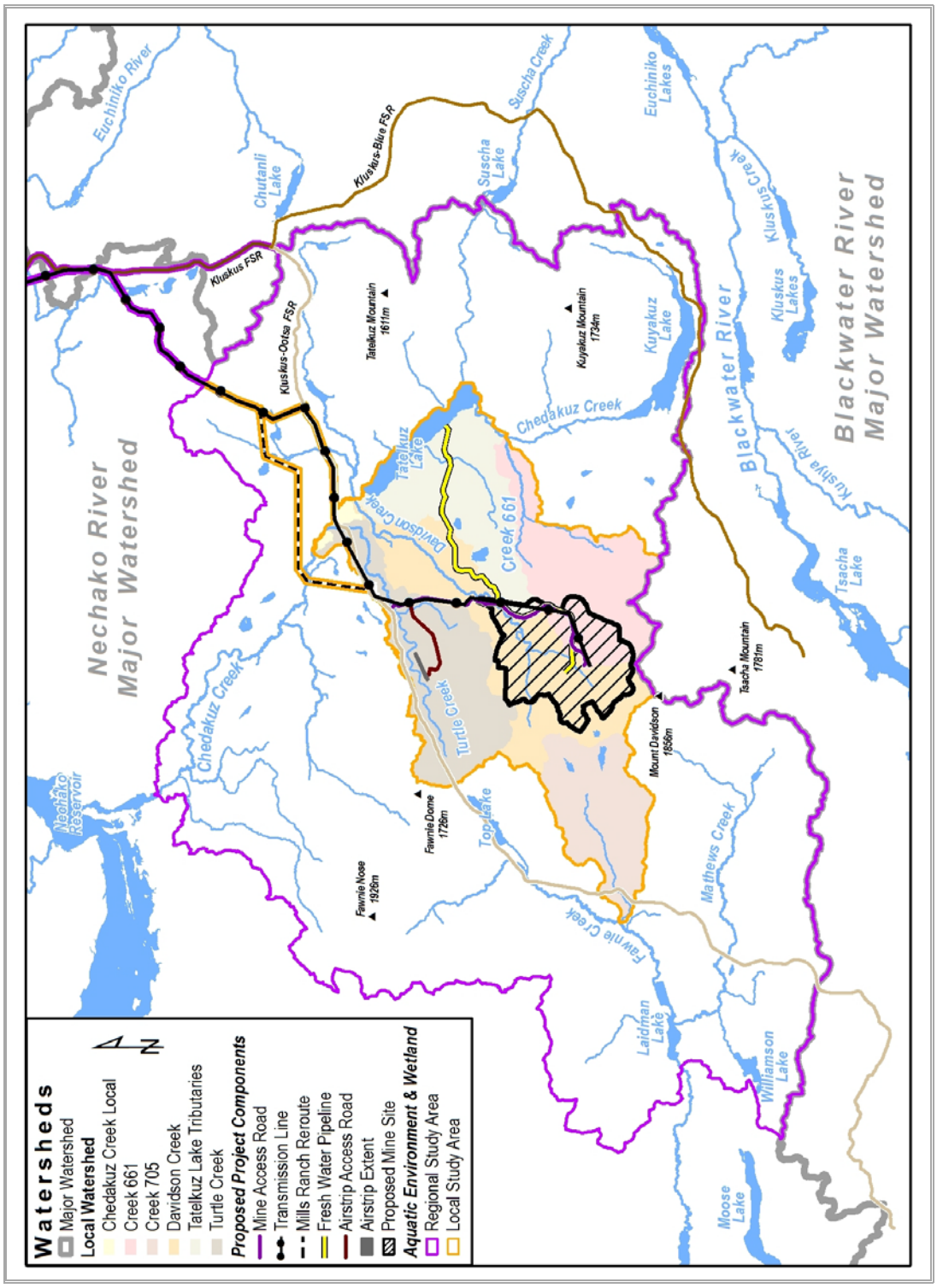


Figure ES 9: Aquatic Study Areas

Photo ES 8: Davidson Creek Fish Survey, 2011

The Creek 705 watershed is a sub-watershed of the Fawnie Creek watershed. Creek 705 drains into Fawnie Creek, which eventually drains into the Nechako Reservoir via the Entiako River. The Creek 705 watershed is located west of the Project mining facilities, and no mining facilities are located within this watershed. Nevertheless, a portion of the headwaters of the Davidson Creek watershed will be permanently diverted to the Creek 705 watershed, due to the proposed TSF within the Davidson Creek watershed. Two current surface water licences (one is a drinking water source, and the other is a point of water diversion) are located on Matthews Creek, a tributary of Fawnie Creek.

The Chedakuz Creek watershed contains the Turtle Creek, Davidson Creek, and Creek 661 watersheds. Chedakuz Creek drains into the Nechako Reservoir. The Chedakuz Creek watershed encompasses both the Project and Tatelkuz Lake. Flows from the extreme upper extents of Davidson Creek will be cut off due to the construction of the TSF. Water from Tatelkuz Lake, in the Chedakuz Creek watershed, will be used to supplement mining water requirements (during operations about 5 % of the pump system capacity) to meet Instream Flow Needs (IFN) in Davidson Creek (during operations and closure) and to accelerate open pit flooding (during closure about 5 % of the pump system capacity). The mine site access roads, transmission line, and airstrip will be located within the Chedakuz Creek watershed. Climate data were collected within the Project area starting in 2011. These site data were used in conjunction with regional data to develop baseline climate estimates for precipitation, evapotranspiration, sublimation, snowmelt, and temperatures for the Project. The climate parameters were used as a basis to develop water balance and watershed models and to determine hydrological design criteria for the Project.

Hydrological data were collected within the Project area, on an ongoing basis starting in spring 2011. Data gathered through to winter 2013 were used in the assessment. These site data were used in conjunction with regional data to develop baseline and effects assessments for monthly, annual, peak, and low flows for the Project. These surface water flows were used as the basis for assessing potential and residual Project effects on the surface water flow VC for each Project phase. Monthly flows have been presented to support Surface Water and Sediment Quality, Fish and Fish Habitat, Groundwater Quantity and Quality, and Wetlands VCs. Wet and dry monthly and annual flows have been presented to provide sensitivity analysis, to support Surface Water and Sediment Quality and Fish and Fish Habitat VCs, and to aid in mine operations strategies.

Potential Project effects were initially assessed without including the mitigative effects of the freshwater supply system from Tatelkuz Lake. Residual Project effects were assessed on the basis that the freshwater supply system from Tatelkuz Lake was in place to meet IFN requirements and mitigate the Project effects. It was determined that surface water flows in the Turtle Creek watershed are not expected to be impacted by the Project from construction through the post-closure phase. In addition, the potential impacts of the airstrip, access roads, and transmission line within the Aquatics RSA are expected to be negligible. Some of the effects on mean annual, peak, and low flows in the Davidson Creek, Creek 661, Creek 705, and Chedakuz Creek watersheds are expected to have residual effects that are not negligible.

Measured lake levels and outlet discharges were used to estimate baseline fluctuations in Tatelkuz Lake. These results were used to assess the effects on Tatelkuz Lake levels from the operations and closure phases of the Project, when water will be pumped from the lake. It was determined in this assessment that the Project effects on mean annual and 1:50-year dry Tatelkuz Lake levels are expected to be negligible.

Considering the implementation of mitigation measures, which would include meeting the IFN in Davidson Creek, the significance of residual effects of the Project on surface water flows was assessed in a quantitative and qualitative manner. Surface water flows can naturally range between highs and

lows with no expected significant effects on the natural environment. Based solely on a percentage change in surface water flows, the magnitude of the residual effects from the Project in these watersheds could range from negligible to high, depending on the phase of the Project being considered. Nevertheless, when all of the residual effects significance rating categories are considered, the residual impacts of the Project on the above watersheds are expected to be not significant (minor or moderate). Potential cumulative effects of these residual effects of the Project with other past, present (including water licences), or reasonably foreseeable future projects are expected to be negligible.

6.1.5 Surface Water Quality

Water quality effects from the construction, operations, closure, and post-closure phases were assessed, and a summary of water quality baseline data for area waterbodies provided. Baseline results indicate area waterbodies are relatively soft, with a circumneutral pH, low alkalinity, low concentration of nitrogen species, and somewhat elevated phosphorus in lakes compared to BC guidelines. Most trace metal concentrations are low to below detection limits; the exceptions, which are often or always above guidelines, are total aluminum (CCME guideline), dissolved aluminum (BC guideline), cadmium (current BC guideline; well within CCME guideline), total copper, total iron (above CCME guideline), and zinc. Site-specific water quality objectives are suggested for these parameters.

The Project will mine ore by open pit and extract gold and silver through whole-ore leaching with cyanide. Cyanide will be recycled to the extent practicable and residual cyanide will be destructed by the SO_2/air process before being routed through a lime treatment plant and then to the TSF, thus reducing cyanide and residual metals to much lower levels than if untreated. All PAG waste rock, and waste rock with demonstrated potential for significant neutral leaching of zinc, will be placed underwater in the TSF. All contact water will be routed to the TSF and recycled.

Water quality effects during construction will be limited to sediment export and controlled by mitigation methods. Mitigation will be through installation of sediment control ponds and by following BMPs.

Photo ES 9: Water Quality Sampling on Tatelkuz Lake, 2013

During operations and closure, the TSF and rest of the mine site will be operated with no surface water discharge. All seepage will be collected and pumped back to the TSF, except for a small amount of deep seepage that is predicted to pass beneath the collection system. During this period, water will be pumped from Tatelkuz Lake to maintain IFN downstream in Davidson Creek. Water quality effects were assessed using a quantitative mass balance model run deterministically using Goldsim™. The model indicates that there will be little to no effects on water quality downstream of the main TSF dam; in fact, most parameters will remain within the natural range of variation. Both best estimate (using average source terms) and worst-case scenarios (using 95th percentile or highest source terms and assuming no wetland polishing) were modelled. Temperatures in Davidson Creek are forecast to increase during the winter and decrease slightly during the summer under the influence of Tatelkuz Lake water input.

During post-closure, in-stream fish flow requirements in Davidson Creek will be maintained through a combination of surface and seepage discharge. The combination is forecast to remain within or close to background flows and concentrations. Under the worst-case scenario, the model indicated there may be some exceedance of sulphate guideline. The risk of exceedances is considered small, because sulphate reduction in the TSF and wetlands is not considered in the model. Monitoring during the 17 years of operations and the 18-year closure period will refine estimates of post-closure water quality, as well as provide a check on model predictions for the operations and closure period. The water management plan is robust, and

contingency measures have been developed to ensure that water quality is protected.

Temperatures in Davidson Creek are predicted to increase over the present baseline in fall and winter during operations and closure, and decrease below baseline in the summer months. At post-closure, monthly temperatures are predicted to increase but remain below the upper lethal temperature for rainbow trout of 20°C using worst-case predictions of the 95th percentile temperatures for both the TSF discharge and seepage.

6.1.6 Sediment Quality

Sediment quality effects from construction, operations, closure, and post-closure of the Project were assessed, and a summary of sediment baseline data provided. Baseline results show that the exceedances of CCME Interim Sediment Quality guidelines (ISQG) and Probable Effects Level (PEL) guidelines, and of British Columbia Ministry of Environment (BC MOE) Lowest Effects Level (LEL) and Severe Effects Level (SEL) guidelines occur for some metals in baseline samples: arsenic, iron, and manganese in sediments were exceeded most frequently. These results are not atypical for streams, particularly in mineralized areas where sediment guidelines are often naturally exceeded. Healthy aquatic populations exist in all area streams, and thus exceedances of guidelines do not indicate naturally occurring impairment of aquatic ecosystems. Sediment guidelines are often not a useful indicator of metals exposure for aquatic organisms, particularly where metals are present as sulphide minerals with low solubility and bioavailability at neutral pH.

Stream sediment samples were collected in the summers of 2011, 2012, and 2013 at various locations to encompass all water quality monitoring sites. Lake sediments were collected in 2013 in response to the observation that increases in suspended sediments in hypolimnion (lake bottom) water samples indicated that mercury in lake bottom sediments may be slightly above guidelines in all lakes except Tatelkuz Lake. The relatively low concentrations of metals in sediments does not correlate with the observed elevation in hypolimnion water samples, suggesting a poor correlation between sediment and water column metals concentrations.

During construction of the Project, some erosion and sedimentation are expected from land clearing activities, including construction of the plant facilities and tailings impoundment dams. Sediment control ponds will be constructed prior to major clearing activities in all areas where sediment could enter waterbodies, principally Davidson Creek. Control of erosion and sedimentation is discussed in the Mine Water Management Plan and the Erosion and Sediment Control Plan. With the proposed controls, there is no predicted increased sediment export above guidelines.

Photo ES 10: Lake 01428UEUT in the Headwaters of Creek 705

The potential residual effect to sediment quality in the Davidson Creek watershed is predicted to be indistinguishable in physical and chemical characteristics from the natural range of variability. The overall residual effect of the Project on sediment quality is rated not significant (negligible). As such, there would be no cumulative effects on sediment quality as a result of the Project.

6.1.7 Groundwater Flow

The effects assessment of the Project is based on groundwater field observations and model-predicted scenarios and outcomes for the Project mine phases (baseline, operations, closure, and post-closure).

Baseline model calibration shows that a MODFLOW model is able to simulate the current site conditions well. Once the mine is active, the predicted results for the operations phase show that, within the pit shell, the maximum groundwater inflow rate predicted using the numerical groundwater model is approximately 60 litres per second (L/s), with an average inflow rate of 50 L/s. Numerical model results compare well with estimates using an analytical calculation.

At the end of active dewatering (Year 13), water table drawdown of 1 m is predicted to extend an average distance of approximately 1,200 m from the pit edge. From model results, reductions in groundwater flow contributing to the Blackwater River catchment are predicted to be negligible at the end of active dewatering.

The best estimate of combined foundation and embankment seepage from the TSF D at the end of mining is 55 L/s. Of this about 53 L/s would be recovered in the Environmental Control Dam (ECD) and recycled to the TSF. Approximately 2 L/s might be "unrecoverable" and discharge to Davidson Creek below the ECD.

Results of the steady-state post-closure seepage assessment indicate that the majority of seepage originating from TSF Site D foundation only is predicted to discharge to the TSF embankment drains (at 15 L/s) and to the seepage collection system at the cutoff trenches below the dam (at 5 L/s).

Approximately 0.4 L/s of seepage originating from TSF Site D foundation is predicted to bypass seepage collection measures and discharge to the engineered wetlands in Davidson Creek (this amount is included in the 2 L/s total "unrecoverable" seepage estimate). Approximately 0.2 L/s of foundation seepage is predicted to discharge to the engineered wetlands at Creek 661, and 0.1 L/s of seepage is predicted to discharge to the TSF spillway.

Total seepage from the Pit Lake is estimated to be approximately 1.3 L/s, and is predicted to flow in the directions of the engineered wetlands at Davidson Creek and Creek 661. Seepage from the Pit Lake is not predicted to flow toward the Blackwater River catchment. A large portion of the Pit Lake seepage is predicted to discharge to drainages that flow to TSF Site D (0.7 L/s). Seepage of approximately 0.5 L/s is estimated to travel along local groundwater flow paths through the upper bedrock and discharge to Creek 661. A trace amount of seepage (0.01 L/s) is predicted to discharge to Davidson Creek, following travel paths though deep bedrock.

Results of the seepage analysis indicate that seepage flow paths originating from TSF Site D, the Pit Lake, and the East Waste Rock Dump converge beneath the TSF spillway and Creek 661. These local groundwater flow paths will discharge to the overlying drainages. Seepage flow paths originating from the Pit Lake are modelled to travel via deeper (regional) groundwater flow paths within the competent bedrock to Davidson Creek.

After milling ceases, the active pit filling (ultimately forming the post-closure Pit Lake) will take an estimated 18 years to reach the spillway level. Local groundwater flows will return to (or close to) pre-mining conditions.

Mitigation will include construction and operation of measures to reduce the potential impact of the mine site on its surrounding groundwater environment. Such integrated mitigation measures include spillways; collection and diversion ditches; the ECD; freshwater reservoir; seepage collection and pump back systems; freshwater supply system; surface and groundwater monitoring systems; and sediment and erosion control measures for the facilities.

From a groundwater flow perspective, mitigation methods are designed to reduce the impact on stream flow rates and reduce the seepage and other contact water that may be lost to the areas surrounding the mine site through the groundwater flow system. Consequently, mitigation methods were focused on reducing and collecting seepage throughout the mine site, and are especially important where seepage would be lost to catchments with relatively low stream flows. Because seepage rates generally change very little seasonally, as stream flow reaches later winter low

Photo ES 11: Upper Reaches of Davidson Creek

flows, there is much less freshwater available for dilution of seepage water. Thus, with these management measures in place, the effects of contact seepage on streams draining the Project are assessed through quantitative modelling to be minor and not significant.

To produce a cumulative effect, residual Project effects must be acting in combination with residual effects from one or more other human activities. There are no other projects planned in the area for the CEA to take into account. The overall CEA returns a value of not significant for changes in groundwater flow directly related to mine activities, and a value of no effect for other mine-related activities, such as those related to the access roads, transmission lines, and load-out facilities. There are no other possible sources in the LSA or RSA that could contribute to cumulative effects. Thus, there will be no significant cumulative effects on groundwater flow from the Project and other sources.

6.1.8 Groundwater Quality

The Project effects assessment used groundwater field observations from which baseline, operations, closure, and post-closure scenarios models were constructed, calibrated, and run. The maximum predicted groundwater inflow rates to the pit at the end of mining were approximately 60 L/s, with an average inflow rate of 50 L/s.

At the end of active dewatering (Year 14), water table drawdown of 1 m is predicted to extend an average distance of approximately 1,200 m from the pit edge resulting in negligible reduction in groundwater flow contributing to the Blackwater River catchment.

Seepage from the Pit Lake is predicted to flow to the TSF, Davidson Creek, and Creek 661. Seepage from the Pit Lake is not predicted to flow towards the Blackwater River catchment.

Geochemical testing and modelling predict that TSF seepage will contain zinc, cadmium, and iron. The result of adsorption testwork indicates that substrates underlying the TSF afford significant potential for the attenuation of cadmium and zinc. This imparts an element of conservatism into the water quality predictions, which do not account for trace element removal along seepage pathways.

After closure, much of the pit walls and floor will be flooded, becoming the Pit Lake, thereby reducing the rock surface area exposed to weathering and consequent ML. Only an exposed high wall of a maximum 200 m is expected comprising primarily NAG waste.

For the East and West Dumps, the drainage is expected to have neutral or slightly alkaline pH values, in line with laboratory-tested non-acid generating (NAG) waste rock. The zinc, cadmium, and iron concentrations will generally increase slightly during operations and fall towards the end of operations. During early closure, the concentrations will subsequently remain relatively stable but are expected to reduce considerably over decades to centuries time scales.

From a groundwater quality perspective, mitigation methods are designed to reduce the impact on groundwater and stream quality by maintaining high source water quality and reducing the seepage and other contact water that might be lost to the groundwater system. Measures to maintain high source water quality include: SO_2/air, lime and sewage treatment systems, waste rock segregation and aqueous co-disposal in the TSF, optimizing explosives use and preventing spills. Together with the proposed measures to limit export of contact groundwater, effects on groundwater beyond the Project footprint are assessed to be minor and not significant.

Cumulative effects assessment is similar to groundwater flows.

6.1.9 Wetlands

The effects assessment for the Project describes the potential effects of the Project on the Wetlands VC. Indicators for determining effects on the Wetlands VC include wetland ecological functions (extent), hydrological functions, biochemical functions, and habitat functions. The potential effects on these indicators were evaluated throughout the four phases of the Project: construction, operations, closure, and post-closure. The spatial scales used for assessment were the LSA for effects on VC indicators and the RSA for cumulative effects.

Baseline wetland functions were qualitatively and quantitatively assessed for each wetland class in the LSA. Project effects on wetlands and wetland functions were determined by overlaying the Project footprint (mine footprint and linear corridor components) on the mapped wetlands and calculating direct loss of wetland extent using Geographical Information System (GIS) analysis. Mapped wetlands were verified in the field as a component of the

wetland baseline study from 2011 to 2013 prior to calculating effects. The loss of wetland functions was then qualitatively assessed by documenting wetland functions for each federal wetland class, calculating lost area of each wetland class, and evaluating degraded wetland functions and hydrologically altered wetlands.

Photo ES 12: Wetland in Upper Davidson Watershed

In the mine site, the Project will result in the loss of 309 ha (9.3%) of wetland ecosystems and associated hydrological, biochemical, and habitat functions, including 24 ha of Blue-listed wetlands. The at-risk wetlands occur as black spruce bogs, and shrub or emergent fens. Effects will occur during construction, operations, and closure. An additional 133 ha of wetland functions will be temporarily degraded during construction and operations, and 90 ha of wetlands will be hydrologically altered through reduced input flows. The primary effects on the Wetlands VC will be the loss of wetland extent and functions, and the degradation of functions provided by some remaining wetlands. The Project is not expected to adversely affect four confirmed Blue-listed plant populations in the LSA.

Mitigation measures to address wetland impacts include avoidance, minimization, and compensation. The goals of minimization and compensation are to maintain wetland functions in watersheds through operational Project design features, the strategic selection of mitigation sites, and the creation of wetland ecosystems that will provide similar functions to those wetlands affected by the Project. As described in the Wetland Compensation Plan, a total of 305 ha of wetlands will be created on site to mitigate for wetland loss in the Davidson Creek and Creek 661 watersheds, and 52 ha of wetlands compensation will be provided off site to offset impacts to 24 ha of Blue-listed wetlands (Table ES 5).

Photo ES 13: Wetland in Upper Reaches of Davidson Creek

Additional wetland mitigation measures are embedded within the Project design to minimize effects on wetland functions, including seepage collection trenches and the freshwater supply system for Davidson Creek. Implementation of the Wetland Management Plan will further minimize effects on wetlands.

After considering mitigation measures, the temporal loss of 309 ha of wetland extent and associated hydrological, biochemical, and habitat functions within the mine site will remain as residual effects. The temporal loss will be offset as quickly as possible by the early creation of wetlands. The loss of wetland functions was rated as not significant (minor), as there will be a less than 1% reduction in wetland cover post-closure in the mine site. The temporal loss of wetland functions between the time wetland impacts occur and new wetlands are created during operations and closure will be minimized through the establishment of off-site wetland compensation sites prior to and during Project construction.

For the RSA, the cumulative effects of forestry, agriculture, and mining activities were considered to have spatial overlap with loss of wetland extent and functions. Potential cumulative effects on wetland extent and functions were not significant (minor) within the RSA as a result of the wetland mitigation and compensation measures proposed for the Project and mitigation measures required by forest management to preserve wetlands.

Table ES 5: Wetland Loss and Compensation

WETLAND CLASS	LOST WETLAND EXTENT (ha)		PROPOSED WETLAND COMPENSATION (ha)	
	MINE SITE	LINEAR FEATURES [1]	ON SITE	OFF SITE
Bog	-40.1	-1.6	-	
Fen	-22.4	-0.2	-	
Swamp	-239.9	-4.3	305 [2]	38.7 [3]
Marsh	-1.9	-		13.6[4]
Shallow water/pond	-5.0	-	-	
Total	-309.3	-6.1	+305	+52.3

Note: ha = hectare;
[1] Wetland loss for linear features does not include the potential loss associated with transmission line access roads. The 2014 Feasibility Study has identified that new transmission line access roads could affect up to 2.59 ha of wetlands. Additionally, 2.75 ha of wetlands occur in existing roads that may be upgraded. During the next stages of the engineering design, efforts will be made to minimize residual effects on wetlands caused by the transmission line access roads.
[2] Combination of marsh and swamp habitats.
[3] Includes 32 ha of wetland restoration, and 6.7 ha of wetland enhancement.
Combination of wetland marsh, shallow water, and pond habitats associated with the Fish Habitat Mitigation and Offset Plan.

6.1.10 Fish and Fish Habitat

The two indicator species for the Fish VC are rainbow trout (*Oncorhynchus mykiss*) and Kokanee (*Oncorhynchus nerka*), and the five indicators for the Fish Habitat VC are surface water flow, surface water quality (including water temperature), sediment quality, ecological health, and riparian habitat.

Assessment of Project effects on fish and fish habitat was conducted for six major components: mine site, freshwater supply system, mine site access road, airstrip and airstrip access road, transmission line, and Kluskus and Kluskus-Ootsa FSRs.

Potential effects of the mine site on fish and fish habitat included the following:

- Loss of fish habitat in upper Davidson Creek watershed as a result of development of the mine site;
- Changes in flows in Davidson Creek, Creek 661, lower Chedakuz Creek, and Creek 705;
- Potential disruption of homing of rainbow trout and Kokanee to Davidson Creek as a result of changes in the olfactory environment due to flow augmentation with water pumped from Tatelkuz Lake;
- Changes in water quality in Davidson Creek, Creek 661, and Creek 705; and
- Changes in water temperature of Davidson Creek.

There will be unavoidable loss of fish habitat on the mine site, and loss of access by fish to habitat in the headwaters of Davidson Creek and Creek 661. However, fish salvage will eliminate direct effects on fish, and fish habitat creation, restoration, and enhancement, as described in the Fisheries Mitigation and Offsetting Plan, will mitigate losses of fish habitat. This residual effect was determined to be not significant (minor).

Flows in Davidson Creek below the mine site will be reduced due to Project development. Potential loss of fish habitat will be prevented by pumping water from Tatelkuz Lake via the freshwater supply system to augment flows in middle and lower Davidson Creek. Flows in Creek 661 will be slightly reduced due to diversion of some headwater streams into the mine site. Flows in Creek 705 will increase because Lake 01682LNRS, the headwater lake of Davidson Creek, will be diverted into Lake 01538UEUT, one of the two headwater lakes of Creek 705. These flow-related changes in fish habitat were carried forward into the residual effects assessment. They were assessed as not significant (moderate) because the Instream Flow Study showed that

flows in all creeks will meet the IFN of rainbow trout and Kokanee.

Augmenting Davidson Creek with water from lower in the Chedakuz Creek watershed (Tatelkuz Lake) will alter the water quality and potentially the olfactory environment of Davidson Creek, which may disrupt the ability of rainbow trout and Kokanee to home to spawning areas in their natal stream. This residual effect was determined to be not significant (moderate) because failure of homing is an unlikely outcome, due to the retention of up to 62 % of Davidson surface and groundwater flows in the augmented creek, and to the habit of salmonid fish of straying to streams other than their natal stream.

No other effects on fish of changed water quality in Davidson Creek as a result of flow augmentation are expected, because the quality of water in Tatelkuz Lake is sufficient to support 10 species of fish, including the two indicator species.

The mine site will not have a surface water discharge during operations and closure. Water quality modelling predicts that, with the exception of sulphate all discharges to Davidson Creek during all mine phases will meet federal and provincial water quality guidelines, except where background concentrations naturally exceed these guidelines. Since modelling was very conservative and does not account for natural sulphate reduction mechanisms, sulphate is expected to meet provincial water quality guidelines. Site-specific guidelines will be applied for those parameters with natural background exceedances.

Photo ES 14: Typical Littoral Habitat, Tatelkuz Lake

Therefore, water quality guidelines will be met at the end of the initial dilution zone or further upstream. Hence, the potential effect on fish of water quality was not carried forward into the residual effects assessment.

Photo ES 15: Rainbow Trout Captured in Reach 2 of Davidson Creek, 2013

During operations and closure, water temperatures in Davidson Creek are predicted to increase in the winter and decrease in the summer (compared to baseline) as a result of flow augmentation from water pumped from depths of between 8 m and 12 m from Tatelkuz Lake. Post-closure, water temperatures are predicted to return to baseline in winter but remain elevated during the other three seasons, because flows will come from a larger lake (i.e., the Pit Lake and TSF combined) than the presently existing headwater Lake 01682LNRS. This residual effect was determined to be not significant (minor) because it is low in magnitude and local in extent.

Potential effects on fish and fish habitat of the freshwater supply system (apart from effects caused by linear features of the freshwater supply system) are based on the effects on Tatelkuz Lake of pumping water to the mine site.

Standard techniques for avoiding streamside habitat alteration and destruction will be used to mitigate the effects of constructing and maintaining the pump intake station. Fish impingement and entrainment at the intake pipes will be avoided by following mitigation measures set out in Fisheries and Oceans Canada's (DFO's) Measures to Avoid Causing Harm to Fish and Fish Habitat and Freshwater Intake End-of-Pipe Fish Screen Guideline. Loss of fish habitat in lower Chedakuz Creek will be avoided by design of the freshwater supply system (i.e., withdrawal rates will be modified on an annual basis). These measures are anticipated to fully mitigate potential effects on fish.

The potential loss of fish habitat in the upper one metre of the littoral zone of Tatelkuz Lake was determined to be not significant (negligible) for both indicator fish species, because the effect will be of negligible magnitude (i.e., a loss of less than 2.5% of the available number of Habitat Units in the upper one metre), local because it is restricted to Tatelkuz Lake, and reversible once pumping ceases, but continuous during the period of pumping.

Potential effects on fish and fish habitat from the four linear developments (mine site access road, airstrip and airstrip access road, transmission line, and Kluskus and Kluskus-Ootsa FSRs), plus the freshwater pipeline and freshwater reservoir of the freshwater supply system, largely concerned effects at stream crossings during construction, operations, and closure. Effects from intakes and linear corridors are well understood with similarly demonstrated effective mitigation.

These potential effects will be successfully mitigated by standard stream crossing techniques set out in the BC Ministry of Forest's Fish-Stream Crossing Guidebook. Erosion control measures will be implemented to protect erodible soils and minimize sediment inputs to streams. Clear-span bridges or open bottom culverts will be constructed and maintained on fish bearing streams following guidelines and mitigation measures outlined in DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat. Bridge and culvert installation will be timed so that in-stream works will be completed within the BC MOE's reduced risk timing window for rainbow trout (15 July to 15 April of the following year) for Region 7 (Omineca). If temporary crossing structures are required for the movement of construction vehicles or equipment, then temporary single-span bridges will be installed. Riparian vegetation at stream crossings and under the transmission line ROW will be managed in accordance with BC Hydro's Approved Work Practices for Managing Riparian Vegetation.

These mitigation measures are commonly and widely used around BC during construction of roads, transmission lines, and pipelines and are anticipated to be effective for eliminating potential effects on fish habitat at stream crossings. Therefore, these potential effects were not carried forward to the residual effects assessment.

None of the residual effects on fish and fish habitat that were classified as not significant (minor) or not significant (moderate) (i.e., loss of fish and fish habitat on the mine site; disruption of salmonid homing to Davidson Creek; changes in habitat quality due to changes in flow of Davidson Creek, Creek 661, lower Chedakuz Creek, and Creek 705; mercury mobilization in Lake 01682LNRS; and changes in water temperature of Davidson Creek) will overlap spatially and temporally with other projects and activities in the RSA. Residual effects overlapping the project were considered not significant, negligible with the mitigation proposed. Therefore, no CEAs were conducted.

Photo ES 16: Fish Survey on Creek 705, August 2013

Two aquatic monitoring programs with fish components will be required to test the predictions of the fish and fish habitat effects assessment. The Construction Monitoring Plan will test predictions regarding the efficacy of mitigation measures on the mine site (i.e., fish salvage) and along linear developments during construction. The Aquatic Effects Monitoring Program will test the predictions regarding potential Project effects on fish and fish habitat during operations, closure, and early post-closure. It will operate continuously throughout operations and closure and into post-closure until long-term stability has been established. These two programs will be developed based on regulatory requirements for follow up monitoring, BMPs, the current scientific literature, and consultation with regulatory agencies.

6.1.11 Physiography and Topography, Surficial Geology and Soil Cover, and Soil Quality

VCs for this discipline include Physiography and Topography, Surficial Geology and Soil Cover, and Soil Quality. Potential effects on these identified VCs are expected to occur throughout all phases of the Project.

The Physiography and Topography VC deals with the physical form of the landscape developed through the processes of deposition and erosion. The distinguishing characteristics of this VC include the surface expression, relief, or shape of the landscape. The Project will have a direct effect on this VC by changing the local topography through resource extraction and final regrading upon closure. The alteration of the baseline topography will primarily occur during the construction and closure phases of the Project. Mitigation to minimize the effects of the Project include footprint minimization during construction, and topographic reclamation at closure. Following mitigation, the alteration of the baseline topography is considered a residual effect that is neutral in direction. The overall effect significance rating for the Physiography and Topography VC is not significant (moderate). This residual effect is carried forward into the CEA. No current or future projects are expected to interact with this VC, resulting in a neutral direction and an overall significance rating of not significant.

The Surficial Geology and Soil Cover VC deals with the sediment composition of the genetic parent material, and the spatial distribution of different soil types within the Project footprint. Once affected, the surficial material will remain in an altered state and cannot be returned to pre-disturbance conditions. Soil Map Units (SMUs) are defined in relation to combinations of different soil groups and the material upon which the soil is forming. Variability in SMUs across the footprint is high, given the complex nature of the landscape. Alteration of the surficial materials will occur throughout all phases of the Project, but primarily during the construction and closure phases. Mitigation measures to reduce the effects of the Project include footprint minimization during construction, the Soil Management Plan for construction, and the Project Reclamation and Closure Plan (RCP) to ensure proper soil redistribution and site reclamation upon closure. The modified parent material produced through mining activities will provide a similar landscape function to the baseline condition.

Topsoil and surface organics will be salvaged and stockpiled for use in the reclamation of the Project. Both mineral and organic soils will be salvaged and stockpiled together on site. At reclamation, salvaged reclamation material (overburden, topsoil, and organics) will be placed over mine wastes and previously disturbed areas throughout the Project footprint. Direct Project effects include the disturbance of baseline SMUs during construction, and the redistribution of reclamation material during the closure phase. Following the application of the mitigation measures, residual effects are expected to be negligible for this VC.

The Soil Quality VC deals with the chemical and physical properties of the natural soils, and effects are related to changes in them as a result of Project activities. Alteration of soil chemical properties can result from accidental releases, dust deposition, or the storage of soil materials for reclamation purposes. Changes to the physical properties can result from compaction and admixing of the soil, soil handling, and textural alteration during different Project phases. Potential effects on soil quality will occur throughout all phases of the Project, with a higher potential for effects during construction and closure. Proposed mitigation measures are included in the Emergency and Spill Response Plan; the Erosion and Sediment Control Plan; the Dust Management Plan; the Soil Management Plan; and the RCP. Effective implementation of the proposed mitigation measures will minimize the overall Project effects on the Soil Quality VC. Residual effects are expected to be negligible for this VC.

6.1.12 Ecosystem Composition

The Ecosystem Composition VC deals with the diversity of ecosystems present within the Project area, as well as sensitive ecosystems (riparian, old-growth forest, and sparsely vegetated ecosystems). Ecosystems were classified using the provincial biogeoclimatic (BGC) classification system, and mapped as part of the vegetation baseline program. The Project will affect the Ecosystem Composition VC by the removal of vegetation, including site clearing and grubbing, primarily during construction. To determine the potential effects, the Project footprint was superimposed over the terrestrial ecosystem map.

To assess effects of the Project on the Ecosystem Composition VC, five indicators were identified: ecosystem distribution, riparian ecosystems, old-growth forest, sparsely vegetated ecosystems, and traditional use plants. Potential effects on these indicators are expected to occur throughout various phases of the Project. To facilitate assessment, three Project phases were assessed as specific cases: baseline, Project (operations), and post-closure cases. The spatial scale of assessment was the LSA for Project effects on VC indicators, and the RSA for the CEA.

For some Project components, such as the transmission line, Project effects on Ecosystem Composition will be relatively minor. For this type of effect, reclamation efforts at closure are expected to be successful in restoring ecosystems similar to baseline. In other areas, in particular the mine facilities footprints, disturbance is expected to remove all vegetation and topsoil, creating "mine-related landforms" at closure. The reclamation outcome of these types of landforms will be different from baseline conditions and will be calculated as permanent alteration of those ecosystems. Ecosystems that occur on mine-related landforms include riparian, old-growth forest, and traditional use plant habitat. Because the ecological context is medium, sensitive ecosystems are potentially affected, effects are local and one-time occurrences, and the magnitude is a 10% to 20% reduction from baseline, the overall significance rating for the post-closure case was rated as not significant (moderate).

Other potential effects on ecosystem composition include dust and nitrogen deposition and spread of invasive plants. Mitigation plans and measures have been developed that, when properly implemented, will reduce or eliminate the threat of dust and invasive species, resulting in no residual effects. A small area adjacent to the mine site will be affected by nitrogen deposition, which may persist into the post-closure phase. However, given the small area affected and likely reversal of this effect over time, the significance ranking of nitrogen deposition effects in the post-closure case was rated as not significant (minor).

Ecosystem loss was carried forward into the CEA. Projects or activities known to overlap with the Project in the RSA include the Nulki Hills Wind Project, and mining and forestry activity. The largest area affected was for forestry activities. Assuming forest regeneration over time, and given the localized nature of the Project's cumulative effects, the significance was ranked as not significant (moderate).

Photo ES 17: American White Pelicans at Stony Creek

6.1.13 Plant Species and Ecosystems at Risk

To assess the Project's environmental effects on the Species and Ecosystems at Risk VC, three indicators were identified: whitebark pine habitat, potential species-at-risk habitat, and ecosystems at risk.

Potential effects on the three indicators can be expected to occur throughout the Project. To facilitate assessment, three Project phases were assessed as specific cases: the baseline, Project (operations), and post-closure cases. The assessment's spatial scale was the LSA for effects on VC indicators and the RSA for cumulative effects.

The potential Project effects are ecosystem loss, dust deposition, nitrogen deposition, spread of invasive species, and whitebark pine regeneration. To assess the potential Project effects on the three indicators, the Project footprint was superimposed using the ecosystem map produced for the Project. Post-closure, and after reclamation measures are implemented, all three indicators will experience permanent and irreversible Project effects due to clearing and site disturbance during construction.

A total of 1,000 ha of whitebark pine habitat occurs in the mine site RSA. At maximum disturbance, 114 ha will be affected by the Project. Of the 114 ha of affected whitebark pine habitat, 12 ha occur on natural landform types and 102 ha occur on mine-related landform types. After reclamation, whitebark pine habitat occurring on natural landform types will resemble baseline conditions. A temporal loss will occur of up to 80 years, or until whitebark pine trees mature and are cone-producing once again. The 102 ha

occurring on mine-related landform types will differ from baseline conditions: the loss of 102 ha of whitebark pine habitat is considered irreversible and permanent, however areas of the mine site have been identified as candidates for whitebark pine planting. Mitigation proposed for whitebark pine is a blend of approaches aimed at offsetting the loss of trees at the site while supporting provincial initiatives to support the species. This takes into account the conservation status of the tree, its biology for slow maturation, and its inability to compete with other tree species as it is relatively shade-intolerant. Threats to whitebark pine extend beyond project related effects and include blister rust, climate change, and mountain pine beetle. Therefore, mitigation will include a range of strategies including avoiding loss through project design, replanting, progressive reclamation, and supporting research. Further discussion with regulatory agencies is anticipated to refine the research components to ensure the maximum benefit is derived from the work.

Photo ES 18: Whitebark Pine, September 2012

A total of 3,210 ha of plant species-at-risk habitat occurs in the Project area, for all Project components combined. Of that, 449 ha (14%) of the plant species-at-risk habitat will be permanently lost due to Project activities, such as clearing and site disturbance. Of the 449 ha, 435 ha occur in the mine footprint, and 14 ha occur along linear features (mine site access road, freshwater supply pipeline, airstrip, transmission line and associated roads and Kluskus FSR). Plant species-at-risk habitat occurring on natural landform types will be reclaimed to conditions similar to baseline in time.

A total of 11 ha (1%) of ecosystems at risk will be lost. These all occur along the transmission line and associated new and upgraded roads. Ecosystems at risk require specific ecological site conditions; the likelihood of remediation is uncertain. Therefore, where ecosystems at risk cannot be avoided, the effects of the Project on ecosystems at risk are considered irreversible, and losses are considered permanent.

Other impacts to species and ecosystems at risk include dust and nitrogen deposition, and the spread of invasive plants. Mitigation plans and measures will reduce or eliminate the threat of dust and invasive species. Fourteen hectares of whitebark pine habitat and 52 ha of potential species-at-risk habitat will be affected by nitrogen deposition. While nitrogen deposition will only occur during the Project operation, nitrogen remaining in the soil or other living tissues means that its impact may persist into the post-closure phase. Nitrogen deposition effects on whitebark pine habitat were ranked not significant (moderate), and effects on potential species-at-risk habitat as not significant (minor).

By removing mature and potentially rust-resistant whitebark pine, the Project is likely to affect Clark's nutcracker populations, and thereby whitebark pine regeneration. Even after reclamation mitigation, loss of habitat will persist for 40 to 80 years, until trees are mature and cone-bearing again. Effects on whitebark pine regeneration were ranked not significant (moderate), because successful reclamation will likely foster Clark's nutcracker populations. The level of confidence is low, as the response of Clark's nutcrackers to reduced whitebark pine numbers is uncertain, but will be reduced to the extent practical through mitigation measures discussed in this section.

Replanting with rust-resistant seedlings, offsetting by establishing whitebark pine seedlings or transplants off site, adaptive monitoring, and implementing a whitebark pine management plan led to the overall significance rating for ecosystem loss on whitebark pine being ranked as not significant (moderate).

Project effects on potential plant species-at-risk habitat will be mitigated by minimizing the Project footprint and by implementing management plans to reduce dust deposition, nitrogen deposition, and invasive species proliferation; post-closure, disturbed areas will also be reclaimed. The significance rating for ecosystem loss on potential plant species-at-risk habitat was ranked as not significant (moderate).

Projects or activities known to overlap with the Species and Ecosystems at Risk in the RSA included mineral exploration and forestry activity. The largest area affected will be through forestry activities, but the mountain pine beetle (MPB), widespread over the entire Project area, has had a significant effect. Assuming forest regeneration over time, and given the localized nature of the Project's cumulative effects, whitebark pine habitat loss potential is ranked as not significant (moderate), and potential for species-at-risk habitat loss is also ranked as not significant (moderate).

6.1.14 Wildlife

Amphibians

Amphibian populations and habitats may be adversely affected through loss and degradation during construction and operations of the Project, but have a high likelihood to return to baseline conditions upon closure. Loss and degradation effects include effects from dust deposition on vegetation and soil, invasive species introduction and/or spread, windthrow, dusting at the local scale, incidental vehicle collisions and mortality, increased predation, and pesticides.

There is a low likelihood of a residual habitat loss effect occurring; however, it is with high confidence that it will be a not significant (negligible) residual effect, based on the magnitude, geographical extent, frequency, and reversibility of the effect. Loss and degradation of moderate- to high-value amphibian habitat will occur during the construction phase, and these effects will be evident through operations. The overall adverse effect of the Project is rated as negligible in magnitude, because only a small fraction (less than 3%) of regionally available habitat will remain affected after mitigation, and the resilience of these ecosystems and their ability to recover is high. Regionally, these moderate- to high-rated suitable habitats are widespread, and occur throughout the RSA. The duration of the habitat effect will be long -term until habitat can be reclaimed; however, some areas will be revegetated before closure, reducing the length of time that habitat will be lost. Once habitat loss and alteration occur during construction, it will be approximately 17 years before closure and reclamation activities to restore habitat function; therefore, the duration will extend into the long term. The habitat effect will occur once, and will be reversible in the long term.

There is a low likelihood of not significant (negligible) rated increased mortality occurring due to Project effects. Project activities are not expected to affect the viability of amphibians due to the extent of amphibians and their habitat within the RSA.

Mitigation and adaptive management plans will avoid and mitigate the majority of adverse effects. Where it is not possible to avoid completely, the effects will be mitigated so as to keep the magnitude of effects at a negligible level.

Photo ES 19: Western Toad

Mortality and predation effects on amphibian VC species were considered not significant, primarily because of the limited extent and magnitude of Project activity that overlaps amphibian habitats relative to the RSA. Mitigation measures for minimizing residual effects to amphibians include the following measures:

- Minimizing loss and/or disturbance of habitat; and
- Restoring disturbed habitat.

Water Birds

Water bird populations and habitats may be adversely affected through limited loss and degradation during construction and operations of the Project, but have a high likelihood to return to baseline conditions upon closure. Mortality risk was considered not significant (negligible), primarily due to the limited extent and magnitude of Project activity that overlaps key water bird habitats.

The residual effects of habitat loss are rated as not significant (minor) with high confidence, due to the magnitude, geographical extent, reversibility, frequency, and likelihood of an effect occurring. Wetland compensation works will begin early in the construction phase and result in no net loss of wetlands by the end of the Project. Relative to habitat availability in the RSA, the overall effect of the Project

on water birds is a potential loss of less than 1% of suitable yellow rail and ring-necked duck moderate- to high-value habitat. The habitat effect will occur once and will be reversible in the long term during operations through to closure. The Project is unlikely to affect the overall habitat supply for water birds within the RSA, due to the large amount of available habitat present within this area.

The residual effects for changes related to mortality risk and changes in predator-prey dynamics are rated as not significant (negligible) with high confidence, due to the negligible magnitude, and site-specific and intermittent nature of the risk within the Project footprint. Access control, as well as early compensation works and mitigation measures, will mitigate any risk of additional mortality.

Mitigation measures to address these impacts include monitoring and compensation actions to achieve an objective of no net loss of wetlands area due to the Project. After considering mitigation measures, the temporal loss of a small amount of water bird habitat remains a residual effect. Mitigation measures for minimizing Project and cumulative residual effects to water birds include:

- minimizing loss of wetlands and compensation for unavoidable losses;
- minimizing footprint loss of wetlands through placement of facilities;
- demarcating construction disturbance zones;
- sediment and erosion control;
- pre-clearing nest surveys;
- invasive plant management;
- posting speed limits on roads for Project vehicles; and
- minimizing effects on water quality.

The cumulative effects of forestry, agriculture, mineral exploration, and the Project on water bird habitat loss were assessed for the RSA. Potential cumulative effects of the Project on water bird habitat loss are predicted to be not significant (minor) within the RSA as a result of mitigation measures.

Photo ES 20: Greater Yellow Legs

Forest and Grassland Birds

The loss and alteration of forest and grassland bird habitat will be mitigated through wetland compensation works early in the construction phase, and result in no net loss of wetlands by the end of the closure phase, and through progressive reclamation of disturbed areas no longer being used by the Project. Within the RSA, the overall effect of the Project on forest and grassland birds will likely be a small reduction in area of suitable habitat, affecting 2% of suitable red-tailed hawk and olive-sided flycatcher moderate- to high-value habitat, and 22% of suitable Clark's nutcracker moderate- to high-value habitat. The habitat effect will occur once and will be reversible in the long term during operations through to closure. The Project is unlikely to affect the overall habitat supply for forest and grassland birds within the RSA, due to the large amount of suitable habitat present (approximately 130,000 ha).

Project activities that could potentially affect the viability of Clark's nutcracker near the mine site will be mitigated by minimizing the loss of whitebark pine to the extent practical, revegetation with rust-resistant whitebark pine, off site transplants and enhancement of habitat through creation of clearings for seed storing by Clark's nutcrackers if this proves viable. There is a high probability that lost habitat will recover to average baseline conditions upon closure, particularly if augmented by revegetation activities discussed above.

Photo ES 21: Clark's Nutcracker

Photo ES 22: Whitebark Pine

Mitigation and adaptive management plans will avoid and mitigate the majority of adverse effects. Where it is not possible to mitigate completely, the effects will be minimized to keep the magnitude of effects at a negligible to low level.

The significance of the Project's contribution to cumulative effects in the RSA was determined at the post-closure phase for this assessment, as forests and other habitat loss will be mitigated through reclamation, primarily during closure. Logging activities in the RSA have generated loss of habitat; however, application of BMPs will protect the key habitats needed by forest and grassland bird species by minimizing disturbance, increasing the success of reforestation, and minimizing the duration of disturbance. Although Project effects and the effects of other activities in the RSA may be cumulative, no additional adverse residual effects on forest and grassland birds are anticipated due to the Project. Due to the loss of forest and grassland bird habitat associated with MPB infestation, forestry, agriculture, and mineral exploration, the significance determination for residual cumulative effects is rated as not significant (minor) as a result of Project activities. Effects such as disease, insect infestation, and fire on Clark's nutcracker are rated as not significant (moderate) with low confidence, with or without Project contributions. Low confidence and uncertainty of the effectiveness of mitigation measures are due to the potential loss of habitat for 80 years due to the Project, and the current infestation of white pine blister rust, MPB infestation, and uncertainty in the large scale replanting of whitebark pine.

Mitigation and monitoring measures for minimizing cumulative effects to Clark's nutcracker include:

- Replanting blister rust-resistant whitebark pine on-site and off-site in conjunction with mycorrhizal fungi inoculation to increase changes of pine survival;
- If proved successful, the creation of openings to support the caching of seeds by Clark's nutcracker; and
- Monitoring of reclamation trials and the Clark's nutcracker population on Mount Davidson.

Photo ES 23: Winter Tracking on Mount Davidson, March 2012

Moose (Alces americanus)

Changes in availability of moose habitat, mortality, and movement patterns, and in wildlife population dynamics may occur from Project construction to closure. Mortality risk may increase along newly cleared sections of the Project components, in particular areas along the access roads, Kluskus FSR, and transmission line but are considered minor compared to existing effects of MPB infestations and attendant logging. These effects will be evident over the long

term, occurring intermittently, resulting in a not significant (minor) rating.

Changes in movement patterns may result from changes in habitat availability and sensory disturbance. Sensory disturbance will have a higher likelihood of occurring at the mine site, access road, and Kluskus FSR, and changes in habitat availability will potentially occur at all Project components. The highest potential concentration of noise will be at the open pit due to operation of heavy equipment and periodic blasting; this source will progressively attenuate as the pit deepens. As well wildlife (based on observed behaviour at other mine sites) will either habituate to the noise, or avoid the Project site altogether. These effects will be evident over the long term, occurring intermittently, resulting in a not significant (minor) rating.

Changes in wildlife population dynamics may result from changes in habitat availability and increased access for predators, although again minor compared to MPB infestation effects. Changes in habitat availability will potentially occur at all Project components, and these may result in changes to the local moose populations. Clearing vegetation and creating linear corridors may allow for easier predator access to areas of moose habitat; increases in predator access may result in an increase in predator risk for moose. These effects will be evident over the long term, will occur intermittently, and result in a not significant (minor) rating.

Photo ES 24: Moose and Calf near northern portion of Transmission Line

The Project residual effects will include a loss and alteration of 2% to 3% of the moderate- to high-quality winter and growing season habitat without avoidance and mitigation. The potential residual habitat loss and alteration effects are due to clearing natural vegetation for the Project, sensory disturbance caused by Project vehicles and other activities, dust deposition on vegetation, and the potential for spread of invasive species (which will be managed through an invasive species management plan to limit any spread). The effects will occur from all Project components, and are expected to initially occur during the construction phase and last through to the post-closure phase.

The potential Project residual mortality effects are due to vehicle collisions and increased access for legal and illegal hunting within the RSA. Mortality effects will occur from all Project components, initially during construction, and continuing throughout the construction and operations phases, although unlikely on the Project site due to the open nature of the site making accidental vehicle collision unlikely and constant human activity which will provide for early spotting of any moose on the site and notification of workers on the site. There is moderate confidence and low likelihood that the effects will occur and that they will have a significant effect on moose populations, due to the mitigation measures that will be put into place through a Project-specific wildlife management plan.

The potential Project residual effect on changes in wildlife population dynamics will result from changes in foraging habitat and increased access for predators, which may change predation rates within the RSA; again Project effects will be minor compared to those from the MPB infestations and attendant logging. Population dynamic effects will occur from all Project components, initially during construction, and continuing throughout the construction and operations phases. The maximum extent of these effects is considered local in context, and there is high confidence and low likelihood that the effects will occur and that they will have a significant effect on moose populations, due to the mitigation measures that will be put into place.

Mitigation and adaptive management plans will avoid and mitigate the majority of adverse effects. Where it is not possible to avoid them completely, effects will be mitigated to keep their magnitude at a negligible or minor level. Mitigation measures for minimizing residual habitat loss and alteration, mortality risk, changes in movement patterns, and effects of changes in population dynamics to moose include:

- Minimizing loss and/or disturbance of habitat; and

- Restoring disturbed habitat.

The cumulative effects of forestry, agriculture, mineral exploration, and the Project on changes in moose movement patterns, population dynamics, and mortality risk were assessed for the RSA. The significance of the Project's contribution to cumulative effects in the RSA was determined at the post-closure phase for this assessment, as reforestation and other habitat mitigation and compensation activities will primarily occur during closure. Logging activities in the RSA have generated loss of habitat; however, application of BMPs will protect the key habitats needed by moose that may be affected by the Project. Although Project effects and the effects of other activities in the RSA may be cumulative, no additional adverse residual effects on moose are anticipated due to the Project. Minimal changes in mortality risk, movement patterns, or population dynamics are associated with forestry, agriculture, and mineral exploration; therefore, the significance determination for residual cumulative effects is not significant (minor) as a result of Project activities, provided the mitigation and compensation measures for the Project. The level of confidence is moderate, due to the risk associated with the moose habitat mitigation measures, which can be assessed through monitoring.

Caribou (Rangifer tarandus)

The residual effects of habitat loss and alteration on caribou are rated as not significant (moderate) with high confidence, due to the magnitude, geographical extent, frequency, and reversibility of the effect. This is primarily due to the relocation of Project components out of the ungulate winter range, particularly rerouting the current exploration access out of ungulate winter range with a new direct mine access road from the north instead of the current exploration access from the west. The loss and degradation of a small proportion of moderate- to high-value caribou habitat will occur during the construction phase, primarily in the mine site area, and these effects will be evident in the closure and post-closure phases, due to the anticipated slow recovery of lichens. Within the mine site, the adverse effect is rated as low magnitude, because a small fraction of regionally available habitat will be affected. Regionally, these moderate- to high-rated suitable habitats are widespread, and available throughout the subpopulation areas. A small amount of moderate- to high-quality habitat available in the RSA (3%) will be affected. Habitat effects will primarily be limited to the mine site footprint, and sensory disturbance will be limited to the immediate mine site and be attenuated over time as previously discussed. The duration of the habitat effect will be long term until lichen areas can be reclaimed post-closure; however, some areas will be revegetated before closure, reducing the length of time that habitat is lost. The habitat effect will occur once, will be reversible in the long term, and extend into post-closure.

The effect of changes in population dynamics due to increased wolf predation is rated as not significant (minor). Project activities are not expected to affect the viability of caribou, due to the extent of caribou and their habitat within subpopulation areas outside of the Project area; however, due to the concern for caribou recovery, habitat loss and changes to population dynamics are carried forward to the CEA.

Mortality and sensory impact effects on caribou were rated as not significant, primarily because of the limited extent and low magnitude of Project activity that overlaps baseline caribou habitat used in recent history. Mitigation measures for minimizing residual effects on caribou include:

- Minimizing loss and/or disturbance of habitat; and
- Restoring disturbed habitat.

The Tweedsmuir-Entiako subpopulation is currently considered to be viable at the minimum subpopulation size with an estimated population of 300 caribou; however, with the calf recruitment indicated as low (less than 17 per 100 cows), the subpopulation is considered to be in decline and to be at high risk of becoming unsustainable if the trend continues. The Itcha-Ilgachuz subpopulation is considered viable with an estimated population of 1,700. The declining health of pine forests within the LSA and RSA due to the outbreak and spread of MPB has degraded moderate- and high-suitability value caribou habitat, and this alteration is expected to continue regardless of the Project. Forest fires have affected 2.5% (328 ha) of the LSA and 3.0% (8,098 ha) of the RSA, and have the potential to affect caribou habitat in the future. The greatest impact is habitat alteration related to MPB, affecting 61% (7,994 ha) of the LSA, and 53% (136,910 ha) of the RSA. With respect to the subpopulation areas, 39% (443,509 ha) of the Tweedsmuir-Entiako subpopulation, and 69% (654,621 ha) of the Itcha-Ilgachuz subpopulation have been affected by MPB infestation. The areas affected by MPB are expected to have reduced caribou habitat value, but some

studies suggest that habitat value may be maintained depending on lichen persistence, so the percentage area affected by MPB does not equate to total habitat loss for caribou. Based on assessment of forestry stand data for remaining non-pine conifer forests in the subpopulation areas, 29% (388,171 ha) of the Tweedsmuir-Entiako subpopulation's, and 8% (73,924 ha) of the Itcha-Ilgachuz subpopulation's non-pine conifer forests will remain if all mature pine forests die after MPB infestation. These cumulative effects are expected to significantly impact habitat supply for both caribou subpopulations, particularly in the Itcha-Ilgachuz subpopulation, with 69% to 92% of the habitat area affected by MPB, irrespective whether the Project proceeds or not. The Tweedsmuir-Entiako subpopulation will potentially suffer a 29% habitat loss, but that will remain below the EC cumulative threshold of 35%, and the Project's contribution to the total is less than 1%. Additional habitat mitigation through enhanced reforestation of MPB areas will mitigate the habitat loss in the far future. Project effects do not significantly add to these effects, as logging and MPB-affected areas include Project areas. Project mitigation measures will reduce the potential cumulative effects due to MPB and forestry in the Project LSA. Habitat loss and alteration in the CEA is considered not significant (moderate).

Caribou calf surveys of both subpopulations suggest that predation levels indicate wolf densities greater than 3 per 1,000 km^2, which would point to a significant cumulative effect for changes in predator-prey dynamics, but the Project contribution to this is considered not significant (minor) for the RSA.

Grizzly Bear (Ursus arctos)

Grizzly bear could be adversely affected through minor loss and degradation of habitat and changes in mortality risk related to Project effects during the lifetime of the Project, but have a high probability to return to near baseline conditions upon post-closure. Residual loss and degradation effects from clearing of vegetation and increased predation result in a not significant (moderate) residual effect on grizzly bear habitat during the life of the Project. Mortality risk is considered not significant (minor), primarily due to the limited extent and low magnitude of Project activities that overlap baseline grizzly bear habitats.

Within the RSA, the overall effect of the Project on grizzly bears will likely be a small reduction in area of suitable habitat, affecting 3% of suitable grizzly bear habitat across seasons. The habitat effect will occur once, and will be reversible in the long term, during operations through closure. The Project is unlikely to affect the overall habitat availability for grizzly bear within the RSA, due to the large amount of available habitat present within this area.

Mortality risk could increase along the roads, airstrip, transmission line, and freshwater supply pipeline, and these effects will be evident over the long term. The highest mortality risk will be associated with the Kluskus FSR, and the mine site access road. The loss and alteration of grizzly bear habitat will occur during the construction phase, and these effects will be evident during the closure and post-closure phases. The habitat effect will occur once and will be reversible in the long-term post-closure. The mortality effects may occur continuously, but will be reversible in the long term.

Mitigation and adaptive management plans will avoid and mitigate the majority of adverse effects. Where it was not possible to avoid them completely, effects will be mitigated to reduce their magnitude. Proposed mitigation measures are aimed at minimizing residual habitat loss and alteration effects and mortality risk to grizzly bear.

The significance of the Project's contribution to cumulative effects in the RSA was determined at the post-closure phase for this assessment, as habitat mitigation and compensation will primarily occur during closure. Application of BMPs will reduce the potential for increases in grizzly bear mortality, and will protect key habitats. Although Project effects and the effects of other activities in the RSA may be cumulative, no additional adverse residual effects on grizzly bears are anticipated due to the Project. Due to the minimal increase in mortality and loss of habitat associated with forestry, agriculture, and mineral exploration, the significance determination for cumulative effects is not significant (minor) as a result of Project activities with the mitigation and compensation measures planned for the Project. The level of confidence is high, due to the low risk after grizzly bear mitigation measures are implemented.

Furbearers

The residual effects of habitat loss and degradation of furbearer habitat (except for beaver) are rated as not significant (minor) with high confidence. Loss and degradation of moderate to high value furbearer habitat will occur during the construction phase, primarily in the mine

site area, and these effects will be evident through operations. Regionally, these moderate to high value habitats are widespread and available throughout the RSA. The duration of the habitat effect will be long term (>30 years) until areas are reclaimed post-closure; however, some areas will be revegetated before closure, reducing the length of time the habitat is lost. Once the habitat effect occurs, it will be approximately 17 years before closure, and then at least 80 or more years for the forested ecosystems to reach maturity (Structural Stage 6), or near-baseline conditions. The habitat effect will occur once, and will be reversible.

For beaver, the residual effects of habitat loss and degradation of habitat are rated as not significant (negligible) with high confidence, due to the magnitude, geographical extent, frequency, and reversibility of the effect occurring. Loss and degradation of moderate to high value beaver habitat will occur during the construction phase, primarily along the transmission line area, and these effects will be evident through construction. Wetland compensation is expected to mitigation some of the beaver habitat loss. Regionally, these moderate to high value habitats are widespread and available throughout the RSA. The duration of the habitat effect will be long term until areas are reclaimed post-closure; however, some areas will be revegetated before closure, reducing the length of time the habitat is lost. The duration of the effects will be dependent on, among other things, what seral stage of forest the furbearers are naturally dependent on, whether, early, middle, or late stage successional forests.

The residual effects of beaver mortality are rated as not significant (minor) with high confidence. Changes in beaver mortality may occur during all phases of the Project, but beaver populations are able to recover from mortality events relatively quickly, giving it a low magnitude. The duration of the mortality effect will be long-term throughout operations.

The residual effects of beaver health are rated as not significant (negligible) with high confidence. Beaver health may be affected during any phase of the Project, and therefore the duration of the health effect will be long-term. However, beaver populations are able to recover quickly from disease or indirect mortality.

Photo ES 25: Red Fox at KM 125 of Kluskus FSR

The significance of the Project's contribution to cumulative effects in the RSA was determined at the post-closure phase for this assessment, as forests and other habitats will be mitigated through reclamation, primarily during closure. Logging activities in the RSA have likely caused some loss of marten habitat; however, application of BMPs will protect key forest and wetland habitats needed by furbearers. Although Project effects and the effects of other activities in the RSA may be cumulative, no additional adverse residual effects on furbearers are anticipated due to the Project. Due to the minimal loss of furbearer habitat associated with forestry, agriculture, and mineral exploration, the significance determination for residual cumulative effects is not significant (minor), given the mitigation and compensation measures for the Project, and forestry management practices to reclaim forest cover. Minimal increases in beaver mortality are associated with forestry, agriculture, and mineral exploration, so the significance determination for residual cumulative effects is not significant (minor), given the mitigation and compensation measures planned for the Project.

Bats

The loss and alteration of bat habitat associated with the Project will occur once during the clearing and construction for the Project, with a loss after mitigation of 2.1% of the moderate- and high-value living habitat, resulting in a negligible magnitude. Due to the behaviour of bats in the area and the projected increase in Project-related traffic, the magnitude of the mortality risk effect is considered negligible. Wetland compensation works and artificial breeding structures will begin as early as operations and

continue until closure, resulting in a short-term effect. The context is high for both effects, because some bats are *SARA*-listed species; however, the bats have high resilience to effects, and the Project is unlikely to affect the overall habitat supply for bats within the RSA, due to the large amount of available habitat present within this area.

Mortality risk may increase along newly cleared sections of the access road and transmission line, and these effects will be evident over the long term, occur intermittently, and result in a not significant (negligible) rating.

Mitigation and adaptive management plans will avoid and mitigate the majority of adverse effects. Where it is not possible to mitigate completely, effects will be minimized to keep their magnitude at a negligible level. Proposed mitigation measures are aimed at minimizing residual habitat loss and alteration and mortality risk effects to bats.

With the implementation of the proposed mitigation measures, the contribution of the Project to regional cumulative effects is rated as not significant (negligible), and no cumulative effects are expected.

Invertebrates

The residual effects on invertebrate habitat loss and alteration are rated as not significant (minor) with moderate confidence, and residual effects on invertebrate mortality risk and heath as not significant (negligible). Loss and degradation of invertebrate habitat will occur during the construction phase, and these effects will be reversible.

The effects have a local extent, limited to the vicinity (50 m) of the Project footprint. The clearing of black spruce from wet forested habitats will generally make the habitat unsuitable for jutta arctic that rely on this habitat. The duration of the effect will be long term, as black spruce and wetland ecosystems are slow to recover. The effect will occur once and will be reversible, earlier in compensation wetlands than elsewhere. Butterflies and dragonflies are predicted to use openings from the transmission line area and other clearings. The clearing of vegetation for the transmission line and associated access roads, and the long-term maintenance of those cleared areas, are likely to result in an overall increase in suitable habitat for the Assiniboine skipper identified during baseline studies. Project activities are not expected to affect the viability of invertebrates, due to the widespread and common extent of suitable habitat within the RSA.

Photo ES 26: American Emerald

The significance of the Project's contribution to cumulative effects in the RSA was determined at the post-closure phase for this assessment, as wetlands mitigation and compensation will occur prior to and concurrent with construction, and during operations and closure. Logging activities in the RSA have generated loss of habitat; however, application of BMPs by the Project and reforestation will protect the key wetland habitats needed by invertebrate species by minimizing disturbance, increasing the success of reforestation, and minimizing the duration of disturbance. Minimal losses of invertebrate habitat are associated with forestry, agriculture, and mineral exploration, so the significance determination for residual cumulative effects is not significant (minor). The level of confidence is moderate, due to the risk associated with the invertebrate habitat mitigation measures.

6.2 Economic Effects

6.2.1 Provincial Economy

In total, Project construction, operations, and closure are predicted to directly and indirectly generate $6.7 billion in provincial GDP, create 29,837 person-years (PYs) of employment, and provide household income of $2.2 billion. Economic effects will peak during construction, remain relatively constant during operations, and then decline in 2033 and beyond as the mine enters the closure and post-closure phases. On average, the Project effects on BC GDP will be about $335 million per year over 20 years, of which direct effects will amount to $236 million. Employment effects will be equivalent to an average of 1,492 full-time jobs

over a 20-year period, with direct Project employment accounting for the equivalent of 477 full-time jobs. Total tax revenues over the life of the Project will amount to $1.2 billion, of which $511 million will accrue to the Government of BC. This includes $450 million in taxes, and $61 million in royalties.

Construction and operations of the Project will have a positive effect on the provincial economy and government revenues, although these effects will be relatively small. For example, in Year -1, the peak year of construction, Project-related GDP will account for 0.02% of total provincial economic output. While there will be a net loss of economic activity during Project closure, the potential Project effects on the provincial economy will also be small and not significant.

6.2.2 Regional and Local Employment and Businesses

During 25 months of construction, it is estimated that the Project will spend $59 million to hire labour from Central BC, and spend another $337 million on goods and services from regional businesses. This will result in 485 PYs of direct construction labour, and another 1,945 PYs of indirect employment. Consumer spending by people directly and indirectly employed by the Project will generate 140 PYs of induced employment in the Socioeconomic Regional Study Area (SERSA). Of the 2,570 PYs of employment for regional residents, it is estimated that there will be 255 PYs of employment for residents of the LSA, and 2,315 for residents of the RSA.

Project operations will result in average spending of $115.5 million per year, including $34.8 million on labour, and $80.7 million to purchase goods and services from businesses in the SERSA. It is estimated that the Project will directly employ 320 residents of the SERSA, and that another 100 Project workers will choose to relocate to the region. The Proponent has adopted a human resources strategy that will attempt to maximize the number of workers hired from communities in the SERSA, and will encourage other workers to relocate to the region. Purchases of goods and services from regional businesses will generate 222 indirect jobs, while consumer spending will create another 100 jobs in the region. Of the 742 jobs for regional residents that will be directly or indirectly created by the Project, it is estimated that there will be 86 jobs for residents of the LSA, primarily in Vanderhoof, and 656 for residents of the RSA, primarily in Prince George.

The overall net effects of the Project's construction and operations on regional and local employment and businesses will be positive, but relatively small. The 420 new direct jobs the Project will create will be equivalent to 0.8% of the SERSA labour force. Use of unemployed workers would reduce unemployment rates by 0.5% in the LSA, and by 0.6% in the RSA. These new jobs would at least partially offset the loss of basic jobs in the LSA and RSA that occurred between 2006 and 2011, and will help maintain and enhance economic diversity and decrease dependency on the forestry sector. Neither regional labour shortages nor wage inflation is expected. The Project may be competing for labour with several other large projects that could be underway at the same time; however, the region has large numbers of unemployed workers.

When the Project closes, there would be a net decrease in employment, and this will have an adverse effect on regional and local employment and businesses. To mitigate these effects, the Proponent is committed to working with the affected communities and government agencies to develop a mine closure plan that includes a strategy for buffering the effects of eventually losing 400 to 500 mining jobs. With mitigation, the effects of Project closure will be rated as not significant.

6.2.3 Regional and Local Government Finance

Once in the operations phase, the Project, like all other industrial projects in rural parts of BC, will pay annual taxes to the BC Surveyor of Taxes. All regional governments in BC, including the Cariboo, Bulkley–Nechako, and Fraser–Fort George regional districts, are able to requisition funds from the BC Surveyor of Taxes according to their five-year financial plans. The Project will contribute annual taxes of about $2.3 million. Thus, there is some potential for the three regional districts to indirectly benefit from Project tax payments.

The Project is anticipated to have no adverse effects on local or municipal government finances, either directly or indirectly. The Project will be self-contained, with its own accommodation, water, and sewage facilities, and a road and electrical transmission line to the site will be constructed as part of the Project.

Overall, it is anticipated that the local and regional governments will enjoy some net benefits from the Project during operations. Furthermore, the Proponent intends to continue operating its Community Liaison Committee (CLC) for the duration of the Project, and to use it to identify and address any issues related to service provision, housing, or health and social services that might result in costs to local and regional government. When the Project closes, the payment of annual taxes will cease. The resulting loss of tax revenues is considered adverse but not significant, because regional districts are only partially funded through requisitions from the BC Surveyor of Taxes.

6.3 Social Effects

6.3.1 Demographics

This section examines the potential changes in the resident population resulting from the Project, including anticipated population increases and decreases.

The Project will require labour to construct, operate, decommission, and close the mine. These increased employment opportunities could encourage an influx of new residents into local communities. The potential population effects would depend on whether Project-related jobs are filled by residents or by non-residents, and on whether non-residents relocate to the area or commute to work.

Given the short duration of the construction phase and the use of a camp, it is expected that construction workers hired from outside the SERSA will neither establish their own residence within nor relocate their families to the SERSA during the construction phase. Some of the construction workers, however, may transition and continue working during the operations phase. Hiring for operations workers is expected to be gradual and begin during the construction phase. These workers will work directly for the Proponent, and some of them may decide to relocate to the SERSA; however, the number of early movers is expected to be minimal. As a result, population effects during construction are rated as not significant (negligible).

Photo ES 27: Blackwater Exploration Camp

During the operations phase, the use of an operations camp, and the Project commitment to developing and hiring most of the operations workforce (65%) from within the SERSA, would limit the need from workers from outside the region. However, it is recognized that the Project will face competition from other mines, such as Mount Milligan and Endako, and that the number of local qualified workers will not fully satisfy Project demands, in particular for highly skilled positions. Consequently, it is estimated that the Project will hire 175 workers (35%) from outside the SERSA. With the provision of relocation incentives and inducements, it is estimated that up to 100 operations workers from outside the SERSA would move permanently with their families to the region, mainly to Vanderhoof and Prince George, increasing the SERSA population by 0.3% (290 people), and creating an effect rated as not significant (minor).

At the end of operations, some out-migration of operation workers is expected, although this will be greatly influenced by the regional work opportunities available at closure and personal and family interests. Even if all operations workers that chose to relocate to the SERSA decide to leave, the departure of 0.3% of the population will not be significant, and will be much lower than the recorded population decline between 2001 and 2011.

Finally, the post-closure phase of the Project will only require a very small workforce, and therefore no effects on the SERSA population and demographics are anticipated.

6.3.2 Regional and Community Infrastructure

The potential effects of the Project on this VC will ultimately depend on the extent to which Project activities and Project-related population growth result in increased demands on regional infrastructure, as well as on the ability of this infrastructure to accommodate increasing demands. The key indicators selected to assess the potential Project effects on regional and community infrastructure are housing, utilities, recreational facilities, and regional transportation.

Project activities could directly affect regional and community infrastructure services by placing additional demands on regional utilities such as water, energy, and waste disposal. As noted in the Project Description, the Project will be self-contained. It will have an on-site camp and water and sewage management facilities. In addition, a road and electrical transmission line to the site will be constructed as part of the Project. While most waste generated by the Project will be handled on site, some waste may be sent to regional landfills; however, the payment of tippage fess will result in no additional costs to the regional district.

During the construction phase, the provision of camps and the short duration of construction will result in no population effects on the SERSA, and therefore no effects on regional and community infrastructure. During the operations phase, however, up to 290 people (100 families) may choose to relocate to the SERSA, which will therefore create some additional demands on regional and community infrastructure services, including housing, utilities, and recreational facilities.

Within the SERSA, the city of Prince George is anticipated to attract the majority of the workers who choose to relocate, due to its wider range of services and facilities and broader housing supply than any other SERSA community. It is estimated that up to 232 people (80 families) would relocate to Prince George, and 58 people (20 families) to Vanderhoof. Both Prince George and Vanderhoof have good infrastructure services capacity (housing, utilities, recreational facilities) and approved expansion plans that can easily accommodate the potential additional demands created by the arrival of 232 and 58 people, respectively. In addition, a positive influx of permanent residents is desirable, since it aligns with the communities' desires to attract new residents and increase their local tax bases.

Given the limited increase in demand for housing (80 families in Prince George and 20 families in Vanderhoof), current vacancy rates, and reported increase in residential building permits in both communities, no effects are expected on housing prices or rents in either community. Similarly, the current good capacity of utility services and recreational and leisure infrastructure, in combination with the small demand created by the arrival of up to 290 people or approximately 100 families (0.3% of the SERSA population), result in an effects rating of not significant (minor).

During closure, a small population decline is expected, and thus a small decline in demand for infrastructure services, including housing, utilities, and recreational facilities. This may mean that the remaining population would be faced with the costs of continuing to operate the infrastructure locally and regionally, but this change falls within historic norms, and infrastructure providers are used to fluctuations in their client bases. Given the magnitude of the effects, they are rated as not significant (negligible).

The transportation of equipment, supplies, materials, and labour will be essential throughout all phases of the proposed Project. Transportation activities will create additional vehicle traffic, resulting in increased potential for motor vehicle accidents, and increased road wear and maintenance.

Project-related traffic on Highway 16 will result in an increase of traffic above 2012 Average Annual Daily Traffic (AADT) baseline volumes of 2.1% during the construction phase, and 1.4% during the operations phase. The total AADT on Highway 16 is well below the design capabilities of this highway, and would not necessitate any upgrades or increased maintenance, nor represent an increased risk to other users of this highway.

To minimize the Project-related traffic volume on Highway 16 and the Kluskus and Kluskus-Ootsa FSRs, busing of construction and operations personnel hired from within the SERSA will be provided from a secure muster site at Vanderhoof. Personal vehicles will not be permitted to travel to the proposed mine site. In addition, an airstrip will be built near the mine for a fly-in/fly-out rotation of construction workers from outside the SERSA. These workers will be bused between the airstrip and the on-site camp. Use of the airstrip may be discontinued after Project construction and commissioning is complete, based on the anticipated needs of the Project at the EA stage. The fly-in/fly-out and local

busing plan will reduce Project-related traffic volumes on Highway 16 and the Kluskus FSR, which provide mine access.

In anticipation of heavy truck traffic, including some extraordinary loads (oversized and overweight), the FSRs will be surveyed prior to construction, and upgrades provided by the Proponent as necessary. In addition, the mine site access road will be designed and constructed to accommodate the volumes, weights, and types of loads anticipated during all phases of the Project.

Photo ES 28: View along the FSR south of Engen

The Proponent has developed a Transportation and Access Management Plan (TAMP) that will be implemented during all phases of the Project. It includes a Traffic Management Plan that provides measures that, when implemented, will ensure the safe movement of all mine traffic at the proposed mine site, on the mine site access road, and on the FSRs that provide access to the mine from Highway 16. In addition, an incident management plan has been developed to provide guidance when an incident occurs.

Rail transport during the construction phase will include approximately 26 extraordinary loads (oversized and/or overweight) that exceed the legal weight for ground transport on BC highways and FSRs. Mobile cranes will transfer these extraordinary loads from trains to heavy trucks at an existing siding/warehouse transfer facility in Prince George. During the operations phase, rail transportation will be minimal, and no rail transportation will be required during the closure or post-closure phases.

Taking into account the mitigation measures embedded in the Project design, and the Proponent's corporate policies, plans, and procedures, the residual effects on regional transportation in terms of potential road deterioration, road user safety, and potential vehicle collisions would be adverse, but rated as not significant (minor) during the construction, operations, and closure phases, and negligible during the post-closure phase of the Project.

6.3.3 Regional and Local Services

Project effects on regional services will be associated with changes in population and Project activities. Operations workers that relocate to the SERSA will increase the population, thus increasing the demand for regional and local services (educational, health, protection, and social services). In addition, changes in traffic on area roads could result in higher demands for public safety and health services if accidents increase. Project needs for qualified workers would also increase the demand for regional educational services. Finally, Project operations could place additional demands on health services if worksite accidents occur.

Population increases during construction would be housed on site, and supported by on-site services, and would therefore not cause a noticeable effect on regional services.

During operations, the Proponent intends to hire the majority of the workers from within the SERSA, and to provide a self-contained camp for workers at the site; however, up to 290 people (100 families) are expected to relocate to the SERSA. This corresponds to approximately 0.3% of the current population, which represents a very small increase over baseline conditions. Further, population increases are predicted to be focused in Prince George and Vanderhoof. Both communities have ample capacity to serve the additional demands for community services created by the arrival of new residents. With the exception of RCMP services, it is expected that the SERSA has enough capacity to absorb minor increases in demand.

During both the construction and operations phases, traffic volumes will increase. This increase may result in higher demand for RCMP and health services, if accidents occur.

During the closure phase, out-migration of workers and their families, the mine closure, and the resulting reduction of truck transportation will reduce demand on regional policing, ambulance, fire rescue services, and health care services.

As for residual effects following mitigation, during both the construction and operations phases of the Project, some demand could be placed on local policing resources if criminal code offences occur, and/or due to traffic accidents or violations. In addition, any injury or illness will see workers transferred to health care services in the LSA; arrangements will be made to medevac any workers with life-threatening illnesses or injuries to the nearest appropriate facility within the SERSA. Given that the Proponent will provide a self-contained camp, additional demand on regional services associated with the non-resident workers will be limited. Finally, there will be an enhancement of workforce experience and skills base resulting from additional training.

Overall, the residual effects on regional services are rated as not significant (minor).

6.3.4 Family and Community Well-Being

Anticipated Project effects on family and community well-being are linked to income-related effects and the work schedule at the mine, and, to a lesser extent, to behavioural changes associated with the Project-related population influx.

Although some potential family and community well-being effects from the construction and operations phases may have adverse consequences, the net effects are expected on balance to be slightly positive, because Project-related employment incomes will reduce family economic hardship, and can be used to enhance quality of life. The proposed mitigation is anticipated to be effective as long as the Proponent, communities, and governments cooperate in management initiatives.

For both the construction and operations phases, the effects on economic hardship are considered positive since employment income will increase families' economic capacity and quality of life. The net loss of employment following mine closure is considered adverse but not significant. With minimal population impacts, the residual effects related to population influx and associated increase of disruptive or illegal activities are considered negative but not significant (minor). Effects on family relationships associated to separation of workers from their families would be negative; however, with mitigation measures in place, the effects are expected to be not significant (minor).

The net loss of employment and related income following mine closure is considered adverse. To mitigate these effects, the Proponent is committed to working with the affected communities and government agencies to develop a mine closure plan that will identify strategies and actions to minimize potential adverse effects from mine closure. With mitigation, the effects of Project closure are expected to be not significant (minor).

6.3.5 Non-Traditional Land Use

The Non-Traditional Land and Resource Use (NTRLU) assessment presents the potential negative and positive local, regional, and cumulative effects of the Project on non-traditional land and resource uses and users. Projects effects within the LSA and RSA were considered for all phases of the Project. The NTLRU assessment results show that the majority of Project-specific land and resource use effects in all study areas will be low in magnitude, due to sound Project design and the implementation of appropriate mitigation measures, including compensation where applicable. The remaining resource use effects will be negligible. Therefore, all Project-specific effects will be within the range of not significant (negligible) to not significant (minor). Project-specific effects of NTLRU indicators considered not negligible were carried forward to a CEA to assess effects in combination with the residual effects of one or more other Projects or human activities. Results of the CEA on land and resource uses and users (e.g., recreation and tourism, forestry, mining exploration and mineral tenures, trapping, guide outfitting and hunting, agriculture and grazing, land ownership (private land), and access) showed that any cumulative effects would be low. Therefore, all cumulative effects were deemed not significant (minor).

The primary effect of clearing land for industrial use will be a reduction of the available land base for other land and resource uses. Progressively, throughout the Project and following decommissioning, the Proponent will revegetate and reclaim cleared areas for other land use activities, in accordance with the RCP. An increase in access will create both positive and negative effects on land and resource uses and users. The Proponent will implement the TAMP, adhere to the terms and conditions of the Canfor Road Use Agreement, and may in the future assume prime responsibility for implementation of the road use agreement, and will work with forestry and other stakeholders to address

ongoing and current access issues. In cooperation with locally affected registered trapline holders, guide outfitters, farmers, ranchers, and private landholders, the Proponent will develop and implement mitigation measures, according to established industrial and provincial protocols and accepted best practices.

Photo ES 29: Aerial View of Kluskus FSR Crossing Lower Chedakuz Creek and Tatelkuz Lake in the Background

6.3.6 Current Land and Resource Use for Traditional Purposes

This section addresses effects expected to result from Project-related disturbances and activities on the Current Land and Resource Use for Traditional Purposes (CLRUTP) valued social component (VSC).

The Project has the potential to affect CLRUTP. The assessment evaluated effects of potential restrictions on access to land and resources, changes in the amount of resources available, and sensory disturbances.

The assessment considered the potential effects of Project activities on CLRUTP in relation to the following indicators:

- Hunting;
- Trapping;
- Fishing;
- Plant gathering; and
- Other cultural and traditional uses of the land.

Effects on VSC indicators were assessed using methods defined in the Application. For the purposes of this assessment, significance rating criteria used for Environment and Heritage were used, as they were most relevant to this VSC.

The Proponent understands the importance of collecting TK/TLU information to ensure negative effects are avoided or managed.

In an effort to better understand potential concerns with respect to TK/TLU, the Proponent has engaged with Aboriginal groups since 2011. The Proponent has provided site tours, attended numerous meetings with leadership, held and encouraged community meetings, and participated in one-on-one meetings with key community members who are most dependent on local resources for spiritual, cultural, and basic needs (e.g., Elders and knowledge holders and land users such as trappers and harvesters) in an effort to gather TK/TLU information.

The Application used the available information provided by Aboriginal groups which varied among the different groups. The Proponent is committed to considering any new information provided, and adjusting the assessment and mitigation plans if practicable.

Baseline information for CLRUTP was obtained from desk-based research from historical, ethnographic, and current sources, field interviews, and TK/TLU studies provided by Aboriginal groups. Information on current land use varied, depending on the participation of the particular Aboriginal group in the preparation of the effects assessment.

The Project has the potential to affect CLRUTP during Project activities due to overlap of Project components or activities with First Nations traditional territories and Métis land and resource use areas. The effects of each Project component were assessed through the construction, operations, closure, and post-closure phases for each of the indicators. Specific effects on each Aboriginal group were determined based on the CLRUTP information provided.

Mitigation measures were developed to address the potential adverse Project effects. Effects on specific species used for hunting, fishing, trapping, and plant gathering are considered in the studies for the Wildlife, Fish and Fish Habitat, Landscape, and Soils and Vegetation VCs. Implementation of Environmental Management Plans

(EMPs) will minimize or help avoid effects throughout the life of the Project.

The Proponent will continue to discuss potential Project effects on traditional hunting and trapping with affected Aboriginal communities throughout the life of the Project. Should additional information regarding an Aboriginal community's CLRUTP (such as TK and/or a TLU study) become available, the Proponent will review and assess any potential effects and necessary mitigation measures. Other mitigation measure specific to hunting and trapping include:

- Prohibiting mine employees from hunting on mine site property;
- Prohibiting mine employees from trapping on mine site property; and
- Locating and maintaining breaks in the ROWS to facilitate access to trapping trails during clearing.

Effects on fishing have been addressed through measures in the Fish and Fish Habitat assessment. Mitigation for the introduction of workers to the region that may compete for fish resources includes the implementation of a no-fishing policy for workers while they are resident at the work site. Mitigation for access to fishing areas will not be required, since there will be no changes to access to areas known to be used for fishing for traditional purposes.

Mitigations for plant gathering have been developed through EMPs. Traditional use plant species habitat will be included in reclamation prescriptions as outlined in the RCP, and the Proponent will implement a no-plant-harvesting policy on the mine site property for all workers while they are resident at the work site.

Mitigations for other cultural sites with physical remains have been developed through the Heritage Effects Assessment. Other mitigations for sites that may not be considered in the Heritage Effects Assessment include informing workers of culturally sensitive areas, implementing a policy of reporting and respectful use, and developing alternative access plans with Aboriginal groups where access to or use of specific cultural sites needs to be altered or is impeded.

Residual effects were assessed for all indicators once mitigations were considered. With respect to the mine site and linear components, seven residual effects with ratings of not significant (minor) and two ratings with not significant (moderate) were identified. Cumulative effects for LDN hunting, trapping, fishing, and plant gathering were identified Cumulative effects for UFN hunting, trapping, fishing, and plant gathering were also identified.

With respect to the mine site and linear components, the determination of significance of residual effects for SFN, StFN and NWFN was not conducted because at the time of writing the Application TK/TLU studies, conducted by these Aboriginal groups, were on-going.

With respect to the proposed transmission line and related access roads, four not significant (minor) residual effects were identified and five not significant (moderate) effects were identified. Potential cumulative effects related to LDN, NWFN, SFN, StFN and UFN hunting success were rated as not significant (moderate) Potential cumulative effects to the quality of using land and resources by LDN, NWFN, SFN, StFN and UFN were rated as not significant (minor).

Recommended follow-up actions to address effects include:

- Discussing potential Project effects on trapping and other traditional uses with affected Aboriginal Groups throughout the life the Project;
- Implementing a TK/TLU Committee with participation of the Aboriginal groups on which territories the Project is located to monitor that commitments made by the Proponent in regards to TK/TLU are being complied with; and
- Participating in regional working groups, such as the caribou sub-working group and others, as required.

6.3.7 Visual Resources

The Visual Resources Effects Assessment examines the effects of the Project on the visual resources of the LSAs and RSAs. The assessment involved the review of several regulatory requirements and management plans governing land use objectives for the region.

These requirements and plans included the Visual Landscape Inventory (VLI) and the Recreation Features Inventory (RFI) prepared by the BC Ministry of Forests, Lands and Natural Resource Operations (BC MFLNRO) and the Vanderhoof LRMP and Access Management Plan. The assessment also incorporated TLU/TK information gathered through First Nations consultations. A comprehensive report on baseline conditions provided a robust context for the evaluation of potential effects.

Photo ES 30: View in Direction of Mine Site from Tatelkuz Lake

The Visual Resources Effects Assessment was carried out using a rigorous and scientifically defensible methodology:

- Key observation points were selected where visitors are expected to congregate, at homesteads of permanent residents, and at commercial operations;
- Viewshed analyses were generated to determine line-of-sight between observation points and proposed mine site facilities and their associated linear features;
- Photographic renderings of viewsheds in selected sites were generated to illustrate the results of the viewshed analyses in three-dimensional (3D) space;
- Criteria for rating potential effects were established;
- Twelve evaluation sites were identified where Project components are near high-value visual resources;
- Potential Project interactions were identified;
- Potential effects were assessed against established criteria;
- Effective mitigation measures were recommended;
- Residual effects were predicted; and
- Cumulative effects were assessed for those evaluation sites where residual effects were determined to be greater than not significant (negligible).

Professional judgement was applied sparingly, due to the robust available background information, clear land use planning objectives, and effective modelling tools.

The potential effects of the Project on visual resources in the RSAs were determined for locations where scenic and recreational features interact. These locations were mapped and analyzed, and are represented in various figures within the Application.

Those parts of the visual resources study areas that are considered important by the public, Aboriginal groups, the Proponent, scientists, or governments were identified. Potential interactions between the Project and visual resources in the study areas were assessed with respect to these important visual resources.

Photo ES 31: Southeast Viewpoint in Brewster Lake Recreation Site

This effects assessment applied scientific literature and analyses to identify and measure Project effects on visual resources. Computer-generated viewshed analyses and 3D representation techniques were used to identify and measure direct line-of-sight effects.

Not significant (minor) to not significant (moderate) effect ratings were determined for five viewpoints, as discussed in the Residual Effects Assessment. A CEA was carried out on these identified viewpoints.

Forestry activities generate the most effects on visual resources. Forestry activities account for approximately 95% of the spatial overlap with visual resources within the RSA. A total of 2,050 ha of other projects and human activities overlap spatially with the residual effects of the Project. Forestry related impacts accounts for approximately 92% of the spatial overlap with visual resources.

Cumulative effects were evaluated for residual effects along the transmission line route at the Stellako River, Cheslatta Trail, and Nechako River crossing points, and Brewster Lake. Cumulative effects were evaluated within the mine site

at three locations along the east bank of Tatelkuz Lake. Cumulative effects at these locations were determined to be not significant.

6.4 Heritage Effects

Three VCs were considered when assessing the Project's impacts on heritage resources: archaeological sites, historical heritage resources, and paleontological resources. Assessments for all three VCs consisted of desktop reviews of relevant written resources and provincial databases, as well as field surveys and/or ground-truthing of Project component development footprints and/or previously identified resources. Project effects will most likely result from construction- and operations-related activities. Project effects may be both positive and negative: New resources may be identified, recorded, and managed, but sites may also be discovered and potentially disturbed. Mitigation measures will include Project design changes to avoid sites, protection of sites, and systematic data recovery, or study, for those sites that cannot be avoided.

Sixteen archaeological sites have been identified in the Project area. Archaeological resources in BC are VCs by virtue of their protection under the *Heritage Conservation Act* (*HCA*). Types of archaeological sites protected by the *HCA* include: sites occupied or used before 1846; aboriginal rock art; burial places; heritage ship and aircraft wrecks; and sites of unknown attribution that may have been occupied prior to 1846. Sites identified within the Project area consist of artifact scatters representing campsites, cultural depressions associated with food caching, and previously identified traditional trails.

Photo ES 32: Archaeology Field Survey

Four historical resources and 39 cultural heritage resources (CHRs) were identified within the Project footprint. Historic heritage sites are locations containing physical evidence of historical or architectural significance. In Central BC, they are primarily attributable to post-contact Euro-Canadian settlement. Identified within the Project footprint were a roadside memorial cross, the remains of a newly-identified cabin, and the remains of a previously identified cabin. CHRs in this study follow the definition in the *Forest Act* and are objects, sites, or locations of traditional practices of significance to a community or Aboriginal people. CHRs identified in the Project area consisted of culturally modified trees, trail blazes, traps, and traplines that postdate 1846 AD and are not protected by the *HCA*.

Eight previously identified paleontological sites are located within the LSA for the transmission line, and the presence of fossil-bearing Ashman Formation bedrock was confirmed adjacent to the proposed transmission line ROW associated with the Project. Most fossils described from the RSA are fragmental and/or indeterminate, due to their preservation in thinly-bedded shale. Palaeontological resources are VCs because of a wide appeal linked to scientific theories regarding the origins and development of life on Earth. Palaeontological assessment studies are based on the *CEAA, 2012* and BC Fossil Management Framework. In the study area, paleontological resources typically represent fossils in bedrock or semi-fossilized bones of extinct animals in unconsolidated Ice Age sediments.

6.5 Health Effects

The residents and potential labour force in the employment catchment area and near the Project lie within the Quesnel, Nechako, Burns Lake, and Prince George Local Health Areas (LHAs). This section provides an overview of the current state of human health for the study region.

The data from BC Vital Statistics Agency and Statistics Canada published for the province and local health authorities were used to provide an overview of the health in the region. Physical and mental health status were considered, along with potential environmental sensitivities for people working and residing in the area. LHA statistics include both Aboriginal and non-Aboriginal people: It is recognized that Aboriginal resident health challenges can be different and at times more significant than for the non-Aboriginal population, so the LHA statistics that include both

included an appreciation of some of the health challenges facing Aboriginal people. A number of studies, both national and provincial, have been referenced to provide some context for the Aboriginal health situation.

In general, people in this region have slightly lower levels of health and well-being when compared to the general population in BC and Canada; however, differences are not statistically significant.

Mental health status is generally similar within the Human Health Study Area (HHSA) to that in the province in general. Men appear slightly more sensitive than women in the HHSA to determinants of mental health status.

General health status and mental health status are likely to be lower for First Nations people within the HHSA based on findings of the Northern Health Authority. Thus, sensitivities to environmental exposures are potentially increased for First Nations people living in the part of the LSA managed under the Quesnel LHA. An ongoing study by the University of Northern British Columbia has highlighted the importance of country foods to First Nations. With this in mind and the need to address First Nations rights and interests, the Proponent has designed management of the Project to minimize to the extent practical effects on gathering of traditional country foods by First Nations and to incorporate country foods into reclamation wherever practical.

With the proposed mitigation of potential health effects of the Project, health of exposed populations are not expected to be significantly negatively affected.

6.5.1 Environmental Exposures

The evaluation of environmental exposures was based on comprehensive assessments detailed in the Application, namely the Noise and Vibration Assessment, and the Human Health Ecological Risk Assessment (HHERA), which evaluates potential direct and indirect exposure pathways via water, air, soil, and country foods (i.e., vegetation, wild game, and fish). The human health effects assessment focused on the HHRA component of the HHERA only.

Based on HC criteria for community annoyance, intermittent exposure to noise only during the northeast take-off of Boeing 737 aircraft may cause community annoyance to a small number of residents on up to two occasions per week during the construction phase. This potential effect is rated not significant (negligible).

Based on HC criteria, health risks are acceptable for potential exposure to all environmental contaminants, except arsenic. Exposures to arsenic have an elevated health risk for both the Baseline and Project scenarios. The incremental increase in potential risk as a result of the Project is not expected to result in measurable health effects for people in the area of maximum arsenic concentrations. This potential effect is rated not significant (negligible).

6.5.2 Worker Safety and Health

Surface mining is one of the safest heavy industries in BC. This is demonstrated by the industry's average workplace insurance premium base rate in BC, which is generally lower than that for other heavy industries in the province.

Safety procedures and site standards help to ensure that tasks and work practices are performed in a safe manner with minimal risk. The Proponent has established formal risk management processes to identify hazards, assess risk, determine appropriate control measures for those hazards, and monitor the effectiveness of those controls. The Proponent maintains a "safety first" culture, in which employees and contractors are motivated to do the right thing to keep themselves and their colleagues healthy and injury-free. Training programs, safe work procedures, site housekeeping, and operational standards are enforced to improve workplace safety and minimize risk to people and equipment.

Current health and safety provisions on site include: an emergency helicopter landing area; a site-specific Emergency Response Plan; a health, safety, and environmental induction program; an ongoing medical conditions and medications tracking system; and an on-site fitness and wellness program.

During the construction, operation and closure phases, Project workers will be exposed to mine occupation-related safety risks and workplace exposures. These include potential trips and falls, including falls from heights, use of machinery, and exposure to noise and silica dust. Comparing average workplace insurance premium base rates in BC in general, employees currently resident in the SERSA who take up employment at the Project will be

exposed to an equal, or lower, risk of workplace injury and disease as that found in their current workplace.

Indoors, construction camp and operations camp residents will be exposed to noise levels around 20 dBA, below the 30 dBA World Health Organization 1999 guidelines.

Photo ES 33: Blackwater Exploration Camp

Mitigation measures include maintaining a safety-first culture, operating with an occupational health and safety management system, and using preferred safety practices and procedures. To ensure continual improvement, health and safety targets will be established and published annually as part of the New Gold Sustainability Report series.

Expected worker health and safety effects based on average worker compensation insurance base rates are negative and not significant (negligible) for the construction, operations, and closure phases.

6.6 Accidents or Malfunctions

Measures the Project will implement to minimize the risk to employees, adjacent communities, and the environment from accidents and malfunctions during the construction, operations, closure, and post-closure phases of the Project are described.

The section serves as a supplement to the Emergency and Spill Preparedness and Response Plan (ESPRP) that has been prepared to meet the objectives of the Mine Emergency Response Plan (MERP) as required by the Health, Safety and Reclamation Code for Mines in British Columbia (HSRC).

It forms part of the Environmental Management System (EMS), which includes a series of EMPs for the Project. The EMS considers current international best practices, such as ISO 14001, and appropriate elements of other internationally-recognized standards and BMPs as the basis for the EMS.

The Proponent will meet or exceed all applicable regulatory requirements for management of accidents and malfunctions at mine sites in BC. The EMS includes a process for regular review of regulatory changes that may affect the Project. A register of applicable federal, provincial, and municipal regulatory requirements will be maintained, and this document will be updated as necessary to reflect changes in the applicable legal and regulatory framework.

The following potential accidents and malfunctions were evaluated:

- Structural failures: open pit slope failure, waste rock/overburden and low-grade ore stockpiles slope failure, TSF dam failure, ECD failure, freshwater reservoir failure, and sedimentation pond failure;
- Accidents: failure of seepage collection system, water pipeline failure (including contact water and freshwater), explosives accident, tailings pipeline failure, major fuel release (>100 L) during transport, transportation accidents involving movements of work crews and hazardous and non-hazardous materials, fuel releases from storage facilities and dispensing areas on site, spills of hazardous substances in contained areas, fly rock from blasting, and aircraft accidents; and
- Other malfunctions: accidental discharge of effluent from sewage treatment system, accidental sediment releases into watercourses, forest fires (Project-related), excessive disturbance of wildlife, and power outages.

Potential events (accidents and malfunctions) associated with the Project were evaluated using a potential problem analysis (PPA) approach. The PPA framework is an engineering reliability technique used to systematically identify, characterize, and screen risks that derive from the failure of an engineered system to operate or perform as intended. Although PPA does not reduce risk in itself, the systematic risk characterization it provides can be very

helpful in designing risk management and mitigation strategies that do.

No extreme risks were identified that will require additional safeguards to be put in place. The majority of the risks identified were classified as low risk, i.e., they would have a minor or negligible negative effect.

6.7 Potential Effects of the Environment on the Project

Potential effects of the environment on the Project considered included: terrain stability, avalanches, seismic events, extreme floods, droughts, and climate change. Based on the desktop studies and field investigations, terrain stability issues are not expected to have an effect on the Project. Terrain Stability Assessments will be conducted as part the detailed design where transmission line towers and/or poles and construction access are proposed to be constructed in terrain susceptible to instability.

No direct effect on the Project is expected from avalanches, and no specific mitigation measures are proposed. Mitigation measures are available should a risk be defined in the future.

No direct effects on the Project are expected from seismic events. Mitigation measures are inherent to the Project design in order to meet design standards.

Based on existing information, it is highly unlikely that the Project will be affected by a volcanic eruption or other volcanic event. The closest volcano to the Project area is the dormant Nazko Cone, located approximately 90 km east of the Project, which is believed to have last erupted over 5000 years ago. The closest recently active volcano is Mt. St. Helens in Washington State, which erupted in 1987 and is 800 km to the south. As well, continental prevailing winds are not south to north but east-west and any long distance travel of volcanic dust would have to be carried by the west to east travelling jet stream. Should this extreme event occur, personnel will be directed to congregate at mustering locations for evacuation or similar measures to protect the health and safety of employees.

Forest fires are a natural hazard that has the potential to affect the Project, particularly in the more remote, forested areas. The Project has been designed to protect workers safety and health as a priority through the establishment of a fire safety and response plan. The transmission line is at greatest risk, and contingency measures will be in place to ensure that critical power needs at the Project site can be maintained until repairs can be made.

Extreme flood events are not expected to affect the Project, and no resulting environmental effects are expected. Floods such as the 5-year or 10-year floods that represent less extreme events would similarly not have an effect on the Project.

Drought events are expected to have only a minor effect on the Project. No effect from climate change on the Project over the mine life is predicted.

Closure of the mine site requires that PAG rock in the TSF remain saturated. Assessment for the application indicated that eight years of no precipitation in the TSF catchment area would be required to desaturate PAG rock, which is an extremely unlikely event. However, extreme drought could significantly affect revegetation depending on the stage when such occurred.

6.8 Summary of Proposed Environmental and Operational Management Plans

The Proponent is developing a comprehensive EMS for the Project, based on prevention, mitigation, and management of impacts identified in the EA. The EMS will guide implementation of the Proponent's environmental policy throughout the life of the Project.

The Construction and Operations Management Plan (CMP) is a key component of the EMS through which the Proponent will ensure protection of the environment and regulatory compliance for the duration of the construction and operations phases. At the start of the closure phase, the Closure Management Plan (CLMP) will supersede the CMP.

EMPs are a core component of the CMP and subsequent management plans. EMPs provide documentation for verifying Project effects identified in the effects assessment, and for managing, monitoring, and auditing Project effects mitigation. In some cases, most of the strategy, design, and mitigation presented in the EMP sections applies to other phases of the Project, and thus will be incorporated into the CLMP accordingly. Prior to the start of construction, elements of the EMPs specifically related to construction will

be extracted, reviewed, and expanded as required to develop the final CMP.

This ISO 14001-compliant document will be used to organize and guide all activities during the construction and operations phase of the Project to ensure orderly, safe, compliant, and environmentally and socially responsible operations at the mine site, and the execution of environmental compliance requirements associated with Project work. The processes and procedures within the CMP, while based on regulatory and the Proponent's requirements and standards, have also been developed to leverage lessons learned from previous and currently active exploration activities as well as improvements in overall environmental management processes.

Elements of the Project CMP include:

- Sediment and Erosion Control Plan;
- Aquatic Resources Management Plan;
- Wetlands Management Plan;
- Landscape, Soils and Vegetation Management and Restoration Plan;
- Invasive Species Management Plan;
- Wildlife Management Plan;
- Archaeology and Heritage Resources Management Plan;
- Visual Resources Management Plan;
- Air Quality and Emissions Management Plan;
- Water Quality and Liquid Discharges Management Plan;
- Industrial and Domestic Waste Management Plan;
- Hazardous Materials Management Plan;
- Emergency and Spill Preparedness and Response Plan;
- Transportation and Access Management Plan;
- Occupational Health and Safety Management Plan;
- Recruitment, Training, and Employment Plan;
- Mine Waste Management Plan;
- Mine Water Management Plan;
- Cyanide Management Plan;
- Wildfire Management Plan;
- Fish Salvage Plan;
- Closure Management Plan; and
- Reclamation and Closure Plan.

Project environmental personnel are responsible for the oversight and verification of construction contractor environmental compliance. Key responsibilities and strategies for environmental compliance involve both planning and disciplined field execution. Project environmental personnel will monitor construction contractor compliance through several mechanisms and structures. These include:

- Ongoing field monitoring and inspections conducted by dedicated, qualified personnel such as the Environmental Coordinator and designates;
- Periodic assessments by the Environmental Coordinator and/or Environmental Manager of construction contractor work areas and contract deliverables to verify compliance and confirm corrective actions are being implemented for any areas identified for improvement;
- Monitoring and tracking of regulatory deliverables (data, reports, etc.) and environmental reporting by environmental personnel;
- Tracking leading indicators and Key Performance Indicators (KPIs);
- Benchmarking against comparable Projects where information is available; and
- Implementing and leading auditing and assurance programs.

Checking will be accomplished through formal and informal monitoring. Formal monitoring will follow a structured schedule and will result in periodic reporting to the Environmental Manager and the Environmental Coordinator, and incident logging as necessary. Informal monitoring will be accomplished through day-to-day routine vigilance for correct application of procedures and timeliness in corrective action.

Section 13 of the Application (Follow-up Monitoring and Compliance Reporting) provides a description of the reporting structure as identified in the EMPs monitoring plans, and commitments. Follow-up programs are used to verify the predictions of environmental effects made during the EA of the Project and to confirm whether mitigation measures have achieved the desired outcomes. A follow-up program is essential in identifying whether mitigation or monitoring methodologies need to be modified or adapted

as the Project proceeds in order to continue to be effective and to address previously unanticipated adverse environmental effects. Follow-up programs a can also help to support the overarching Environmental Management System (EMS) used to manage the environmental effects for the Project.

7.0 PROPONENT COMMITMENTS

The environmental assessment process produced several VCs with effects assessed to be at least moderate, a low level of certainty associated with the significance determination or mitigation measures used in the assessment require monitoring to confirm the effectiveness of the performance. The effectiveness of the mitigation measures and determination of significance will be confirmed though the implication of follow-up programs. In addition, several permits are expected to require monitoring of compliance of permit conditions. With respect to Aboriginal rights and interests, the Proponent is committed to seek and integrate TK whenever it is available to inform management of the Project.

Table ES 6 presents the key mitigation commitments made by the proponent to avoid, reduce, or offset adverse effects of the Project. A key component of all environmental management plans will be follow up monitoring both for permit compliance purposes and to determine whether EA predictions are accurate or if other mitigation and management measures are needed.

Table ES 6: Proponent's Table of Proposed Mitigation Measures

KEY MITIGATION MEASURES/COMMITMENTS
Project Description
• Cluster mine site components to minimize the project mine site footprint to about 4,400 ha.
• Site mine facilities to avoid the Blackwater River drainage to the south, Kokanee habitat to the north and the UWR to the west.
• Adhere to the International Cyanide Management Code, and follow Environment Canada's Environmental Code of Practice for Metal Mines.
• Prevent surface water discharge from the mine site during operations and closure (about 18 years until pit lake full) by recycling tailings supernatant water and directing contact water to the TSF.
• Minimize seepage from the TSF by constructing a cut-off trench, ECD, collection ditches, and seepage pump back system. Install a hydraulic barrier to prevent seepage from TSF Site C reaching Lake 01538UEUT (Lake 15) in the adjacent Creek 705 watershed. Construct a runoff and seepage collection ditch below the East Dump and direct collected water to the TSF.
• Segregate PAG/ML waste rock and submerge with tailings in the TSF. Submerge PAG1 and PAG2 waste rock within one year and NAG3 within five years. Treat acidic runoff from the LGO and temporary ore stockpiles with lime and discharge to the TSF.
• Pump water from Tatelkuz Lake to a water reservoir below the ECD to meet instream flow needs in Davidson Creek. Commence flow maintenance immediately prior to the start of Project-induced flow reductions and operate through the operations and closure phases until the TSF discharges to Davidson Creek.
• Treat the tailings from the mill using the SO_2/air process prior to discharge to the TSF. Place a minimum 30 cm overburden layer on top of the tailings and waste rock in the TSF during closure to isolate the supernatant from TSF porewater.
Environmental Management System
• Develop a comprehensive EMS, based on prevention, mitigation, and management of impacts identified in the EA. The EMS will guide implementation of the Proponent's environmental policy throughout the life of the Project.
Atmospheric Environment
• Implement a dust control plan including water haul roads when required and install dust control systems for the crusher.
Aquatic Environment
• Divert Lake 16 through a newly constructed stream channel to Lake 01538UEUT (Lake 15) in the adjacent Creek 705 watershed to maintain a self-sustaining population of rainbow trout in Lake 16 (provides connectivity and access to spawning habitat required by this headwater lake population).
• Implement the Fisheries Mitigation and Offsetting Plan for the replacement of loss habitat in Davidson Creek and other watersheds to meet the objectives of the *Fisheries Act*.
• Construct sediment control facilities including diversion and collection ditches, sediment control ponds, and implement BMPs prior to surface disturbance. Maintain flocculent addition systems as contingency measures.
Terrestrial Environment

KEY MITIGATION MEASURES/COMMITMENTS
• Strip and stockpile topsoil for later use in reclamation. Conduct progressive reclamation of the West Dump, TSF Site C and topsoil stockpiles when feasible.
• Develop and implement a Whitebark Pine Management Plan in consultation with applicable regulatory authorities.
Wildlife and Wildlife Habitat
• Continue to support regional management initiatives for ongoing research and monitoring of the Tweedsmuir-Entiako Northern Caribou subpopulation and their habitat use near the mine.
Economic
• Enhance local and regional benefits by increasing the direct employment from the SERSA and procurement of Project goods and services acquired from regional suppliers.
• Continue to support the Community Liaison Committee to identify issues and develop mitigation recommendations related to service provision, housing, and health and social services that might result in costs to local and regional government.
Social
• Provide incentives and inducements to workers to move permanently to the LSA and encourage the Proponent's management team to reside in the SERSA.
• Provide an airstrip on-site (during construction), to facilitate transport of workers from outside the SERSA and provide busing between Vanderhoof and the mine construction and operations camps.
• Undertake upgrades to sections of the Kluskus FSR to enhance transportation safety.
• Provide a self-contained camp and worker rotation policies during the construction phase in order to offset Project demands for regional services.
• Implement a strict no on site alcohol and drug policy and no hunting and fishing policy while on company business.
• Implement policies to promote: no workplace harassment; health, safety and security; multi-cultural workforce considerations; and Aboriginal awareness training.
• Implement a training strategy that will include: - Working with training institutions such as College of New Caledonia and BC Aboriginal Mine Training Association and local education providers to provide training programs and skills upgrading - Partner with local contractors to provide the Proponent's apprenticeship programs - Sourcing and training under-represented groups - Offering scholarships to encourage high school graduation
• Work with local agencies to assist in monitoring community well-being and to take corrective actions where appropriate.
• Work with Aboriginal groups to identify and remove barriers to employment and training.
Land Use
• Communicate with trappers, guide outfitters, farmers, ranchers, livestock and stakeholders to resolve issues when required and/or if applicable. Compensate affected trapline holders in accordance with industry and provincial protocols.
• Implement a Traffic Control and Management Strategy along the ROWs.
• Facilitate movement of livestock and farm machinery across the ROW corridors, where applicable.
• Follow all BC MFLNRO guidelines and requirements for clearing, handling, and hauling beetle-infested wood.
• Establish a group including affected Aboriginal group representatives to discuss access management for the transmission line corridor.
• Participate in regional wildlife and resource management initiatives (specifically for ungulates).
• Provide the results of all water quality sampling to designated First Nations representatives for review.
• Inform workers of sensitive cultural areas, and implementing a policy of reporting and respectful use.
Heritage
• Implement a "chance find" procedure for archaeological and heritage resources.
• Record, analyze, and mitigate physical remains of cultural sites, such as cabins, archaeological sites, culturally modified trees, and trails identified through heritage effects assessments.
• Through bilateral discussion between the Proponent and affected First Nations, the Proponent will facilitate access to the mine site area by First Nations for cultural purposes, provided safe access can be accommodated.
Health
• Maintain an excellent safety culture and operate within an occupational health and safety management system.
• Implement the Country Food Monitoring Plan to Aboriginal groups and agencies.

Note: Project phase: C = construction; CL = closure; O = operations; PC = post-closure;
BMP = best management practice; EA = Environmental Assessment; ECD = Environmental Control Dam; EMS = Environment Management System; FSR = Forest Service Road; ha = hectare; LGO = low-grade ore; LSA = Local Study Area; ML = Metal Leaching; NAG = non-acid generating; PAG = potentially acid generating; ROW = right-of-way; SERSA = Socioeconomic Regional Study Area; TSF = Tailings Storage Facility; UWR = Ungulate Winter Range

8.0 CONCLUSION

The Proponent is submitting the Application as part of the requirements to develop the Project. The Project is a proposed new open pit gold and silver mine and associated ore processing facilities, located 110 km southwest of Vanderhoof in central British Columbia.

The Project incorporates several design measures to avoid sensitive areas (i.e., Blackwater basin, Ungulate Winter Range (UWR)). Further, the Proponent proposes to manage the mine waste in a manner that protects water resources and aquatic biota, including kokanee and rainbow trout, by avoiding surface water discharges during operations and closure phases and by co-disposal of potentially acid generating (PAG) waste rock under water with tailings in order to achieve water quality objectives during the post-closure phase.

Five sites for the TSF were examined and site investigations conducted. Two sites were rejected as they were in the Blackwater River drainage and with those locations, two watersheds would have been affected. The final location was based on extensive geotechnical and hydrogeological site investigations to determine the suitability of dam foundations and permeability of the subsurface, as well as the ability to store all process water during operation and closure.

The Proponent acknowledges that environmental assessment is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate the possible adverse effects of projects on the environment and to encourage decision makers to take actions that promote sustainable development and has endeavoured to satisfy these objectives in the Application documentation.

The scope and details of the effects assessment have been prepared in accordance with the requirements of BC EAO AIR of May 2014 and the final EIS Guidelines of February 2013 prepared by the Agency.

One assessment has been prepared that meets both provincial and federal requirements. On 9 July 2013, the BC EAO issued an Order under section 11 of the BC *EAA* describing the formal scope, procedures, and methods concerning the provincial review of the Project's EA.

Photo ES 34: Pacific Wren near Proposed Transmission Line, September 2012

The Proponent has rigorously followed the EA process. The Application provides the conclusions of the EA and demonstrates that all potential adverse effects of the Project have been identified, assessed, and avoided or mitigated where practicable.

Comprehensive consultation with public, government, and Aboriginal groups was conducted and documented by the Proponent. Stakeholders were provided the opportunity to gain an understanding of the Project and afforded the opportunity to effectively participate in the EA process. The Proponent began the formal consultation process in 2012, and has led or participated in over one hundred public consultation meetings, presentations, government agency and local government meetings, community events, and open houses. The Proponent has also directly engaged with Aboriginal groups who are potentially affected by the Project. A comprehensive record of consultations has been maintained, and issues and concerns raised through these consultations have informed Project planning and design, and have been reflected in the selection and characterization of VCs within the effects assessment as well as proposed mitigation measures.

Appropriate VCs were selected in consideration of Project interactions with the biophysical and human environment, and in consideration of feedback received by the Proponent through the consultation process. The EA was conducted to assess potential effects of the Project on 40 VCs under the five pillars of environment, economy, social, heritage, and health.

In compliance with the BC EAA and the CEAA, 2012 the Proponent applied a rigorous methodology to assess the Project effects and cumulative effects of the Project on the selected VCs under the five pillars.

Baseline characterization provided information and identified important features of the five pillars and associated processes, their interrelationships and interactions, as well as the variability within and among resources, processes, and interactions over the temporal scale as identified in the Application. This information is provided in sufficient detail to allow characterization of each component before any disturbance to the environment attributable to the Project. In describing the environmental components, both scientific and available traditional knowledge was incorporated, as appropriate, as well as the indicators and measures of health and integrity used in the analysis. The baseline characterization comprised all relevant seasonal and temporal variations.

Following identification and selection of VCs, the methodology continued with an assessment of potential and residual effects of the Project on the VCs. Mitigation measures were proposed for each VC, as required, taking into consideration the magnitude and duration of the potential effects of the Project. Under this approach, the potential effects are considered pre-mitigation effects, while the residual effects are predicted to occur subsequent to the application of mitigation measures. The mitigation measures are discussed in relation to their expected effectiveness and associated risk. The residual effects were the basis for the determination of significance.

Notably, the Project incorporates several design measures to avoid sensitive areas (e.g., Blackwater basin, UWR, resort areas). Further, the Proponent proposes to manage the mine waste in a manner that protects water resources by avoiding surface water discharges during the operations and closure phases, and by co-disposal of PAG waste rock under water with tailings in the TSF in order to achieve water quality objectives during all mining phases.

Proposed mitigation measures go beyond adopting best practices. For example, innovative approaches will be incorporated to use the freshwater supply system (i.e., pumping water from Tatelkuz Lake to Davidson Creek) to maintain in-stream flow needs to protect fish and fish habitat. Further, a Fisheries Mitigation and Offsetting Plan is proposed to compensate for loss of fish habitat. A summary of the significance determination for residual and cumulative effects for each VC for the Project is presented in Table ES 7.

Table ES 7: Summary of Significance Determination for Residual and Cumulative Effects

VALUED COMPONENT	DETERMINATION OF SIGNIFICANCE PROJECT RESIDUAL EFFECT	DETERMINATION OF SIGNIFICANCE CUMULATIVE EFFECT
Atmospheric Pillar		
Noise and vibration	Not significant (negligible to minor)	n/a
Climate change	Not significant (negligible)	n/a
Air quality	Not significant (minor)	Not significant (minor)
Aquatic Pillar		
Surface water flow	Not significant (negligible to moderate)	n/a
Surface water quality	Not significant (minor)	Not significant (minor)
Sediment quality	Not significant (minor)	n/a
Groundwater quantity	Not significant (negligible to minor)	n/a
Groundwater quality	Not significant (minor)	n/a
Wetlands	Not significant (minor to moderate)	Not significant (minor)
Fish	Not significant (negligible to moderate)	n/a
Fish habitat	Not significant (negligible to moderate)	n/a
Terrestrial Pillar		
Physiography and topography	Not significant (negligible to moderate)	Not significant (minor)
Surficial geology and soil cover	Not significant (negligible)	n/a

VALUED COMPONENT	DETERMINATION OF SIGNIFICANCE PROJECT RESIDUAL EFFECT	DETERMINATION OF SIGNIFICANCE CUMULATIVE EFFECT
Soil quality	Not significant (negligible)	n/a
Ecosystem composition	Not significant (minor to moderate)	Not significant (moderate)
Plant species and ecosystems at risk	Not significant (minor to moderate)	Not significant (moderate)
Amphibians	Not significant (negligible)	n/a
Water birds	Not significant (negligible to minor)	Not significant (minor)
Forest and grassland birds	Not significant (minor to moderate)	Not significant (minor to moderate)
Moose	Not significant (negligible to minor)	Not significant (minor)
Caribou	Not significant (negligible to moderate)	Not significant (moderate)
Grizzly bear	Not significant (minor)	Not significant (minor) to significant
Furbearers	Not significant (negligible to minor)	Not significant (minor)
Bats	Not significant (negligible)	n/a
Invertebrates	Not significant (negligible to minor)	Not significant (minor)
Economic Pillar		
Provincial economy	Not significant (negligible)	n/a
Regional and local employment and businesses	Not significant (minor)	n/a
Regional and local government finance	Not significant (negligible)	n/a
Social Pillar		
Demographics	Not significant (negligible to minor)	n/a
Regional and community infrastructure	Not significant (negligible to minor)	n/a
Regional and local services	Not significant (negligible to minor)	n/a
Family and community wellbeing	Not significant (negligible to minor)	n/a
Non-traditional land and resource use	Not significant (minor)	Not significant (negligible to minor)
Current land and resource use for traditional purposes	Not significant (negligible to moderate)	Not significant (minor to moderate)
Visual resources	Not significant (minor to moderate)	Not significant (moderate)
Heritage Pillar		
Archaeological sites	Not significant (negligible)	n/a
Historic heritage sites	Not significant (negligible)	n/a
Paleontological resources	Not significant (negligible)	n/a
Health Pillar		
Environmental exposures	Not significant (negligible)	n/a
Workers health and safety	Not significant (negligible)	n/a

No significant residual Project effects have been identified in the EA.

Following the assessment of the residual effects of the Project, a CEA was conducted for each VC for which there will be a residual effect predicted to exceed non-significant negligible. The CEA of these VCs considered projects and activities past, present, certain future, and reasonably foreseeable future. The rationale for the selection of projects and activities (both included and excluded) considered in the CEA is presented in the Application.

Two significant cumulative effects were identified. One is the mortality risk of the Grizzly Bear VC. The project contribution to the Grizzly Bear VC is Not Significant but there is already a significant cumulative impact even without the project. The second is in the CLRUTP VC on trapping for the Lhoosk'uz Dene Nation trap line holder TR0512T014. The main driver for this cumulative effect is

on existing forestry license that cover a significant portion of the trap line.

The Proponent has engaged with Aboriginal groups potentially affected by the Project since acquiring the Project property in 2011.

The Proponent has provided site tours, attended numerous meetings with Aboriginal leadership, held and encouraged community meetings, and participated in one-on-one meetings with key community members who are most dependent on local resources for spiritual, cultural, and basic needs (e.g., Elders and knowledge holders and land users such as trappers and harvesters) in an effort to gather TK/TLU information.

Mitigation measures were developed to address the potential adverse Project effects. Effects on specific wildlife and vegetation species, including those harvested by First Nations, are considered in studies for Wildlife, Fish and Fish Habitat, Landscape, and Soils and Vegetation. Implementation of environmental management plans (EMPs) will minimize or help avoid effects throughout the life of the Project.

The Proponent used the information provided by Aboriginal groups, regarding traditional land and resource use, to the extent that such information was made available. The Proponent is committed to considering any new information provided to inform detailed engineering design and post-EA permitting as well as EMPs for the construction, operations, and closure of the mine.

The Proponent makes it a priority to act as a responsible mining company, from management practices, to health and safety standards, to stewardship of the environment. The Proponent understands that business activities have an effect on the people who work in the Proponent's operations, their environment, and on their communities. The Proponent's growth and success as a company depends on the long-term economic, social, and environmental sustainability of each of the communities in which the company works and lives.

The Proponent is committed to maintaining the highest health and safety standards in company mines and development projects. The Proponent seeks to minimize and mitigate the impacts of mining on the environment, and to practice effective, progressive rehabilitation of mined areas.

The Project will make a major contribution to social and economic well-being in BC, especially in central BC, where Project spending on labour, goods, and services will provide opportunities for regional residents, and bring additional workers and their families into the region. By providing well-paying jobs, reducing local unemployment levels, purchasing goods and services from regional businesses, and contributing to economic and population growth, the Project will improve economic and community stability, and offset some of the employment losses that have occurred in the region due to declines in the forest industry between 2006 and 2011. The District of Vanderhoof, the Village of Fraser Lake, and the City of Prince George will be the major beneficiaries of the Project, although Project benefits will extend into other communities, both Aboriginal and non-Aboriginal, within central BC.

In light of the significant benefits offered by the Project, that there are no significant adverse residual Project effects, and that the Project will not contribute to incremental significant cumulative effects given that necessary mitigation measures will be implemented, the Proponent respectfully requests:

- An EA Certificate for the proposed Project; and
- The issuance of a Federal ministerial decision statement that the Project is not likely to cause significant adverse environmental effects.