EAO | Environmental Assessment Office

Assessment Report for Blackwater Gold Mine Project (Blackwater)

With respect to the Application by New Gold Inc. for an Environmental Assessment Certificate pursuant to the *Environmental Assessment Act,* S.B.C. 2002, c.43

May 17, 2019

BRITISH COLUMBIA

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ACRONYM LIST

µg/m³	Micrograms per cubic metre
AAQO	Ambient Air Quality Objectives
Act	*Environmental Assessment Act*
AEMP	Aquatic Effects Monitoring Plan
Agency	Canadian Environmental Assessment Agency
AIA	Archaeological Impact Assessment
AIR	Application Information Requirements
AMP	Adaptive Management Plan
AOA	Archaeological Overview Assessment
Application	Application for an Environmental Assessment Certificate
AQEMP	Air Quality and Emissions Management Plan
AQO	Air quality objective
ARD	Acid Rock Drainage
ASL	Ambient Sound Level
BAP	Best available practices
BAT	Best available technology
BC	British Columbia
BCCDC	BC Centre for Disease Control
BCIOM	British Columbia Input/Output Model
BCOGC	British Columbia Oil and Gas Commission
BMP	Best Management Practices
BNRD	Bulkley-Nechako Regional District
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria air contaminants
CCME	Canadian Council of Ministers of the Environment
CCN	Cheslatta Carrier Nation
CEAA 2012	*Canadian Environmental Assessment Act* (2012)
CEMMP	Community Effects Monitoring and Management Plan
CEMP	Construction Environmental Management Plan
CH_4	Methane
CHR	Cultural heritage resources
cm	Centimetres
CMT	Culturally Modified Trees
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon Dioxide Equivalents
CO_2e/y	Carbon Dioxide Equivalents per year
COPC	Contaminant of potential concern

COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPD	Certified Project Description
CRD	Cariboo Regional District
CSFN	Carrier Sekani First Nations
Db	Decibel
dBA	A-weighted decibel
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
ECA	Equivalent clearcut are
ECCC	Environment and Climate Change Canada
ECD	Environmental control dam
ECDA	Economic and Community Development Agreement
EIS	Environmental Impact Statement
EMA	*Environmental Management Act*
EMB	Environmental Monitoring Board
EMC	Environmental Management Committee
EMP	Environmental Management Plan
EMPR	Ministry of Energy, Mines and Petroleum Resources
EMS	Environmental Management System
ENV	Ministry of Environment and Climate Change Strategy
ePIC	EAO electronic Project Information Centre
ERP	Emergency Response Plan
ESCP	Erosion and Sediment Control Plan
ESPRP	Emergency and Spill Preparedness Response Plan
ESF	Explosives storage facility
ESI	Environmental Stewardship Initiative
Expert Report	Independent Expert Engineering Investigation and Review Panel
FDMP	Fugitive Dust Management Plan
FLNRORD	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
FMOP	Fisheries Mitigation and Offsetting Plan
FSR	Forest Service Road
FWR	Freshwater reservoir
FWSS	Freshwater supply system
GDP	Gross domestic product
GHG	Greenhouse Gases
GGIRCA	*Greenhouse Gas Industrial Reporting and Control Act* (2016)

GIS	Geographic Information Systems
ha	Hectare
HC	Health Canada
HCA	Heritage Conservation Act
HHERA	Human Health and Ecological Risk Assessment
HHRA	Human Health Risk Assessment
HLRA	High-Level Risk Assessment
HQ	Hazard quotients
Kg	Kilogram
kg/t	Kilogram per tonne
km	Kilometre
km^2	Square kilometre
kt	Kilotonne
kt/y	Kilotonne per year
kV	Kilovolt
L	Litres
LDN	Lhoosk'uz Dené Nation
LGO	Low-grade ore
LNG	Liquified natural gas
LoE	Letter of Expectations
LSA	Local Study Area
m	Metre
m^2	Square metre
m^3	Cubic metre
MAA	Multiple account analysis
magl	Metres above ground level
masl	Metres above sea level
MDMER	Metal and Diamond Mining Effluent Regulation
mg/L	Milligrams per litre
MIRR	Ministry of Indigenous Relations and Reconciliation
ML	Metal leaching
mm	Millimeters
mm/s	Millimetres per second
MMO	Major Mines Office
MOU	Memorandum of Understanding
MPOI	Maximum point of impingement
MRWTP	Metals Removal Water Treatment Plant
Mt/y	Million tonnes per year
MW	Megawatt
MWWMP	Mine Waste and Water Management Plan
N_2O	Nitrous oxide
NAG	Non-Acid Generating
NEF	Noise Exposure Forecast
NF	Nanofiltration
NFN	Nazko First Nation

NHA	Northern Health Authority
NO_2	Nitrogen dioxide
NPRI	National Pollutant Release Inventory
NRCan	Natural Resources Canada
NTBB	Nee-Tahi-Buhn Band
NTLRU	Non-traditional land and resource use
NWFN	Nadleh Whut'en First Nation
PAG	Potentially Acid Generating
PAH	Polycyclic Aromatic Hydrocarbon
PCP	Public Comment Period
PM	Particulate Matter
PM_{10}	Particulate matter (diameter < 10 micrometres)
$PM_{2.5}$	Particulate matter (diameter < 2.5 micrometres)
PMF	Probable maximum flood
PNA	Proposed new transmission line alignment
PPA	Potential Problem Analysis
PSL	Permissible sound level
PY	Person years
RCMP	Royal Canadian Mounted Police
RDEA	Regional District Electoral Area
RoW	Right of way
RSA	Regional Study Area
RTI	Aboriginal Rights and Title Interests
SARA	*Species at Risk Act*
SCP	Sediment Control Pond
SDNA	Southern Dakelh Nation Alliance
SEL	Sound exposure level
SERSA	Socioeconomic Regional Study Area
SFN	Saik'uz First Nation
SO_2	Sulphur dioxide
StFN	Stellat'en First Nation
STN	Skin Tyee Nation
Sulf-IX	Suphate-ion exchange
t/d	Tonnes per day
t/y	Tonnes per year
TAA	Tailings alternatives assessment
TEK	Traditional Ecological Knowledge
TFCS	Temperature and flow control system
TLA	Transmission line alignment
TLU	Traditional Land Use
TOC	Table of Conditions
tpa	Tonnes per annum
TRV	Toxicity reference value
TSF	Tailings storage facility

TSP	Total Suspended Particulates	WHO	World Health Organization
TSS	Total Suspended Solids	WMA	Wildlife Management Area
UFN	Ulkatcho First Nation	WQG	Water Quality Guidelines
UWR	Ungulate Winter Range	WSA	Water Sustainability Act
VC	Valued Component	WTP	Water treatment plant
VLI	Visual Landscape Inventory	YDWL	Yinka Dene Water Law
VOC	Volatile organic compounds	YFN	Yekooche First Nation

PART A – INTRODUCTION AND BACKGROUND

1 PURPOSE OF THE ASSESSMENT REPORT

The purpose of this Assessment Report (Report) is to summarize the process and findings of the Environmental Assessment (EA) conducted by the Environmental Assessment Office (EAO), on the Application for an EA certificate (EAC), submitted by New Gold Inc. (New Gold) to the EAO for the Blackwater Gold Mine Project (Blackwater).

The EAO has prepared this report as the Assessment Report for the provincial Ministers who are responsible for making a decision on Blackwater under Section 17 of the *Environmental Assessment Act* (the Act). For mining projects, the deciding provincial Ministers are the Minister of the Environment and Climate Change Strategy and the Minister of Energy, Mines and Petroleum Resources. Blackwater is also subject to review under the *Canadian Environmental Assessment Act,* 2012 (CEAA 2012) and underwent a cooperative EA. A cooperative EA means that the EAO and the Canadian Environmental Assessment Agency (Agency) work together in a coordinated way to align process steps, consultation activities, public comment periods (PCPs), and other EA process activities to the extent possible, while conducting separate reviews on Blackwater. This cooperative approach included a Working Group comprised of federal and provincial officials, Indigenous groups[1], and local governments that informed the conduct of the EA.

This Report:

- Describes Blackwater, the cooperative EA process, and consultation undertaken during the EA;
- Documents work undertaken by the EAO to consult and accommodate Indigenous groups in keeping with the Supreme Court of Canada's direction in *Haida v. Minister of Forests* and related case law;
- Identifies the potential environmental, economic, social, health and heritage effects of Blackwater, including cumulative effects and how New Gold proposes to mitigate adverse effects;
- Identifies the residual effects after mitigation;
- Summarizes all social and environmental management plans (EMPs) identified in the Application or during Application Review;
- Identifies the conditions proposed by the EAO to prevent or mitigate significant adverse environmental, social, economic, health or heritage effects, as well as potential adverse effects to asserted or established Aboriginal rights, including title (Aboriginal Interests); and
- Sets out conclusions based on Blackwater's potential for significant adverse residual effects with respect to the Act.

[1] In this report, the term "Indigenous groups" is used to collectively refer to all First Nations and Aboriginal groups, except when the reference pertains to Aboriginal Interests.

Generally, this Report does not replicate the content presented in the Application. In the preparation of this Report, the following information has been considered:

- The Application and supplemental information provided by New Gold;
- Advice provided on the Application and supplemental information by the Working Group and Indigenous groups; and
- Input received from members of the public.

This information has been posted to the EAO's electronic Project Information Centre (ePIC) under the project name Blackwater Gold.

1.1 READER'S GUIDE TO THE ASSESSMENT REPORT

Each Section in Part B of this Assessment Report focuses on a particular Valued Component (VC), and is structured with the following headings:

- **Background** – contains relevant background information, primarily found in the Application.
- **Potential Project Effects and Proposed Mitigations Identified in the Application** – summarizes New Gold's assessment findings, proposed mitigation measures, as provided in its Application for an EAC and supplemental information. In some chapters, this section may be titled "Potential Project Effects and Proposed Mitigations Identified in the Application and Supplemental Information" where New Gold provided substantial supplemental assessment information.
- **Potential Project Effects and Proposed Mitigations Identified During Application Review** – describes key issues and concerns raised by Working Group members and the public during the Application Review period. Each description of a key issue or concern is typically followed by New Gold's response, including critical outcomes from any additional analysis. Many of the EAO's proposed conditions are mitigations to further address these key issues.
- **The EAO's Characterization of Residual Effects** – contains the EAO's objective analysis of all information received from New Gold, the Working Group and the public, and describes the EAO's understanding of residual adverse effects of Blackwater in consideration of the following factors: Context, Magnitude, Extent, Duration, Reversibility, Frequency, Likelihood, and Confidence.
- **Cumulative Effects Assessment** – contains the EAO's analysis and determination of residual cumulative effects, including past, present and reasonably foreseeable projects and activities with the potential to act cumulatively with Blackwater.
- **The EAO's Conclusions** – summarizes the EAO's significance determination, if applicable. Where the EAO does not conclude on significance of residual adverse effects reference to the applicable VC is provided.

2 PROJECT OVERVIEW

2.1 PROPONENT DESCRIPTION

The Proponent for Blackwater is New Gold Inc., a Canadian-focused intermediate gold mining company. New Gold currently has a portfolio of four producing assets located in United States, Australia, Mexico and Canada. New Gold was incorporated in British Columbia (BC) in 1980 and operates corporate offices in Vancouver and Toronto. Blackwater would be managed out of New Gold's Vancouver office at:

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2.2 PROJECT DESCRIPTION AND SCOPE

2.2.1 PROJECT DESCRIPTION AND LOCATION

Blackwater is located in central BC, approximately 110 kilometres (km) southwest of Vanderhoof and approximately 160 km southwest of Prince George (Figure 1). The Blackwater area is along the northern flanks of Mt. Davidson in the Nechako Plateau within the Cariboo Regional District (CRD) Area I. The current land use in the Blackwater area is predominately mineral exploration and forestry. Blackwater access by vehicle is via the Kluskus Forest Service Road (FSR), the Kluskus-Ootsa FSR and the mine exploration road, which connects to the Kluskus-Ootsa FSR at kilometre 124.5. The Kluskus FSR joins Highway 16 approximately 10 km west of Vanderhoof. The proposed transmission line would connect to an existing BC Hydro substation approximately one km south of the community of Endako.

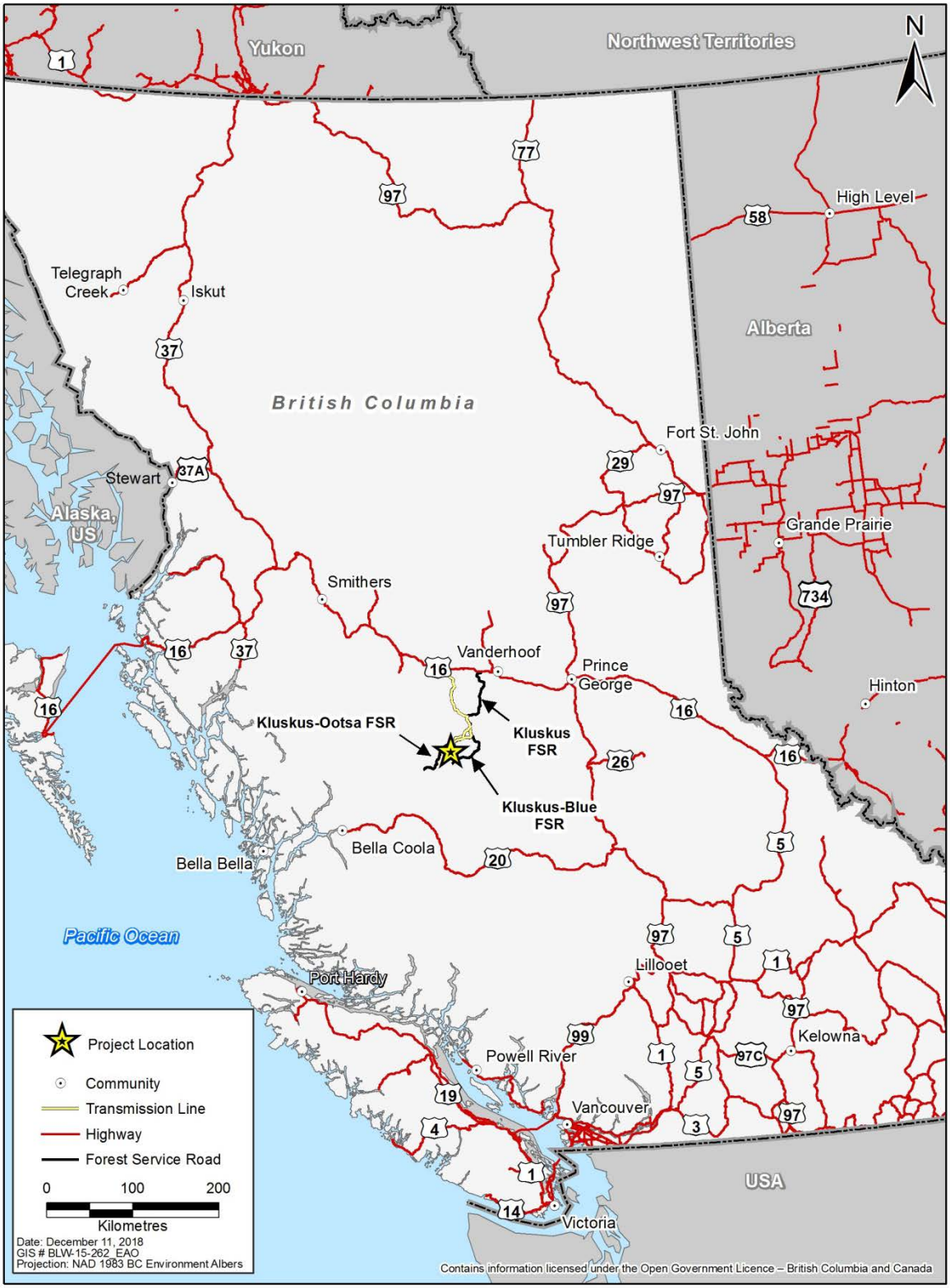

Figure 1: General Project Location

The proposed mine site is located within the asserted traditional territories of Lhoosk'uz Dené Nation (LDN), Ulkatcho First Nation (UFN), the Skin Tyee Nation (STN) and the Tsilhqot'in Nation. Other components of Blackwater, including the existing Kluskus FSR and the transmission line, cross the asserted traditional territories of Nadleh Whut'en First Nation (NWFN), Saik'uz First Nation (SFN), Stellat'en First Nation (StFN), Nazko First Nation (NFN), Nee-Tahi-Buhn Band (NTBB), Cheslatta Carrier Nation (CCN), and Yekooche First Nation (YFN).

The closest Indian Reserve to the mine site is LDN's Tatelkus Lake Indian Reserve 28, which is located approximately 15 km northeast of the Blackwater mine site, and approximately one km from the proposed transmission line. The Stellaquo 1 Reserve (StFN) and the Seaspunkut 4 Reserve (NWFN) are located approximately three km and nine km away from the transmission line respectively. The Targe Creek Reserve (CCN) is located approximately seven km from the transmission line. The closest UFN Indian Reserve is the Ulkatcho 6 Reserve, located 54 km from the mine site.

The closest Indian Reserve to the Kluskus FSR is the Clustalach Reserve 5 (SFN), which is located approximately 1.8 km east of the FSR.

New Gold is proposing to construct and operate an open pit silver and gold mine with an expected production of 60,000 tonnes of ore per day (t/d) (22 million tonnes per year [Mt/y]) of gold and silver ore over a mine life of 17 years. The overall footprint of the Blackwater mine site would be an approximate three km radius.

The construction of all project components would take place over two years. Following this, mining and ore processing would occur over 17 years. The freshwater supply system (FWSS) providing water to the mine and Davidson Creek would operate for about 42 years. Treatment of mine water and maintenance and monitoring of the mine site would continue after ore processing ends, or until water treatment is no longer needed. Water treatment is expected to be required for 300+ years. During this time the transmission line, mine access road, and Kluskus and Kluskus Ootsa FSRs would continue to be used. The airstrip and its facilities would be in place for about 18 years, although its regular use would be during the construction phase. Reclamation activities in the mine site would begin during mining operations, continue for 24 years after ore processing ends, then be completed after water treatment infrastructure is no longer needed.

The temporal boundary is defined as the life of the project, from Construction through Post-Closure (phases described below). For the effects assessments within this report, the temporal boundaries are as follows:

- Construction phase: Years -2 and -1;
- Operation phase: Years 1 to 17;
- Closure phase: Years 18 to 41; and
- Post-Closure phase: Years 42+.

Construction: The phase of Blackwater during which physical alteration of land, vegetation or any other aspect of the natural environment, occurs.

Operations: The phase of Blackwater beginning with the commercial operation date, which is the date on which commercial mill production is achieved and ending when commercial mill production permanently ceases, and the Closure phase begins. Operational water treatment begins during this phase.

Closure: The phase of the Project where all development and production ceases. Mining facilities and infrastructure, except for the transmission line, mine access road and water treatment and related infrastructure required for ongoing monitoring and maintenance, are decommissioned and/or removed from the Project Site. Reclamation activities continue to be conducted and completed.

Post-Closure: The phase of the Project which begins following the closure phase, when mine contact water is discharged to the environment and during which water treatment, maintenance and monitoring of the Project Site occurs. The phase ends when water treatment is no longer needed, remaining mine facilities and infrastructure are decommissioned and/or removed from the Project Site, and final reclamation activities are conducted. There is no end-date for this phase.

2.2.2 PROJECT COMPONENTS AND ACTIVITIES

As shown in Figure 2 below, Blackwater would include the following major components and activities.

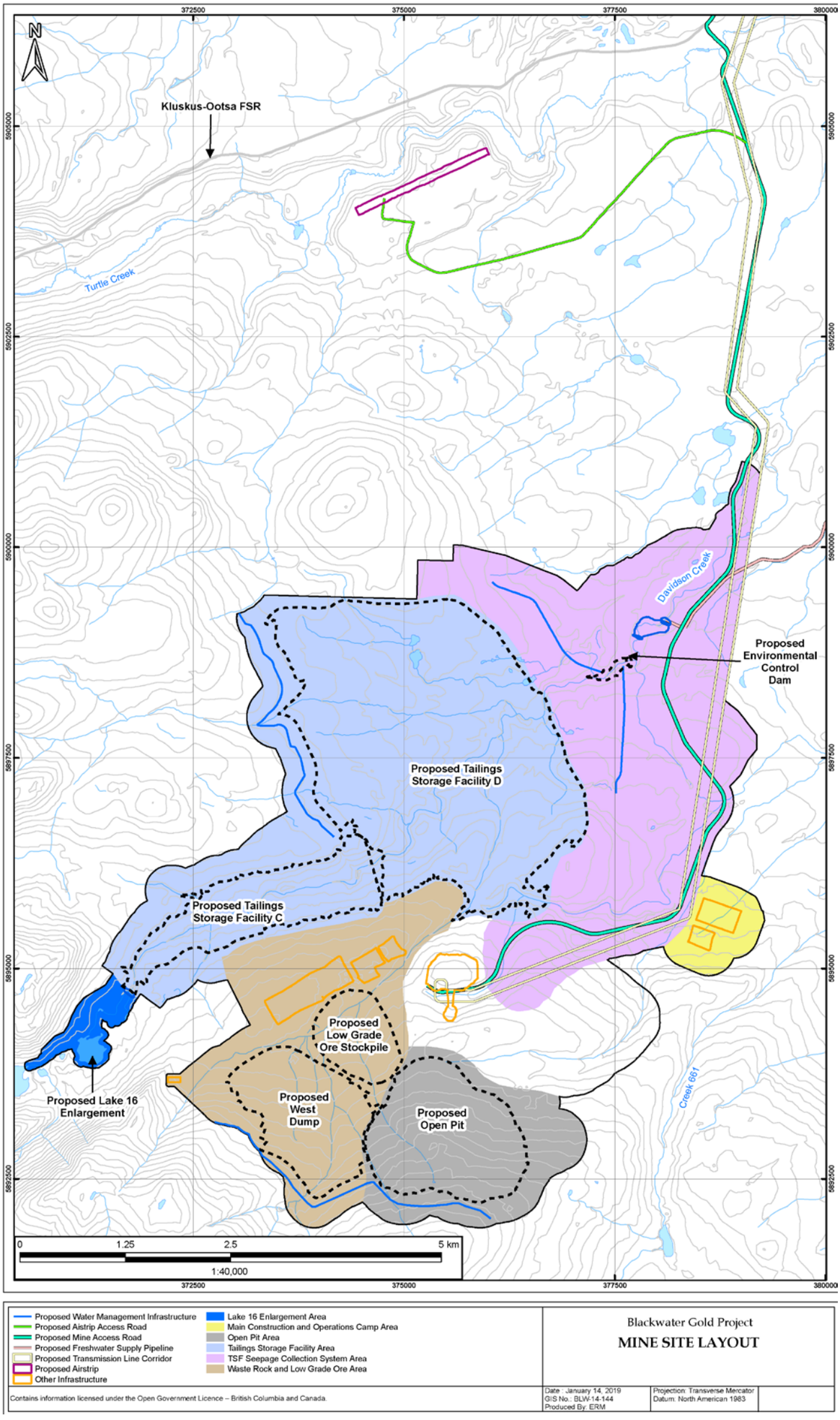

Figure 2: General Mine Site Arrangement

MINE SITE

The mine site would occupy approximately 4400 hectares (ha) to accommodate all ore processing, the mine, mine waste, and on-site infrastructure.

OPEN PIT

The open pit portion of Blackwater located on the south side of the mine site would comprise of a total footprint of approximately 238 ha, with approximate size of two km from east to west, and 1.5 km from north to south. The open pit would have an expected depth of approximately 550 metres (m) below ground surface.

OVERBURDEN AND WASTE ROCK DUMPS

Initially the design for Blackwater included two waste rock dumps located at each side of the open pit (East and West). However, during Application Review, New Gold proposed to remove the East waste rock dump and utilize only the West waste rock dump. The West waste rock dump would encompass 172 ha to store 87 Mt of Non-Acid Generating (NAG) waste rock and overburden, with an elevation of 1535 m above sea level (masl) (160 m above ground level [magl]).

LOW-GRADE ORE STOCKPILE

The low-grade ore (LGO) stockpile would have a footprint of approximately 76 ha, with a top elevation of 1,480 m to store approximately 58 Mt of LGO. The LGO would be stockpiled to the northwest of the open pit on a 0.5 m liner of compacted overburden. The LGO stockpile location was chosen to minimize the risk of impacts to the surrounding environment, including limiting surface water control requirements, and would be removed at the end of Operations.

CONSTRUCTION LAYDOWN AREAS

Construction laydown areas would amount to approximately 31 ha in total.

TOPSOIL STOCKPILES, BORROW PITS

Two topsoil stockpiles would exist at the mine site, encompassing approximately 10 ha distributed in two locations (north and east sides of the tailings storage facility [TSF]). This stockpiled soil would be used to support reclamation activities.

Borrow areas and quarries would total approximately 73 ha, comprising of 43 ha for the Site D main dam, and 30 ha for the Site C main dam. Borrow areas would also include a sand and gravel screening plant and cement batch plant with a footprint of approximately eight ha.

TAILINGS STORAGE FACILITY AND ASSOCIATED STRUCTURES

The TSF would be constructed to store a range of waste products including Potentially Acid Generating (PAG) rock, 784 Mt of tailings, and potentially metal leaching (ML) NAG waste rock. The TSF includes two facilities: TSF C and TSF D. The combined TSF would span approximately 1,117 ha including 192 ha for TSF

Site C and 925 ha for TSF Site D. The TSF Site D and Site C dams would be 100 m and 140 m tall, respectively, and would hold up to 30 million m^3 of water.

WATER MANAGEMENT STRUCTURES

A variety of water management structures would be used at Blackwater, including, but not limited to:

- Diversion ditches for non-contact water and seepage collection trenches to manage water at the mine site;
- Environmental control dam (ECD) and interception trenches, downstream of the TSF D main dam to collect runoff and seepage from the TSF;
- A freshwater reservoir (FWR), with a capacity of around 400,000 m^3, downstream of the ECD, to store and release freshwater managed through the FWSS to support instream flow needs for Davidson Creek; and
- Lake 16 enlargement and Lake 15/16 connector channel for the passive management of surface water upstream of the TSF.

PROCESS PLANT SITE

The plant site would consist of 35 ha to process 60,000 t/d (22 Mt/y) of ore and would include industrial buildings, a crusher and a conveyer. In addition, the plant site would have an area of storage of hazardous materials. The process plant would be used to create doré bars and include a cyanide destruction circuit.

New Gold plans to use active water treatment in the Operation, Closure and Post-Closure phases. The water treatment plants (WTPs) would have a footprint of approximately 55 ha within the mine site.

WATER TREATMENT PLANTS

During Application Review, New Gold added a WTP for operational water treatment and discharge in order to reduce the volume of water stored in the TSF and the potential effects of an accident or malfunction related to a failure of the TSF. New Gold added a second WTP to allow the use of the TSF pond water for process plant operations rather than pumping it from Tatelkuz Lake, and to reduce the potential effects to fish and fish habitat and fishing activities on the lake. The proposed WTPs would also replace the earlier proposed semi-passive water treatment wetlands to address uncertainty regarding the effectiveness of wetland treatment systems in cold climates, raised by federal and provincial reviewers.

CONSTRUCTION AND OPERATION CAMPS

The construction camp would encompass eight ha, with capacity to accommodate 1,000 to 1,500 personnel during construction, while the operations camp would encompass five ha, with capacity to accommodate up to 500 personnel during operations. The operations camp would be located southwest of the construction camp and would utilize existing auxiliary services.

EXPLOSIVES STORAGE

The explosives storage facility (ESF) and emulsion plant would be west of the mine site, approximately two km away from any substantial structures. The ESF would store explosives, used for blasting in the open pit,

in modified shipping containers approved for use as explosives storage. The ESF would be located in a secure area with a gated entrance. Explosives would be trucked to site and stored at the ESF until required.

HAZARDOUS MATERIAL STORAGE AND DISTRIBUTION

Hazardous material would be stored at the plant site. It is expected that materials transported to the mine site would include reagents (for example, cyanide), explosives and blasting agents.

TRUCK SHOP AND WAREHOUSING FACILITIES

The main truck stop and warehouse facility would be an insulated, pre-engineered building approximately 1,000 m west of the main mill building. The purpose of the truck stop would be to maintain mine vehicles, including six bays for heavy mine vehicle repair and preventative maintenance. The warehouse facility would be used for storing equipment, parts, and consumables and would have internal forklift access to the truck shop.

FUEL STORAGE AND DISTRIBUTION

Fuel would be delivered by tanker truck to the main storage tanks at the mine site. At the main fuel storage area, located on a lined surface and a constructed retaining wall, fuel would be dispensed directly from the tanks to haul trucks and fuel transport trucks. Fuel transfer trucks would deliver to various smaller tanks at the process plant site and deliver to mobile equipment.

POTABLE WATER SUPPLY

Potable water for the construction and operations camps would be supplied from drinking water wells, located approximately one km east of the camp, and treated in modular potable WTPs. Treated water would be stored in a storage tank which would provide more than 24 hours of water needed during construction and more than four days of storage during operations.

SEWAGE TREATMENT AND DISPOSAL

Sewage treatment at Blackwater would consist of an aerated sewage lagoon and two temporary package plants, each sized for use by 500 persons. Treated effluent would be pumped to a rapid infiltration basin for final disposal to ground.

SITE WASTE MANAGEMENT FACILITIES

New Gold intends to designate temporary waste storage and collection areas adjacent to key sources of waste production, including the laydown area, camps and process buildings. All stored wastes would be appropriately contained in metal bins, barrels and pails. Waste would be transported from collection points for disposal at one of three end points: incinerator, on-site landfill, or off-site, hauled by appropriate contractors to an approved recycling or waste facility.

NON-HAZARDOUS WASTE INCINERATOR

The existing exploration camp at Blackwater uses an incinerator. Incineration would continue during Construction, Operations and into early Closure.

BACKUP POWER GENERATION FACILITIES

In the event of a utility power failure, Blackwater would have emergency power available from a standby power station sized to provide power to the process and ancillary electrical equipment. The plant would consist of a minimum of two modular gensets rated at a nominal 3.0 megawatts (MW). This source would be used as backup for the permanent camp.

ADMINISTRATION AND CHANGE FACILITIES

The administration building and change facilities would consist of a modular complex adjacent to the emergency services building and south of the truck stop building.

EMERGENCY SERVICES BUILDING

An emergency services building would be constructed and would house bays for an ambulance, fire truck and a first aid clinic. Other space in this building would be available to store mine rescue and firefighting equipment, paramedic rooms and a waiting area.

FIRE WATER DISTRIBUTION

The fire/ freshwater storage tank for the construction and operations camps would have a reserve supply of 170 m^3 of fire protection water. This water would be sourced from Tatelkuz Lake.

FRESHWATER SUPPLY SYSTEM

The FWSS would consist of pipeline approximately 14 km in length, with a 10 m right of way (RoW) (total footprint of over 21 ha), which would pump freshwater from Tatelkuz Lake to the FWR. This water would be used both to maintain adequate water flows in Davidson Creek and for mineral processing. The pumping station located on the shores of Tatelkuz Lake would include a construction laydown area of approximately 100 m by 100 m in size. In addition, the pipeline would be placed adjacent to a road roughly five m to 10 m wide.

TRANSMISSION LINE

In the Application, New Gold proposed to construct a 230 kilovolt (kV) transmission line to power Blackwater, which would originate at BC Hydro's Glenannan substation near Endako, BC. The transmission line would extend up to 140 km, within an up to 50 m wide RoW, for a total footprint of over 561 ha. A total of 134 km of transmission line access roads would be required, of which 93 km would be new roads and 41 km would be upgrades to existing roads.

During Application Review, New Gold proposed routing changes to the transmission line alignment (TLA) as a result of recommendations from Indigenous groups and Working Group members. Three alternatives are proposed ranging from 134 to 139 km long with an up to 50 m RoW. Temporary access roads for the construction and maintenance of the transmission line could be the entire length of the Transmission line but contained within the transmission line RoW.

UPGRADES TO KLUSKUS-OOTSA FSR

The realignment portion of the Kluskus-Ootsa FSR would be up to two km long and 30 m wide.

MINE ACCESS ROAD

The mine site access road would be designed to accommodate the volumes, weights, and types of load anticipated during all phases of Blackwater. The mine access road is expected to start at km 124.5 of the Kluskus-Ootsa FSR and would occupy approximately 28 ha. The road would be up to 16 km long with a 20 m RoW.

AIRSTRIP AND HELIPAD

An airstrip is planned for Blackwater for use during the Construction phase in order to increase accessibility and reduce travel time. The Blackwater airstrip is to be built near the mine site and is intended to be 1.7 km long and 100 m wide. The airstrip would require an approximately 5.7 km long access road with a total RoW area of 5.5 ha. The airstrip may also be used during the Operations phase.

A 10 m square helipad would be constructed in a separate previously cleared area within the 200 m wide airstrip corridor. The final location of the helipad would be determined during detailed project design.

2.2.3 ALTERNATIVE MEANS OF UNDERTAKING THE PROJECT

Section 2.5 of the Application presents New Gold's evaluation of alternative means of undertaking Blackwater. New Gold's September 2015 report[2] updated the alternative assessment of the TSF, in response to the EAO's requirement for an analysis of Best Available Technology (BAT) that was developed as a result of the recommendations of the *Independent Expert Engineering Investigation and Review Panel Report of the Mount Polley Tailings Storage Facility Breach*. See "Alternative Assessment of the tailings Storage and Waste Rock Facilities" below for more information about the TSF alternatives assessment.

New Gold's alternative means of carrying out Blackwater were initially screened against the following criteria:

- Alternative provides a viable solution to the problem or opportunity to be addressed;
- Alternative is practical, financially realistic and economically viable;
- Alternative uses or relies upon proven technologies at the scale required;
- Alternative is technically feasible at the scale required;
- Alternative is within the ability of New Gold to implement;
- Alternative can be implemented within the defined study area (where applicable) and required time frame; and
- Alternative has a reasonable expectation of being consistent with relevant environmental and planning objectives, policies, and decisions.

[2] *Blackwater Gold Project: Assessment of Alternatives for the Blackwater Gold Project Tailings Storage Facility*

Only alternatives that met all of the above screening criteria were brought into the detailed assessment of alternatives, as New Gold did not consider merit in providing a more detailed evaluation of alternatives, which are, for example, not financially viable, not technically feasible, or not within the ability of the Proponent to implement.

The following performance objectives (or a subset thereof, as appropriate) were used in the evaluations:

- Cost effectiveness;
- Technical applicability and/or system integrity and reliability;
- Ability to service the site effectively;
- Effects on the natural environment;
- Effects on the socio-economic environment; and
- Amenability to closure, reclamation, and post-closure management (if applicable).

New Gold analyzed alternative means of undertaking Blackwater using the following general approach:

- For an alternative to be preferred, it must, as a minimum, obtain preferred or acceptable ratings for all performance objectives; therefore, an alternative was rejected if it had an unacceptable rating for any single performance objective; and
- The alternative that received the greatest number of preferred ratings was not necessarily the best, or most preferred, overall alternative, as it may be that one or two performance objectives are more important and override all other objectives, so long as a minimum rating of acceptable is attained for the less important objectives.

The alternative means of undertaking Blackwater for project components excluding the TSF, as evaluated by New Gold, are described in Table 1.

Table 1: Summary or New Gold's Alternative Means of Undertaking Blackwater

PROJECT COMPONENTS AND ACTIVITIES	OPTIONS EVALUATED	SELECTED OPTION	RATIONALE FOR PREFERRED ALTERNATIVE
Mining method	1. Open pit; 2. Underground.	Open pit	Open pit mining would be the only cost-effective and technically viable alternative for mining the Blackwater deposit. Underground mining alternatives were not economically feasible.

PROJECT COMPONENTS AND ACTIVITIES	OPTIONS EVALUATED	SELECTED OPTION	RATIONALE FOR PREFERRED ALTERNATIVE
Overburden and low ML NAG mine rock[3]	1. Combined East and West Waste Rock Dump; 2. Expanded East Waste Rock Dump; 3. Expanded West Waste Rock Dump; 4. North Waste Rock Dump; and 5. South Waste Rock Dump.	Combined East and West Waste Rock Dump.	The Combined East and West waste rock dump was assessed to be the most appropriate NAG waste rock storage alternative, as it would provide superior containment of ML wastes, provide access to NAG waste rock and overburden for construction, and would have the lowest potential impacts to surface water, groundwater and air quality
LGO stockpile	1. LGO Alt FS - Facility to the immediate north of the open pit; 2. LGO Alt A – facility to the immediate northwest of the West NAG dump, and to the immediate south of the Site C TSF; 3. LGO Alt B – facility to the immediate northeast of the East NAG dump; 4. LGO Alt C – facility to the immediate southeast of the open pit; 5. LGO Alt D – facility to the immediate southwest of the open pit; 6. LGO Alt E – facility to the immediate north of the TSF Site C.	LGO Alt FS - Facility to the immediate north of the open pit.	The facility to the immediate north of the open pit was assessed as the preferred option because it would have better technical considerations (gentler slopes, and increased ease of water treatment), it would better meet New Gold's Environmental Design Criteria, and would be less costly than the Alt LGO A option.
Ore and mine rock transportation	1. Haul truck; 2. Conveyor; 3. Rail.	Haul truck	New Gold assessed that the only viable ore and mine rock transport alternative would be the use of haul truck transport. No other alternatives warranted detailed evaluation.

[3] Evaluated in Appendix D of ERM (2015) *Blackwater Gold Project: Assessment of Alternatives for the Blackwater Gold Project Tailings Storage Facility*. Prepared for New Gold Inc. by ERM Consultants Canada Ltd.: Vancouver, British Columbia.

PROJECT COMPONENTS AND ACTIVITIES	OPTIONS EVALUATED	SELECTED OPTION	RATIONALE FOR PREFERRED ALTERNATIVE
Ore processing	1. Whole ore cyanidation, with or without gravity concentration; 2. Flotation concentrate recovery followed by cyanidation of the flotation concentrate; 3. Heap leaching.	Whole or cyanidation with or without gravity concentration.	The overall preferred alternative was assessed to be whole ore cyanidation, with or without gravity concentration, based on a preferred rating for four of the five performance objectives, and an acceptable rating for the remaining performance objective. The alternative of flotation concentrate recovery followed by cyanidation was ranked preferred for four of the five performance objectives, but was rated unacceptable for cost, based on a projected life-of-mine cost differential in excess of $261 million. The flotation concentration alternative was therefore rated as unacceptable.
Process Plan Effluent Management	1. In-plant cyanide destruction and heavy metal precipitation using the sulfur dioxide (SO_2)/Air treatment process, followed by natural degradation in the TSF; 2. Process plant tailings slurry discharge to the TSF with use of natural degradation in the TSF ponds as the sole means of cyanide destruction and heavy metal precipitation; 3. Process plant tailings slurry with hydrogen peroxide destruction or in-plant cyanide destruction and heavy metal precipitation; 4. Acid volatilization re-neutralization for the recovery and re-use of free cyanide.	In-plant cyanide destruction and heavy metal precipitation using the SO_2/Air treatment process, followed by natural degradation in the TSF.	The overall preferred alternative assessed was the use of in-plant SO_2/Air treatment to reduce cyanide and associated heavy metals to low levels in the tailings slurry coming out of the process plant, followed by natural degradation (as a polishing step) in the TSF to achieve further supernatant and porewater improvement. Use of this technology was considered superior for all performance objectives. The use of hydroxide treatment was considered acceptable if this technology is used to treat tailings slurry before it is discharged from the mill. New Gold has chosen to implement the superior SO_2/air treatment of tailings slurry alternative.
TSF discharge point	1. Davidson Creek; 2. Creek 661; 3. Creek 705.	Davidson Creek	Davidson Creek would be the most practical and environmentally acceptable alternative for TSF final discharge point in post-closure. The major factor is the ability to return flows to near baseline conditions in Davidson Creek and the cessation of pumping freshwater from Tatelkuz Lake.
Freshwater supply	4. Tatelkuz Lake; 5. Kuyakuz Lake; 6. Top Lake.	Tatelkuz Lake	New Gold's analysis of available water to support withdrawal at the required rate indicates, for lakes in the general area of Blackwater, only Tatelkuz Lake would be suitable.

PROJECT COMPONENTS AND ACTIVITIES	OPTIONS EVALUATED	SELECTED OPTION	RATIONALE FOR PREFERRED ALTERNATIVE
Solid waste management	1. On-site landfill; 2. Off-site existing landfill; 3. Incineration with ash disposal in an on-site landfill.	On-site landfill	An on-site landfill would be suitable for treating non-combustible, non-recyclable wastes such plywood, rubber, non-recyclable scrap metal and machinery parts, building construction debris, and plastics that cannot be reduced in volume with incineration.
Power supply	1. Transmission line connection to grid; 2. On-site diesel generation; 3. Wind power; 4. Solar power; 5. Biomass power; 6. Local hydroelectric generation.	Transmission line connection to the grid.	Connection to the provincial power grid with a dedicated transmission line was assessed to be technically feasible for Blackwater and would provide the only economically viable means of supply power.
Aggregate sources	1. Plant site area; 2. Site C south borrow source; 3. Site D south borrow source, and 4. Aggregate screening area.	All aggregate supply alternatives.	All of the aggregate supply was assessed to be acceptable.
Project access and transportation routs	1. Existing access via the Kluskus and Ootsa FSRs; 2. A new access route from Highway 20; 3. Upgrade existing FSRs from Quesnel.	Existing Kluskus and Ootsa FSRs.	Other alternatives would require additional travel distance or new road construction.
Mine Access Alternatives	1. Continue to use the existing exploration road which branches off the Kluskus-Ootsa FSR northwest of the Blackwater site; or 2. Construct a new 16 km long access road branching off the FSR at KM 125 northeast of the Blackwater site.	Construct a new 16 km long access road branching off the FSR at KM 125 northeast of the Blackwater site.	While it attracts a higher cost, Option 2 was assessed as the preferred option on the basis of environmental considerations, as it would avoid crossing ungulate winter range (UWR) for caribou.
Airstrip	1. T1 – Tatelkuz Lake Site; 2. T3 – Alternate Tatelkuz Site; 3. B4 – Site (19.8 km north of the mine site, south of Kluskus-Ootsa FSR, west of mine access road); 4. S2 – Site (14.9 km north of the mine site, south of Kluskus-Ootsa FSR, east of mine access road); 5. S8 – Site (30.8 km north of mine site, north of Kluskus-Ootsa FSR).	B4 - Site	The B4 alternative was assessed as the preferred option primarily because this site has the capability of accommodating all three types of aircraft.

PROJECT COMPONENTS AND ACTIVITIES	OPTIONS EVALUATED	SELECTED OPTION	RATIONALE FOR PREFERRED ALTERNATIVE
Transmission line routing	1. Connecting to the Tachick (TAC) 230 kV substation at Vanderhoof; 2. Central east alignment requiring a new substation connection east of Fort Fraser; 3. Westmost alignment connecting to the Glencore 230 kV substation at Endako; a. Same routing as Option 3, but connecting to the GLN 138 kV substation at Endako; 4. A shorter variant of the Option 3 requiring a new substation connection west of Fort Fraser; and 5. Central west alignment requiring a new substation connection to near Fort Fraser.	Option 3 – west-most alignment connecting to the GLN 230 kV substation at Endako.	Option 3 was assessed to have the ability to service the site effectively, with acceptable effects on the environment and land users and would be amenable to reclamation. The northern section of the route was realigned during the review period to further reduce potential effects on the environment, Aboriginal Interests and land use.
Operations Worker accommodation	1. Location approximately 2.3 km east of the proposed plant site; 2. Snake Lake.	Location approximately 2.3 km east of the proposed plant site.	The location 2.3 km east of the plant site was assessed to be preferred for all performance objectives and would provide the shortest commuting distance.
Worker transport during construction.	1. Busing; 2. Private vehicles; 3. Air transport (construction phase only).	Air transport, with busing being an acceptable alternative.	Air transport received preferred ratings in three performance categories and busing received two preferred ratings and two acceptable ratings. Air transport therefore was regarded as the overall preferred alternative, with busing being an acceptable alternative. The differences between air travel and busing were primarily financial or operational factors. There were also timing issues as to when suitable air transportation could be arranged and weather-dependence, such that New Gold proposes to use busing in combination with air transport during construction.

ALTERNATIVE ASSESSMENT OF THE TAILINGS STORAGE AND WASTE ROCK FACILITIES

In March of 2015, the EAO set out new requirements for all mining projects with conventional tailings storage facilities to conduct tailings alternatives assessments (TAAs). The new requirements were in response to the recommendations of the Mount Polley Independent Expert Engineering Investigation and Review Panel (Expert Report), and were to ensure that proponents have:

1. Considered other options that can address the potential for adverse effects;
2. For the project design option selected, considered the potential risks and implications of that option, and have a technically and economically feasible plan to address the potential risks and implications; and
3. Provided a clear and transparent rationale for the selected option(s).

In response, New Gold conducted an assessment of alternative technology options to determine the BAT and application of best available practices (BAP) for tailings management at Blackwater. The approach in the alternatives assessment considered location, technology and water management practices in selecting BAT and BAP for tailings and waste rock management. Four distinct steps were used to determine BAT for Blackwater: identification of a broad range of initial candidates that combined technologies and locations; a preliminary screening; a high-level risk assessment (HLRA); and a multiple accounts analysis.

New Gold initially identified 23 alternatives for tailings management. Three technologies for managing the tailings in the TSF were considered: thickened slurry; paste; and dry stack. Some candidate sites considered multiple tailings technologies and others considered a single technology.

A “fatal-flaw” preliminary screening was then conducted to eliminate options that did not meet the minimum technical, environmental, or social site criteria selected. Screening criteria were established through consultation with Indigenous groups, the EAO, the Agency, the Ministry of Environment and Climate Change Strategy (ENV) and the Ministry of Energy, Mines and Petroleum Resources (EMPR). New Gold’s pre-screening assessment considered the following criteria:

- Key environmental impacts, particularly related to the Blackwater River watershed, fish, moose and caribou habitat;
- Land tenure, including provincially or federally designated lands and/or private lands; and
- Engineering criteria, including the capacity to store the total volume and the collection and treatment of surface discharges.

Based on this analysis, 10 alternatives were eliminated. New Gold then conducted a HLRA to compare the remaining 13 alternatives considering environmental, safety and engineering hazards to determine the lowest risk candidate for each tailings technology). The HLRA reduced the assessment to 4 candidates with the lowest risk profile for each of the tailings and waste rock technologies as well as the most “physically stable” candidate.

New Gold then conducted a multiple account analysis (MAA) of the four remaining candidates to determine the BAT, comparing environmental and social impacts as well as technical, physical stability and economic consideration.

Candidate 1 was the selected option as it was scored the highest in the MAA in the technical, environmental, human environment and project economic areas. Candidate 1 is a thickened-slurry tailings alternative with submerged PAG/NAG waste rock located in the upper Davidson Creek area. The TSF was designed as a closed circuit with no surface water discharge during operations. Though candidate 1 was scored second for physical stability, as the site involves storing submerged mine waste behind a dam, New Gold concluded that it remains the best option due to its high score in all other accounts. A failure modes effects assessment was then used to identify BAP to improve the physical stability of and further reduce risk for the selected BAT alternative.

2.2.4 PROJECT CHANGES RESULTING FROM THE ENVIRONMENTAL ASSESSMENT

During the EA, New Gold made several changes to the design of Blackwater, and many of these changes were the result of input from the Working Group, Indigenous groups or the public. These project design changes resulted in a large volume of additional information produced during the EA in the form of memoranda and responses in the EAO's Issues Tracking Table, all of which can be found online at the EAO's ePIC website. This Report provides an assessment based on the newest information provided by New Gold, which has been organized and consolidated. For some VCs or topics areas, this approach means that multiple information sources were used to provide context, background or inputs to the assessment.

New Gold also identified additional measures to manage water and reduce the risk of tailings dam failure. These measures included the relocation of water storage, active management of water runoff from undisturbed areas, and contingency measures for emergency removal of water from the pond to increase dam safety. Design changes, additional measures, as well as additional project mitigation and contingency measures introduced as a result of New Gold's TAA are listed in Table 2.

Table 2: Blackwater Design Changes and Additional Measures Resulting from Working Group, Indigenous Group or Public Input to the EA Process

PROJECT CHANGES	RESULTING CHANGES TO POTENTIAL EFFECTS
WATER MANAGEMENT	
Construct the Northern and Southern Diversions in Construction (as opposed to early in Operations) to convey any excess non-contact water around, rather than into, the TSF.	• Reduces impacts on Davidson Creek stream temperatures and water quality; • Increases water management flexibility earlier in project development; and • Reduces risks to the TSF through a design change identified in the TAA (ERM 2015).
Transfer and store the majority of tailings pond supernatant[i] in TSF Site C to reduce water in TSF Site D and increase to the extent feasible the beach width.	• Increases subaerial beach length in TSF Site D (an indicator of improved dam safety); • Decreases the likelihood and consequences of containment loss in the event of embankment deformation by storing water outside the active impoundment; and • Reduces risks to the TSF through a design change identified in the TAA (ERM 2015).
Establish interim emergency overflow channels around the TSF Site D Main Dam during Operations to ensure that the incremental increase in runoff from the Probable Maximum Flood (PMF) during Operations could be safely transmitted around the dam in a controlled manner.	• Reduces risks to the TSF by reducing the likelihood of water overtopping the dam, thus improving physical stability through more effective management and control of water; and • Reduces risks to the TSF through a design change identified in the TAA (ERM 2015).
Allow for a surface water discharge from the FWR, in addition to the low-level outlet, until the FWSS is no longer needed.	• Reduces potential impacts on stream temperatures in Davidson Creek by increasing flexibility in the FWSS to meet water temperature requirements in Davidson Creek.
Eliminate the East Dump water management infrastructure (that is, sediment pond and associated ditch) as Project components.	• Addresses concerns of LDN and UFN that Blackwater would discharge mine contact water to Creek 661, which drains into Tatelkuz Lake upstream of Tatelkus Lake Reserve 28 (LDN); • Reduces impacts to Creek 661 by reducing mine disturbance area in Creek 661 catchment and increasing the natural flow to Creek 505659, and subsequently Creek 661; and • Reduces risks identified in the TAA (ERM 2015) by reducing the volume of runoff water requiring collection and storage in the TSF.

PROJECT CHANGES	RESULTING CHANGES TO POTENTIAL EFFECTS
Use water withdrawn from the TSF - as opposed to from Tatelkuz Lake via the FWSS— to meet mill water demands for Operations.	• Reduces water withdrawal from Tatelkuz Lake; • Reduces flow effects to Chedakuz Creek between Tatelkuz Lake and Davidson Creek; and • Reduces risks to the TSF identified in the TAA (ERM 2015) by storing less water in the TSF.
Treat open pit surface water and groundwater before discharging to Davidson Creek during Operations in Years 5 to 14, as opposed to pumping water from the pit to the TSF.	• Enhances safety by providing a means to remove water from the mine affected water from the site, rather than storing it in the TSF.
Construct the TSF D spillway during Operations in Year 10, as opposed to just prior to Closure (around Year 17).	• Reduces potential for water quality effects in Creek 661 by increasing capture of seepage from the TSF.
At Closure, flood the open pit with TSF supernatant water (in addition to natural flows from rainfall/runoff and groundwater) instead of water from both the TSF and Tatelkuz Lake.	• Reduces water withdrawal from Tatelkuz Lake; and • Reduces flow effects to Chedakuz Creek between Tatelkuz Lake and Davidson Creek.
Collect pit lake seepage in the east seepage collection system and convey the water by pipeline to the TSF (the original design had pit seepage reporting to Creek 505659 and from there to Creek 661).	• Reduces potential for water quality impacts to Creek 661 by increasing capture of seepage from the pit lake.
Pump flows from the ECD to the pit lake during Closure, instead of from the ECD to the TSF and *then* to the pit lake.	• Improves water quality discharged to, Davidson Creek by improving TSF water quality in Closure and Post-Closure.
Conduct active water treatment for mine-affected water in Closure and Post-Closure for dissolved metals, sulphate, and ammonia before discharging water to the environment.	• Improves water quality discharged to Davidson Creek by improving TSF water quality in Closure and Post-Closure; • However, duration of some effects would be longer, given the need for water treatment for 300+ years.
Maintain Northern and Southern diversions in Post-Closure instead of decommissioning them at Closure.	• Reduces impacts to streamflow in Davidson Creek; and • Improves water quality in Davidson Creek by reducing the volume of contact water discharged from TSF D via the spillway.
Release runoff from the TSF D dam shell and natural catchment runoff at the ECD site directly to the plunge pool, as opposed to collecting it at the ECD site and routing it to the WTP.	• Reduces impacts to streamflow in Davidson Creek by reducing the volume of water captured at the ECD site requiring treatment.

PROJECT CHANGES	RESULTING CHANGES TO POTENTIAL EFFECTS
WASTE MANAGEMENT	
Eliminate the East Dump as a Project component and add its material to the West Dump.	• Reduces overall mine footprint area and impacts to wildlife, vegetation, water, and wetlands.
TRANSMISSION LINE	
Change alignment of transmission line to follow roads, forestry cut-blocks and forest fire-damaged areas, staying adjacent to or within existing disturbances for 60 percent (79 km) of its length, as opposed to 51 percent (or 71.6 km) of the original alignment proposed in the Application/Environmental Impact Statement (EIS).	• Reduces effects on Aboriginal Interests; however, duration of effects would be longer, given the need for water treatment for 300+ years; • Reduces potential effects to wetlands, fish and fish habitat, wildlife (including moose, grizzly bears and furbearers), ecosystem composition, plant species and ecosystems at risk, traditional use plants, heritage, and current use of lands and resources for traditional purposes; • Addresses concerns raised by Indigenous groups, including NWFN, SFN, StFN, LDN, UFN and government agencies; • Addresses some of the concerns raised by stakeholders in relation to increased access and impacts on wildlife.
Use existing roads for construction of and access to the transmission line resulting in a greater proportion of access roads over cleared land (23 percent vs. 11 percent proposed in the Application/EIS); decommission and reclaim new roads once construction of the transmission line is complete (if not required for maintenance).	• Reduces potential impacts to wildlife, plant species and ecosystems; and • Addresses concerns raised by Indigenous groups, including NWFN, SFN, StFN, LDN, UFN and government agencies.

[i] Supernatant: liquid lying above a solid residue after crystallization, precipitation, centrifugation, or other process.

2.2.5 PROJECT BENEFITS AND PURPOSE

ECONOMIC BENEFITS OF BLACKWATER

Blackwater would generate economic impacts through direct expenditures on goods and services, creation of employment opportunities and generation of tax revenues for federal, provincial and local governments. New Gold's predicted benefits from Blackwater are summarized below and are also discussed in Section 13: Economic Effects of this Report. The information presented below reflects the

time period in which the Application was developed and submitted for screening in 2014, and as such, the information presented draws from data collected by New Gold in or prior to 2012. All dollar figures in this chapter are 2012 dollars.

ECONOMIC BENEFITS FROM PROJECT CONSTRUCTION

Table 3 and Table 4 provides a summary of estimated annual economic benefits from Blackwater during Construction. New Gold estimates that approximately $1294 million would be spent in BC during the Construction Phase, and that Project Construction would require approximately 2436 person years (PY) of direct employment within BC.

Table 3: Summary of Estimated Economic Benefits during Project Construction

	LOCAL ($ Million 2012)	BC ($ Million 2012)
Direct Project Construction Expenditures	$40 (Local Study Area (LSA))	$1,294
Gross Output		
Direct	N/A	N/A
Indirect	$365 (Bulkley-Nechako Regional District (BNRD))	$1,041
Contribution to Gross Domestic Product (GDP)		
Direct	N/A	$312
Indirect	$126.1 (BNRD)	$465
Labour Income		
Direct	$6.1 (LSA)	$296
Indirect	$11.5 (LSA)	$321
Effects on Government Revenues		
Federal Taxes	N/A	$86
Provincial Taxes	N/A	$82
Municipal Taxes (including property taxes)	$13 (LSA)	N/A

Table 4: Estimated Employment During Construction

	LOCAL (LSA) (PY)	BC (PY)
Direct	50	2,436
Indirect	195	5,419
Induced	10	1,807
Total Employment	255	9,663

ECONOMIC BENEFITS FROM PROJECT OPERATIONS

Table 5 and Table 6 provides a summary of estimated annual economic benefits from Blackwater during Operations. New Gold estimates that direct expenditures during Operations would sum to approximately $160.9 million within BC on an annual basis, while annual employment needs would create 396 PY of direct employment for within BC.

Table 5: Summary of Estimated Annual Economic Benefits during Project Operations

	LOCAL ($ Million 2012)	BC ($ Million 2012)
Estimated Direct Expenditures in Canada (excluding labour)	$10 (LSA)	$160.9
Gross Output		
Direct	NA	NA
Indirect	$11.4 (BNRD)	$93
GDP		
Direct	NA	$258
Indirect	$6.3 (BNRD)	$59
Labour Income		
Direct	$5.8 (LSA)	$43
Indirect	$1.3 (LSA)	$23
Government Revenues		
Federal Taxes	NA	$33
Provincial Taxes	NA	$21
Municipal Tax Revenues	$4 (LSA)	NA

Table 6: Estimated Annual Employment During Operations

	LOCAL (LSA) (PY)	BC (PY)
Direct	50	396
Indirect	22	534
Induced	14	200
Total Employment	86	1,130

Predicted total tax revenues over the life of Blackwater would amount to $1.2 billion. Of this, $656 million would accrue to the federal government, and $83 million would go to local governments. Total revenues for BC would be $511 million, which includes the $450 million in taxes shown in Table 7, plus approximately $61 million in royalties.

Table 7: Summary of Total Project Effects on Government Revenues[4]

ECONOMIC INDICATOR		DIRECT	OTHER/ INDIRECT	INDUCED	TOTAL
Tax revenue ($ million 2012)	Project Expenditure	860	-	-	1,197
	Supplier Industry Effects	174	96	73	
Allocation by level of Government ($ million 2012)	Federal	601	31	24	656
	Provincial	394	28	26	450
	Local	37	20	24	83

[4] Government Revenues from Year -2 to Year 50+

PROJECT CONTRIBUTIONS TO BUSINESS DEVELOPMENT

Blackwater would be expected to create procurement opportunities for businesses including engineering design and technical services, transport services, construction supply and environmental management services. Blackwater may depend on obtaining several contract services for Construction and Operations from local, provincial, and national contractors. Examples of contract services could include:

- Construction activities:
  - Road and powerline construction;
  - Bulk earthworks;
  - Surface infrastructure work; and
  - Engineering, procurement, and construction management.
- Operations activities:
  - Logistics, transportation services, and fuel services;
  - Explosives products;
  - Expediting/ mine resupply;
  - Communications;
  - Monitoring; and
  - External trainers on site to conduct specialty training.

2.2.6 COMMUNITY AND SOCIAL BENEFITS OF THE PROJECT

Blackwater is expected to benefit the Socioeconomic Regional Study Area (SERSA) through recruitment of the majority of the workforce from this study area's communities, as well as through indirect effects from contracts and local procurement of goods and services. Employment during Construction and Operation of Blackwater would provide positive economic impacts to families in the SERSA.

New Gold proposes to provide in-migrant families incentives/inducements to relocate to either Vanderhoof or Prince George. Both communities are assessed to have the housing and service capacity to accommodate this increase. A map of all communities located in the SERSA is available in Section 14: Social Effects of this Report.

New Gold would implement a training strategy during Blackwater that may involve:

- Working with current training institutions;
- Partner with local contractors to arrange apprenticeships;
- Sourcing and training under-represented groups; and
- Offering scholarship to increase graduation rates.

To meet its objective of enhancing benefits and minimizing adverse social effects of Blackwater, New Gold proposed a number of key mitigations to be implemented. Section 14: Social Effects in Part B of this Report provides a more detailed discussion of the community and social impacts from Blackwater as well as proposed mitigation measures.

BENEFITS TO INDIGENOUS COMMUNITIES

Blackwater has the potential to provide economic benefits to UFN, LDN and CSFNs, including through: (i) stewardship and cultural initiatives: (ii) employment opportunities; (iii) contracting opportunities; and (iv) revenue-sharing or government to government arrangements. The Province is also pursuing revenue sharing through Economic and Community Development Agreements (ECDAs) with UFN and LDN and has committed to continue to work with the CSFNs on an economic benefits package in relation to Blackwater, should it proceed.

3 AUTHORIZATIONS

In addition to provincial and federal EA approvals, Blackwater would need various authorizations from federal, provincial, and possibly local governments.

3.1 FEDERAL REGULATORY ENVIRONMENT

Blackwater was subject to a federal EA because Project activities exceed thresholds in the CEAA 2012 Regulations Designating Physical Activities Schedule Section 16 (c). On April 15, 2019, the Federal Minister of Environment and Climate Change decided that, taking into account the implementation of mitigation measures that the Minister considered appropriate, the Project would not likely cause significant adverse environmental effects, and issued the Environmental Assessment Decision Statement to New Gold.

In addition to a federal EA, Blackwater would require several federal permits and authorizations. The list below outlines the primary anticipated authorizations and permits:

- *Fisheries Act* (1985) authorizations under Section 35, Section 38(4), Section 38(5), and Section 38(6), and the deposit of deleterious substances prohibited under Section 36;
- *Migratory Birds Convention Act* (1994) authorizations under Section 5;
- *Explosives Act* (1985) authorizations;
- *Radio Communication Act* (1985) authorizations;
- *Species at Risk Act* (2002) (SARA) authorizations under Section 32 and Section 33; and
- *Transportation of Dangerous Goods Act* (1992) authorizations.

3.2 PROVINCIAL AUTHORIZATIONS

Blackwater would require multiple provincial authorizations, licenses, and permits for Construction, Operations and Closure which may include:

- *Environmental Management Act* (EMA): air emissions and liquid effluent discharge permits, and temporary batch plant registration and authorizations under the Open Burning Smoke Control Regulation and Spills Reporting Regulations;
- *Fire Services Act*: authorizations for fuel storage and firefighting facilities;

- *Forest Act*, *Forest and Range Practices Act*, and *Forest Practices Code*: special use permit and occupant licenses to cut;
- *Health Act* and *Drinking Water Protection Act*: permits for water supply system construction and operation, and authorizations for holding tanks as required;
- *Heritage Conservation Act* (HCA)*:* permits for site alteration under Section 12 and inspection under Section 14;
- *Industrial Roads Act, Transportation Act* and *Motor Vehicle Act:* for industrial access permit, highway access permit and provincial public highway access permit;
- *Integrated Pest Management Act*: noxious weed control permit;
- *Land Act:* license of occupation and statutory rights-of-way, and investigative use purpose;
- *Mineral Tenure Act:* mining lease for authorization for the exploration and development of the mineral resources;
- *Mines Act:* permits for approved works and reclamation program, and authorizations for Construction and Operation;
- *Mining Right of Way Act:* permit for RoW access within Crown or private lands;
- *Safety Standards Act:* permit to connect a powerline;
- *Transportation Act:* utility permit to construct transmission line within highway RoW;
- *Water Sustainability Act* (WSA): authorizations under the Dam Safety Regulation (B.C. Reg. 40/2016), Groundwater Protection Regulation (B.C. Reg. 39/2016), Water Sustainability Fees, Rentals and Charges Tariff Regulation (B.C. Reg. 37/2016), and the Water Sustainability Regulation (B.C. Reg. 36/2016), including requirements for the licensing, diversion and use of groundwater and surface water, protection of the groundwater resource and the construction of wells; and
- *Wildlife Act:* authorizations under Section 29 and Section 34.

The Major Mines Office (MMO) within EMPR is coordinating the permit review for Blackwater, including public consultation. Permit issues raised during the EA were tracked and will be carried forward into the permit review process for resolution under the auspices of the multi-disciplinary Mine Review Committee.

4 ASSESSMENT PROCESS OVERVIEW

4.1 OVERVIEW AND SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Blackwater is reviewable under the Act as the proposed nominal production capacity of 22 Mt/y would exceed the trigger of greater than or equal to 75,000 tonnes per annum (tpa) of mineral ore.

4.2 MAJOR MILESTONES OF THE ENVIRONMENTAL ASSESSMENT

Table 8 provides a summary of the key milestones in the Pre-Application and Application Review stages of the EA.

Table 8: Summary of Environmental Assessment Milestones

DATE	MILESTONE
November 5, 2012	The EAO issued a Section 10 Order, initiating the provincial EA.
July 9, 2013	The EAO issued a Section 11 Order, defining the proposed scope of Blackwater and the procedures and methods for conducting the review.
October 9 – November 8, 2013	30-day PCP on the draft Application Information Requirements (AIR).
December 12, 2013	The EAO provided New Gold a Section 13 Order, providing formal direction to consult further with NFN.
March 13, 2014	The EAO issued a Section 13 Order, removing the development and operation of a transload facility.
May 15, 2014	The EAO issued the final AIR to New Gold.
June 20, 2014	The EAO received the Application filed by New Gold for evaluation under Section 16(1) of the Act.
July 18, 2014	New Gold requested an extension to the time limit for the evaluation period in order to allow a more comprehensive review of its Application.
April 2, 2015	The Province and NWFN, SFN and StFN, collectively the Carrier Sekani First Nations (CSFNs), signed a Collaboration Agreement to assist development of government to government relationships and facilitate ongoing reconciliation. Subsequently, the EAO and the CSFNs began development of a Collaboration Plan for the Blackwater EA.
March 19 and August 27, 2015	The EAO provided direction to New Gold regarding the creation of a TAA in letters (1 & 2).

DATE	MILESTONE
December 22, 2015	The EAO determined the Application contained the information required in the AIR. The EAO indicated the Application Review period would commence when New Gold provided a final Application. At the same time, the EAO provided its assessment of the past/ present Indigenous consultation activities.
January 20 – February 19, 2016	The EAO and the Agency held a PCP inviting comments on the EIS/Application.
February 16, 2016	New Gold requested a 21 day extension of the EA timeline.
February 26, 2016	The EAO granted a 42 day extension, under Section 24(4) of the Act., after consultation with Indigenous groups.
March 10, 2016	New Gold submitted its Public Consultation Report on the public comments received during the PCP on the Application.
March 15, 2016	The EAO issued an Order under Section 13 adding three Indigenous groups to Schedule C (notification of Blackwater EA progression): • CCN; • NTBB; and • YFN.
June 22, 2016	The EAO provided New Gold a letter outlining expectations regarding the revised water quality modelling, Project design changes and revised effects assessment.
August 12, 2016	New Gold submitted supplemental information regarding water quality modelling, Project design changes and revised effects assessment studies for the EAO and Working Group review. At the time of submission, New Gold requested a temporary suspension of the review timeline in order to allow for consideration of the supplemental information
August 15, 2016	The EAO granted New Gold a temporary suspension of the timeline pursuant to Section 24(2), on day 216 of the extended-to-222-day review period.
October 3, 2016	EAO and the Agency signed a Memorandum of Understanding (MOU) with the LDN and UFN to establish a collaborative government-to-government relationship.
March 23, 2017	New Gold submitted a proposed transmission line re-alignment and a Transmission Line Alignment Addendum Report.
April 5 - May 4, 2017	The EAO held a PCP on the Change to Transmission Line Alignment Addendum Report. An open house was held in Vanderhoof.
May 2017	New Gold submitted its Public Consultation Report on the public comments received during the PCP for the Transmission Line Alignment Addendum Report.

DATE	MILESTONE
May 3, 2017	The EAO issued an Order under Section 13 amending the Section 11 Order to incorporate changes made to Blackwater during the Application review (addition of WTPs and new transmission line location) as well as adding NFN to a new Schedule D due to overlap from realignment of transmission line.
June 26, 2018	The EAO issued a letter of expectation to New Gold to address the revised effects assessment and habitat offsetting for caribou.
September 12, 2018	New Gold responded to the EAO's June 26 letter of expectations.
March 4, 2019	The EAO issued an Order under Section 13 amending the Section 11 Order to capture additional consultation and engagement with Indigenous groups, including collaboration with groups on Schedule B and deeper engagement on Schedule D.
March 22, 2018, October 3, 2018 and October 5, 2018	New Gold submitted its final Working Group Issues Tracking Tables.
March 13, 2019	New Gold submitted its final First Nation Consultation Reports.
March 20, 2019	CSFNs wrote to the Minister of Environment and Climate Change Strategy and the Minister of Energy, Mines and Petroleum Resources stating that Ministers should require further assessment to address outstanding economic accommodation for the CSFNs and requesting a meeting with Ministers.
April 18, 2019	LDN and UFN submitted a letter to the EAO stating that New Gold had adequately consulted and accommodated LDN and UFN with respect to their asserted Aboriginal rights and title in respect of the Project, noting additional steps for the Crown to take to satisfy the Crown's duties and stating their consent to the issuance of an Environmental Assessment Certificate.
May 17, 2019	The EAO lifted the time limit suspension under Section 24(2) of the Act, upon receipt of deliverables, completion of associated engagement activities and resolution of issues to the satisfaction of the EAO.
May 17, 2019	Section 17 referral; conclusion of the EA and referral to Ministers.

4.3 ROLE OF THE ADVISORY WORKING GROUP

The EAO established an Advisory Working Group (Working Group) made up of federal, provincial, and local government representatives with the mandates and expertise relevant to the review of Blackwater, as well as representatives of potentially affected Indigenous groups listed in Schedule B and D of the Section 11 Order. See list of Working Group members in Appendix B: List of Advisory Working Group Members.

The EAO sought and considered advice from the Working Group to understand and assess any potential adverse effects associated with Blackwater. Working Group members were responsible for providing timely advice to the EAO on:

- Key EA documents including, but not limited to, the selection of VCs, the AIR, the Application, the EAO's Summary and Assessment Reports and proposed conditions;
- Government policy direction and/or gaps that could affect the conduct of the EA;
- Potential conflicts with the legislation and/or regulations of their organizations;
- EA information requirements, as compared with permitting information requirements; and
- Technical issues that were raised by the public and Indigenous groups during the public consultation process.

The following federal departments with specialist information or expert knowledge relevant to Blackwater participated in the evaluation and the review of the Blackwater Application:

- The Agency provided guidance and information directly to the EAO regarding the coordinated process and federal EA requirements under CEAA 2012;
- Environment and Climate Change Canada (ECCC) provided comments and information related to its regulatory and statutory responsibilities within the themes of terrestrial wildlife, water quality, migratory birds, species at risk and greenhouse gases (GHGs);
- Fisheries and Oceans Canada (DFO) provided comments and information related to its regulatory and statutory responsibilities within the themes of water quality, water quantity, fish and fish habitat;
- Health Canada (HC) provided advice and information related to its regulatory and statutory responsibilities in regard to human health, with a primary focus on Indigenous health; and
- Natural Resources Canada (NRCan) provided advice and information related to its expertise in geotechnical and natural hazards.

The EAO reviewed the adequacy of New Gold's responses to all comments received from Working Group members and held various meetings with Working Group members to discuss outstanding issues and concerns. In the development of this Report and recommended conditions, the EAO considered all comments and issues raised during the EA.

4.4 INDIGENOUS CONSULTATION

On July 9, 2013, the EAO issued a Section 11 Order that specified the consultation activities that both the EAO and New Gold would undertake with Indigenous groups potentially affected by Blackwater in two Schedules, B and C. Indigenous groups identified on Schedule B of the Section 11 Order were consulted at the deeper end of the consultation spectrum. They included:

- Ulkatcho First Nation (UFN);
- Lhoosk'uz Dené Nation (LDN);
- Nadleh Whut'en First Nation (NWFN);

- Stellat'en First Nation (StFN); and
- Saik'uz First Nation (SFN).

Indigenous groups identified on Schedule C of the Section 11 Order were consulted through notifications of key milestones and public comment periods, and included:

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

New Gold carried out its consultation responsibilities over the course of the EA as directed by the EAO in the Section 11 Order and provided consultation reports to the EAO regarding the key issues raised by Indigenous groups and the status of resolution. These documents were reviewed by Schedule B Indigenous groups and revised by New Gold based on input received from and concerns expressed by Indigenous groups prior to being submitted to EAO. These documents enabled EAO to: understand New Gold's consultation activities and the perspectives of the Indigenous groups related to those activities; understand any issues and concerns identified by Indigenous groups to New Gold; and to evaluate New Gold's consultation plans for subsequent consultation activities required with these Indigenous groups during Application Review.

The EAO is also aware that New Gold has provided some Indigenous groups with funding to support their participation in the EA process. The EAO provided provincial capacity funding to each of UFN, LDN, the CSFNs for pre-Application and Application review, as well as additional funding to develop and fulfil collaborative commitments. The EAO also provided provincial funding to NFN to support their participation in the EA during Application Review.

On March 15, 2016, the EAO issued a Section 13 Order amending the Section 11 Order to add three Indigenous groups to Schedule C (requiring notification on EA milestones): Cheslatta Carrier Nation (CCN); Nee-Tahi-Buhn Band (NTBB); and Yekooche First Nation (YFN).

On May 3, 2017 the EAO issued a Section 13 Order amending the Section 11 Order, to add NFN to a new Schedule D, with deeper consultation focused primarily on the potential impacts of specific project components (in particular, the transmission line portion and sections of the FSR overlapping NFN's asserted traditional territory).

On March 4, 2019, the EAO issued an Order under Section 13 amending the Section 11 Order to capture additional consultation and engagement with Indigenous groups, including collaboration with groups on Schedule B and deeper engagement on Schedule D.

The EAO engaged Schedule B Indigenous groups in a collaborative manner for the Blackwater EA that was guided by the CSFN (NWFN, SFN, and StFN) Collaboration Plan and the UFN/LDN MoU.

This collaborative EA process provided UFN, LDN, and CSFNs the opportunity to fully engage with the EAO in the assessment of Blackwater, including collaboratively working on Part C, the assessment of impacts to Aboriginal Interests and in the development of proposed EA conditions.

In addition to the collaboration approach, the EAO provided the following opportunities:

- Participation in the Working Group;
- Participation in meetings to identify and discuss the exercise of Aboriginal Interests that may be affected by Blackwater and potential measures to avoid, mitigate, address or otherwise accommodate impacts;
- Review and comment on key documents, including the draft AIR, New Gold's Application, the EAO's draft proposed conditions, the Assessment Report, and the draft Certified Project Description (CPD);
- Submission of a document outlining the Indigenous Group's views on the Assessment Report and Conditions to be included in the package of materials sent to Ministers when Blackwater is referred for decision;
- Notification of key milestones during the course of the EA– such as the issuance of the AIR, acceptance of the Application for review, timing of PCPs (including public information sessions), when the final Assessment Report is referred to Ministers and the resulting decision; and
- Invitation to meet with the EAO to discuss any Aboriginal Interests affected by Blackwater.

Schedule C Indigenous groups were provided the following opportunities:

- Notification of key milestones during the EA – such as the issuance of the AIR, acceptance of the Application for review, timing of PCPs (including public information sessions), when the final Assessment Report is referred to Ministers and the resulting decision;
- Reviewing the EAO's draft assessment of impacts to that Indigenous group's Aboriginal Interests; and
- Invitation to meet with the EAO to discuss any Aboriginal Interests potentially affected by Blackwater.

NFN was also consulted at the deeper end of the consultation spectrum, and was provided the following opportunities by the EAO:

- Participation in the Working Group;
- Participation in meetings to identify and discuss the exercise of Aboriginal Interests that may be affected by Blackwater and potential measures to avoid, mitigate, address or otherwise accommodate impacts;
- Review and comment on key documents including New Gold's Application, the EAO's draft proposed conditions, the Assessment Report, including the Aboriginal Consultation Report (Part C), and the CPD;

- Submission of a document outlining the Indigenous group's views on the Assessment Report and Conditions to be included in the package of materials sent to Ministers when Blackwater is referred for decision;
- Notification of key milestones during the course of the EA – such as the timing of PCPs (including public information sessions), when the final Assessment Report is referred to Ministers and the resulting decision; and
- Invitation to meet with the EAO to discuss any Aboriginal Interests in the Blackwater area.

Further detail regarding engagement and consultation with Indigenous groups is provided in Part C of this Report.

4.4.1 MEETING THE CROWN'S DUTY TO CONSULT AND ACCOMMODATE INDIGENOUS GROUPS

The EAO is required to ensure that the honor of the Crown is discharged by ensuring appropriate consultation and accommodation of potential impacts of Blackwater on the exercise of Aboriginal Interests in respect of the decision by Ministers as to whether to issue an EAC.

Indigenous groups' comments and interests in terms of consultation and specific consideration of the Crown's duty to consult and accommodate Aboriginal Interests are factored into the analysis in Part C of this Report.

There was considerable overlap between the interests of Indigenous groups and the assessment of environmental, economic, social, heritage and health effects. Indigenous groups' comments and interests that directly relate to the environmental, economic, social, heritage and health assessments are discussed in Part B of this Report.

4.5 PUBLIC CONSULTATION

Public consultation is a central tenet of the EA process. The EAO required New Gold to prepare a Public Consultation Plan, which laid out New Gold's consultation objectives and activities.

Through the course of the EA, New Gold submitted four Public Consultation Reports to the EAO. The first Public Consultation Report was submitted during the Pre-Application stage, the second was submitted with the Application, the third was submitted during Application Review, and the fourth was submitted after the PCP on the transmission line re-route. The Public Consultation Plan and all Public Consultation Reports are posted on the EAO's ePIC website.

4.5.1 SUMMARY OF CONSULTATION ACTIVITIES LED BY NEW GOLD

Following is a summary of the public consultation activities carried out by New Gold during the EA process:

- Notified stakeholders, including providing information on Blackwater, summaries of the EA and EA public consultation processes, and invitations to communicate directly with New Gold;
- Maintained a Blackwater website and regularly produced a newsletter;
- Issued media releases and advertisements of PCPs and public information sessions in local newspapers;
- Hosted meetings, open houses, presentations and site tours for stakeholders and government representatives;
- Maintained and regularly met with a Community Liaison Committee and Community Leaders Committee;
- Participated in public information sessions hosted by the EAO and the Agency; and
- Tracked and responded to all comments from PCPs.

Through public engagement during the course of the EA, the EAO was satisfied with New Gold's understanding of and responsiveness to public interests in Blackwater.

4.5.2 SUMMARY OF CONSULTATION ACTIVITIES LED BY THE EAO

The EAO hosted three PCPs and five open houses over the course of the Pre-Application and Application Review stages of the EA.

The first 30-day PCP was held by the EAO from October 9 – November 8, 2013, on the draft AIR and included two public open houses hosted by the EAO. These public open houses were held in:

- Vanderhoof on October 16, 2013, with approximately 85 attendees; and
- Fraser Lake on October 15, 2013, with approximately 15 attendees.

Nine written comments were submitted to the EAO. These comments were considered and addressed as appropriate in the final AIR.

The second PCP was a joint federal and provincial 30-day PCP on the Application. The PCP was held from January 20 to February 19, 2016, with two open houses hosted by the EAO and the Agency and four public information sessions hosted by New Gold.

The Open Houses were held in:

- Vanderhoof on February 2, 2016, with approximately 64 attendees; and
- Fraser Lake on February 3, 2016, with approximately 24 attendees.

New Gold held public information sessions in:

- Quesnel on February 9, 2016 with approximately 25 attendees;
- Fort St James on February 10, 2016 with approximately 10 attendees;
- Burns Lake on February 11, 2016 with approximately 21 attendees; and
- Prince George on February 16, 2016 with approximately 42 attendees.

64 written comments were submitted to the EAO and the Agency. Public comments and New Gold's responses are posted on the EAO's ePIC website.

The third PCP was a 30-day PCP held from April 5 to May 4, 2017, on the Transmission Line Addendum Report and included a public open house hosted by the EAO in Vanderhoof on April 10, 2017. Approximately 27 people attended. Ten written comments regarding the Transmission Line Addendum Report were submitted to the EAO. Public comments and New Gold's responses are posted on the EAO's ePIC website.

4.5.3 SUMMARY OF PUBLIC COMMENTS

The key issues raised by the public through the submitted public comments included the following:

- Questions regarding New Gold's engagement with Indigenous groups;
- Questions and concerns regarding the location of the Transmission Line;
- Questions and concerns regarding the compatibility of Blackwater with existing tenures;
- Questions and concerns regarding potential effects of Blackwater to the environment, particularly to water quality and fish; and
- Support for Blackwater considering the jobs and economic benefit potential from the project.

A summary of the key issues raised by the public and the EAO's responses is provided in Table 9 and Table 10 below. For many of the issues raised, the EAO has proposed conditions that address the potential for adverse effects that is the subject of concern. The public will have access to management plans and other documents produced as a result of the EAO's proposed conditions, should an EAC be issued, as the EAO proposes Condition 42: Public Communications that will require New Gold to make this information available on a website.

Table 9: Summary of Issues Raised by the Public About the Application and the EAO's Responses

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	**THE EAO'S RESPONSE**	**REPORT SECTION**
Environmental Management Effect of an earthquake on the tailings pond	The EAO noted the historically low level of seismic activity in the area. New Gold stated it will design project buildings and waste management facilities (including the TSF, waste rock dump and LGO stockpile) in accordance with seismic requirements.	Section 17.2.1: Natural Hazards (Effects of the Environment on the Project)

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	THE EAO'S RESPONSE	REPORT SECTION
	The EAO is satisfied that the environment would not have significant adverse effects on Blackwater, after the application of mitigation measures.	
Fish and Fish Habitat Effects to fish and fish habitat	The EAO determined that Blackwater would not be expected to have a significant residual effect on fish and fish habitat. The EAO is proposing several conditions related to ensuring adequate water quality to support aquatic life and addressing impacts on fish and fish habitat. These include proposed conditions: • Condition 26: Water Quality Management; • Condition 28: Chedakuz Creek and Tatelkuz Lake Surface Water Quality Monitoring Plan; • Condition 29: Transmission Line Sedimentation Monitoring Plan; • Condition 30: Aquatic Effects Monitoring Plan; • Condition 31: Tatelkuz Lake Protection Plan; • Condition 32: Cyanide Management Plan; • Condition 33: Mine Waste and Water Management Plan; and • Condition 34: Closure and Post-Closure Water Quality Management Plan.	Section 10.6 Conclusion (Groundwater, Surface Water, and Sediment Quality) and Section 11.6: Conclusion (Fish and Fish Habitat)
Hydrology Volume of freshwater required by Blackwater, and impacts on Davidson and Chedakuz creeks	The EAO determined there would be a decrease in flows to the Davidson Creek and Chedakuz Creek watersheds. Blackwater would pump water from Tatelkuz Lake to maintain in stream flow needs for fish in Davidson Creek. To address impacts on hydrology and potential impacts on associated aquatic communities, the EAO is proposing: • Condition 30: Aquatic Effects Monitoring Plan (AEMP) would require New Gold to prepare an AEMP in consultation with EMPR, ENV, FLNRORD, and Indigenous groups. The AEMP would include monitoring of fish communities; and • Condition 31: Tatelkuz Lake Protection Plan that would require New Gold to take into consideration the effects of withdrawals from Tatelkuz Lake on fish and fish habitat in Davidson Creek, Chedakuz Creek and Tatelkuz Lake.	Section 10.2.2: Surface Water Flow (Groundwater, Surface Water, and Sediment Quality)

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	THE EAO'S RESPONSE	REPORT SECTION
Non-Traditional Land and Resource Use (NTLRU) Effects on guiding and trapping, ranching, recreational fishing and recreational enjoyment, traffic, and navigation	The EAO determined that Blackwater would have potential effects for tenured land holders (including mineral, forestry, trapping, guide outfitting and range tenure holders) and non-tenured land users (including those participating in recreation and tourism) in terms of restriction of access to the mine site, and disturbance to use of land and resources. Considering the mitigations proposed by New Gold and the conditions the EAO is proposing, the EAO assessed the effects to not be significant. The EAO is proposing the following conditions: • Condition 37, which would require New Gold to prepare a Community Liaison Committee and Community Effects Monitoring and Management Plan (CEMMP). The plan would be developed in consultation with Indigenous groups, the communities of Vanderhoof and Fraser Lake, and NHA. • Condition 38: Tenure Holder Communication and Mitigation Plan and Report, which would require New Gold to work to examine and minimize effects on Guide Outfitter License Holder #601039. • Condition 39 Final Transmission Line Routing Plan, which would require New Gold to consult with all affected parties and document the mitigation measures that will be undertaken to address effects in the selection of the final alignment, as well as implementing mitigation measures to address visual effects and effects on NTLRU, including avoiding impacts to recreation sites and specific mitigation measures for the Stellako River Wildlife Management Area (WMA).	Section 14.2.5: Non-Traditional Land and Resource Use (Social Effects)
Light Effects of light pollution affecting astronomy	The EAO determined that Blackwater would be a source of artificial light. Considering New Gold's proposed mitigation measures to reduce effects through a Visual Resources Management Plan, to apply best management practices (BMP) to minimize the effect of artificial light, and the requirement in the proposed the EAO's proposed condition 39: Final Transmission Line Routing Plan that includes the mitigation measures proposed by New Gold for Visual Quality and Non-Traditional Land Use, the EAO is satisfied that Blackwater would not have significant adverse effects on Visual Resources.	Section 14.2.7: Proposed Mitigations in the Application (Social Effects)
Noise and Vibration – Impacts to the natural environment especially when guiding and hunting	The EAO determined that Blackwater would result in residual adverse effects on Noise and Vibration from increased noise and vibration levels in the area of the mine site and the airstrip.	Section 7.4: Characterization of Residual Effects (Noise and Vibration)

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	THE EAO'S RESPONSE	REPORT SECTION
	Considering the potential effects, New Gold's proposed mitigations, and the EAO's proposed conditions, the EAO is satisfied that Blackwater would not have significant adverse effects on Noise and Vibration. The EAO is proposing the following certificate conditions to address impacts to Noise and Vibration: • Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan for the monitoring of Blackwater-related noise and implementing mitigation measures to minimize adverse effects. The plan must be developed in consultation with EMPR, ENV, NHA and Indigenous groups; and • Condition 37 Community Liaison Committee and Community Effects Monitoring and Management Plan, which would require that New Gold: o Communicate information about Blackwater to Indigenous groups, land users and tenure holders related to their use and enjoyment of areas affected by Blackwater; and o Maintain a process by which members of this public could provide feedback on Blackwater to New Gold and require New Gold to respond to and document it's responses to complaints.	
Site Reclamation Permanent effects on the environment after reclamation	The EAO determined the mine site would undergo considerable overburden and soil alteration through mining operations, cut, fill and levelling of the site to support mine infrastructure. This would result in a permanent change from the baseline conditions. These effects are taken into consideration in the assessment of effects to other VCs (for example, wildlife). The EAO is proposing the following certificate condition: • Condition 25 would require New Gold to prepare an End Land Use Plan, which would define and describe the pre-mining and post-closure land capability and land use conditions with respect to ecosystems and habitats. The EAO also notes that the permitting under the *Mines Act* will require a detailed reclamation and closure plan that must be updated every five years.	Section 8.2.1: Baseline Information and Potential Effects (Topography and Soil)
Socio-Economic Conditions Employment, training, and contract opportunities for local and regional residents, pressure on social, policing,	The EAO determined that the magnitude of effects on Family and Community Well-Being would likely be low to moderate and acknowledges the large amount of uncertainty inherent in predicting well-being outcomes as these are influenced by a multitude of factors.	Section 14.2.7: Proposed Mitigations in the Application (Social Effects) Section 15.2.3: Mitigation Measures Proposed in the

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	THE EAO'S RESPONSE	REPORT SECTION

health services and infrastructure, impacts to guide outfitting tenure and business and loss of revenue	New Gold committed to implementing the following mitigations:
	• A hiring strategy that would include sourcing and training under-represented groups;
	• A Health and Well-being Management Plan based on guidance from NHA;
	• Ongoing communication with registered trapline holders, guide outfitters, and lodge owners, as appropriate; and
	• Compensation for registered trapline holders bearing proof of lost revenue in accordance with industry and provincial protocols.
	The EAO is satisfied that Blackwater would not have significant adverse effects on social VCs, including Demographics, Regional and Community Infrastructure, Regional and Local Services, Family and Community Well-being, NTLRU, and Visual Resources. The EAO is proposing:
	• Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan for the monitoring of Blackwater-related noise and implementing mitigation measures to minimize adverse effects. The plan must be developed in consultation with EMPR, ENV, NHA and Indigenous groups.
	• Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan condition (#37) that includes requirements such as:
	  • Adaptively manage for potential adverse effects on local communities, including community services;
	  • Measures to facilitate hiring of employees and service providers from the LSA; and
	  • Measures to support employees' mental and physical health;
	• Condition 38: Tenure Holder Communication and Mitigation Plan and Report (#38) to address the concerns from holder of Guide Outfitter License #601039 regarding the impacts of Blackwater on the guide outfitting business; and
	• Condition 40: Health and Medical Services Plan, which would require New Gold to provide on-site health and medical services, and measures for disease and infection prevention, outbreak protocols and worker wellness initiatives.
		Application (Human Health Effects)

Surface Water Quality Effects on wildlife, drinking water, seepage, use of	The EAO determined that Blackwater, combined with impacts from existing projects and activities, is not expected to have a significant adverse effect on surface water quality.	Section 10.5.3: Surface Water Quality (Groundwater, Surface

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	THE EAO'S RESPONSE	REPORT SECTION
cyanide and other mill processing chemicals	To help mitigate and manage effects to surface water quality, the EAO is proposing several conditions to address water quality: • Condition 26: Water Quality Management, which would require all effluent to meet appropriate water quality standards; • Condition 28: Chedakuz Creek and Tatelkuz Lake Water Quality Monitoring Plan, requiring adaptive management if adverse effects to water quality are observed; • Condition 32: Cyanide Management Plan which would require New Gold to prepare a plan to manage the transport and use of cyanide at Blackwater; • Condition 33: Mine Waste and Water Management Plan that would require New Gold to undertake several measures that support the achievement of water quality outcomes; and • Condition 34: Closure and Post Closure water Quality Management Plan, which would require New Gold to identify proposed water treatment technology that New Gold would intend to employ for treating water during closure and post closure. Provincial (EMA and *Mines Act*) and Federal (*Fisheries Act*, including the Metal and Diamond Mining Effluent Regulations [MDMER]) regulations would also address potential effects of tailings seepage and water and effluent discharge from the mine site on water quality.	Water, and Sediment Quality)
Tailings Management Safety of the TSF	The EAO discussed the issue of the safety of the TSF at length with technical reviewers and Indigenous groups to understand how best to address the issue of TSF safety. The result of these discussions was the development of several proposed conditions related to TSF dam safety: • Condition 11: Care and Maintenance Plan that would require New Gold to prepare a plan that would help monitor and manage water onsite during periods of Care and Maintenance, with the goal of avoiding the build-up of surplus water behind the TSF dam; • Condition 19: Environmental Monitoring Committee that would provide a venue for New Gold to share information and discuss issues, such as TSF dam safety, with Indigenous groups and federal and provincial government agencies. • Condition 33: Mine Waste and Water Management Plan that would require New Gold to work to limit the accumulation of surplus water stored in the TSF while still managing the risk of ML/ARD; and	Section 10.3.4: Volume of Water Stored in TSF (Groundwater, Surface Water, and Sediment Quality)

SUMMARY OF ISSUE (COMMENTS ON THE APPLICATION)	THE EAO'S RESPONSE	REPORT SECTION
	• Condition 35: Tailings Dam Safety Transparency Plan that would require information regarding TSF safety to be produced on an annual basis; The EAO also notes that tailing storage facility design will be the subject of detailed technical review during subsequent permitting, should an EAC be issued and Blackwater proceed to permitting.	
Terrestrial Ecosystems Weed control, type of seed mix used	The EAO accepted New Gold's commitment to limit herbicide use along the transmission line as per StFN's herbicide management policy. Further, the EAO proposes Condition 13: Construction Environmental Management Plan which includes a requirement to address invasive plant management and vegetation management.	Section 9.4: Residual Effects Assessment (Wildlife and Ecosystems)

Wildlife and Wildlife Habitat
Project impacts to wildlife, moose populations, grizzly bears, caribou, migratory birds and furbearers
	The EAO determined there would be residual effects to wildlife as a result of Blackwater. The EAO is proposing the following certificate conditions to manage potential impacts to wildlife VCs:
	• Condition 22: Caribou Mitigation and Monitoring Plan, which would address impacts to caribou through mitigation measures including offsetting.
	• Condition 23: Wildlife Management Plan, which would include plans for monitoring and management of:
	  • Bats;
	  • Birds (water birds and forest and grassland birds);
	  • Grizzly bears;
	  • Moose;
	  • Furbearers; and
	  • Amphibians.
	• Condition 24: Wetland Management and Offsetting Plan, which would require New Gold to identify and offset the loss and degradation of wetlands caused by Blackwater.
		Section 9.4: Residual Effects Assessment (Wildlife and Ecosystems)

Waste Management Management of project waste	The EAO is proposing the following certificate conditions: • Condition 13: Construction Environmental Management Plan, which would require New Gold to manage site waste; and • Condition 33: Mine Waste and Water Management Plan, which would require New Gold to manage mine tailings, waste rock and other mine by-products to prevent adverse effects related to metal leaching and acid rock drainage.	Section 15.2.3: Mitigation Measures Proposed in the Application (Human Health)

Table 10: Summary of Issues Raised by the Public About the Transmission Line Reroute Report and the EAO's Responses

SUMMARY OF ISSUE (COMMENTS ON THE TRANSMISSION LINE REROUTE REPORT)	THE EAO'S RESPONSE	ASSESSMENT REPORT SECTION
Proposed New TLA – Crossing of the Stellako River and the Nechako River	New Gold has proposed a transmission line route, and several re-route options, and has proposed to select the final routings post-EA. To manage this selection process, the EAO is proposing the following certificate condition: • Condition 39: Final Transmission Line Routing Plan, which would require New Gold to consult with all affected stakeholders and prepare a rationale for the selection of one transmission line route along with specific mitigation measures for that route. The condition would also require New Gold to minimize effects to recreation sites and to the Stellako River WMA. The EAO recognizes that in any option selected, the transmission line will cross the Stellako River and the Nechako River. Proposed Condition 39 includes a requirement to implement mitigation measures identified by New Gold to address Visual Resources, which includes developing site-specific measures and designs to soften visual effects for the Nechako and Stellako River crossings.	Section 9.3: Potential Effects and Proposed Mitigation Identified During Application Review (Wildlife and Ecosystems)
Visual Impacts – Concerns regarding visual effects of the proposed change to the transmission line route on the surrounding landscape and on non-traditional land use.	The EAO determined there are a number of variables that would influence the degree to which Blackwater would affect visual quality. As a result of proposed changes in the alignment of the Transmission Line and comments from the public and the Blackwater Working Group, New Gold completed additional analysis to assess potential visual effects at several new sites along the proposed new alignment. The EAO is satisfied that Blackwater would not have significant adverse residual effects on visual resources. To mitigate effects to Visual Resources, the EAO is proposing the following certificate conditions to address potential impacts on Visual Quality: • Condition 13: Construction Environmental Management Plan, which would require New Gold to address visual resource management; and • Condition 39: Final Transmission Line Routing Plan, which would require New Gold to provide a description of how mitigation for Visual Resources and NTLRU would be implemented.	Section 14.2.6: Visual Resources; Section 14.4: Characterization of Residual Effects (Social Effects)
Fish and Fish Habitat – Concerns regarding long term effects on spawning sites of salmon and rainbow	Impacts to rainbow trout and kokanee spawning are expected because of Blackwater, thought the EAO concludes that Blackwater is not likely to result in significant adverse residual effects on Fish and Fish Habitat. The EAO is proposing the	Section 11.2.2: Potential Project Effects (Fish and Fish Habitat)

SUMMARY OF ISSUE (COMMENTS ON THE TRANSMISSION LINE REROUTE REPORT)	THE EAO'S RESPONSE	ASSESSMENT REPORT SECTION
trout, and the adequacy of proposed mitigation measures.	following certificate conditions that address the risk of sedimentation and erosion affecting fish and fish habitat during construction of the transmission line: • Condition 13: Construction Environmental Management Plan, which would require measures for erosion and sediment control; and • Condition 29: Transmission Line Sedimentation Monitoring Plan, which will require site specific erosion and sediment control prescriptions for waterbodies identified as culturally important by Indigenous groups.	
Wildlife and Wildlife Habitat Concerns that habitat destruction and degradation could have adverse effects on wildlife populations.	The EAO determined that Blackwater would result in the loss and degradation of wildlife habitat and ecosystems. New Gold worked with the CSFNs to relocate about 67 km (48 percent) of the transmission line. Approximately 79 km or 60 percent of the line is located immediately adjacent to roads (within 50 m), in forestry cut-blocks, areas affected by forest fires and mountain pine beetle affected timber. The EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems. The EAO is proposing the following certificate conditions: • Condition 23: Wildlife Management and Monitoring Plan. The Plan would require New Gold to prepare a plan to mitigate and monitor effects to wildlife. This includes a requirement to have a vegetation and access management plan for the transmission line right of way to address the decommissioning and revegetation of newly created access roads; and • Condition 24: Wetland Management Offsetting Plan, which would require New Gold to identify and offset the loss and degradation of wetlands caused by Blackwater.	Section 9.3: Potential Effects and Proposed Mitigation Identified During Application Review; Section 9.4: Characterization of Residual Effects (Wildlife and Ecosystems)
Terrestrial Ecosystem – potential effects on ecosystem composition and plant species	The EAO determined there would be residual effects to ecosystems VCs both within the LSA and within the RSA. The EAO is proposing the following certificate condition: • Condition 25: End Land Use Plan, which would require New Gold to define and describe the pre-mining and post-closure land capability and land use conditions with respect to ecosystems and habitats; and • Condition 23: Wildlife Management and Monitoring Plan, which would require New Gold to allow vegetation within the transmission line RoW to grow to at least one m and would also require New Gold to reclaim all new access roads used for transmission line construction.	Section 9.5: Cumulative Affects Assessment (Wildlife and Ecosystems)

SUMMARY OF ISSUE (COMMENTS ON THE TRANSMISSION LINE REROUTE REPORT)	THE EAO'S RESPONSE	ASSESSMENT REPORT SECTION
Tourism and Recreation – Impacts on guide outfitting certificates, fly fishing	New Gold made changes to the TLA to address concerns from Indigenous groups, the public and Working Group members. New Gold noted that although the transmission line and its proposed reroutes would cross Chedakuz Creek, the Nechako River, and the Stellako River – all known fishing sites – New Gold did not expect that Blackwater would impede recreational fishing or cause sensory disturbance from noise or visual changes. The EAO is proposing Condition 39: Final Transmission Line Routing Plan, which would require New Gold, after consulting affected parties, to select one transmission line route from the re-routes proposed, and implement mitigations for Visual Resources, NTLRU, recreational sites and the Stellako River WMA.	Section 14.3.2: Effects of Non-Traditional Land and Resource Use; Section 14.4: Characterization of Residual Effects (Social Effects)
Wetlands – Wetlands as an important part of the ecosystem support for moose, grizzly bear, etc.	The EAO determined that the degree to which wetlands would be affected would depend on whether transmission line support poles, access roads or trails for constructing the transmission line would be located within the wetlands, and by any clearing of vegetation in the RoW. The EAO also determined that the Conditions proposed to offset or compensate for effects to wetlands could help reduce potential residual adverse effects to grizzly bear and moose as well. Given the extent of effects to wetlands and the importance of wetlands to wildlife, the EAO is proposing the following certificate condition: • Condition 24: Wetland Management and Offsetting Plan, which would require New Gold to identify and offset the loss and degradation of wetlands caused by Blackwater, and in selecting wetland offsets, consider whether it would also have benefits for moose and grizzly bear habitat.	Section 9.2.3: Potential Effects: Ecosystems; Section 9.3: Potential Effects and Proposed Mitigation Identified During Application Review (Wildlife and Ecosystems)

4.5.4 SUPPLEMENTAL INFORMATION REQUESTS DURING APPLICATION REVIEW

During Application Review, the EAO and the Agency requested additional reference materials and supplemental information from New Gold. The EAO's requests for additional information were primarily driven by concerns raised and requests submitted by the public, the Working Group and Indigenous groups. The requests for information are documented in the Issues Tracking Tables. New Gold's responses are documented in the Issues Tracking Tables and associated memoranda.

New Gold also provided a large volume of materials related to design changes made during Application Review, including changes to the routing of the transmission line and the addition of water treatment technologies. All information requests and New Gold responses are available on the EAO's ePIC website.

The Issues Tracking Tables capturing Working Group comments and New Gold responses during Application Review are posted at the EAO's ePIC website at:

https://projects.eao.gov.bc.ca/p/blackwater-gold/docs?folder=255

Blackwater-related information, including New Gold's Application, supplemental information provided to the EAO by New Gold during the Application Review phase of the EA, and New Gold's responses to comments made by members of the public are available on the EAO's ePIC website at:

https://projects.eao.gov.bc.ca/p/blackwater-gold/docs

PART B – ASSESSMENT OF POTENTIAL ADVERSE EFFECTS

5 AIR QUALITY

5.1 BACKGROUND

Air quality was selected as a VC due to its importance to the environment and human health. Blackwater would have the potential to impact air quality due to the generation and airborne transport of fugitive dust particles and exhaust emissions from a variety of sources, such as vehicles and equipment, during all the phases of Blackwater. New Gold's Application predicted the highest levels of air emissions would occur during Construction and Operations, as these phases are expected to involve the highest use of vehicles and equipment.

The results of this assessment also informed the assessment of other VCs, including:

- Vegetation (Section 9.0 of this Report);
- Wildlife (Section 9.0 of this Report);
- Surface Water Quality (Section 10.0 of this Report); and
- Human Health (Section 15.0 of this Report).

5.1.1 REGULATORY CONTEXT

In BC, air quality effects are evaluated using a suite of ambient air quality objective (AQOs) and standards that have been developed provincially and nationally to inform decisions on the management of air contaminants. These are the Provincial Air Quality Objectives (some of which are Interim), National Ambient Air Quality Objectives, and Canadian Ambient Air Quality Standards (CAAQS). Collectively, these are consolidated into the BC Ambient Air Quality Objectives (AAQOs). Several of these AAQOs have been revised since the Blackwater Application, as discussed below in Section 5.3.

Were Blackwater to be issued an EAC, a *Mines Act* permit from EMPR would be required before Blackwater could be built. The *Mines Act* permit would include requirements related to particulate management (usually a Fugitive Dust Management Plan [FDMP]). Blackwater would also require a Waste Discharge (Air) permit under the EMA. The EMA permit would authorize and set conditions related to air emissions sources, including fugitive dust, and air quality monitoring. This permit would also likely require a FDMP. ENV and EMPR have developed a joint guidance document for such plans, which New Gold would be expected to follow. ENV would also require a Refuse Incinerator Management Plan and Blackwater would also require a Waste (Refuse and Emissions) Management Plan that would include air contaminants. The emissions sources covered by the permit, and emissions requirements, would be determined by the statutory decision-maker under the EMA. In addition, the Health, Safety and Reclamation Code for Mines

in BC has specific requirements regarding exposures of on-duty workers to airborne contaminants.

5.1.2 SPATIAL AND TEMPORAL ASSESSMENT BOUNDARIES

The Air Quality assessment local study area (LSA) and regional study area (RSA) were the same area: a 40 km by 40 km area centered on the proposed mine pit, plus a three km wide corridor (1.5 km on each side) along the transmission line, mine access road, airstrip, freshwater supply pipeline and Kluskus FSR, as shown in Figure 2.1-1 of Appendix 5.2.4A. The LSA included the main sources of air emissions from Blackwater and was the model domain where air dispersion modelling was conducted to gauge potential air quality effects.

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Description and Location of this Report.

5.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

5.2.1 BASLINE INFORMATION

The Application used a dispersion model to assess the following common air contaminants (CACs): total suspended particulates (TSP), particulate matter (PM) with a diameter less than 10 micrometres (PM_{10}), particulate matter with a diameter less than 2.5 micrometres ($PM_{2.5}$), nitrogen dioxide (NO_2), carbon monoxide (CO) and sulphur dioxide (SO_2). The majority of PM emissions would occur from vehicle travel on non-paved roads and from materials handling (for example, bulldozers and graders) with some contribution of $PM_{2.5}$ from vehicle fuel use and other combustion sources. SO_2, NO_2 and CO are combustion by-products emitted by vehicles and machinery.

Background levels of these CACs in the Blackwater area were estimated using three reliable public domain air quality databases covering similar remote areas, and on-site Blackwater particulate monitoring for $PM_{2.5}$ and PM_{10} (August 2012 to December 2013). The background concentrations were low compared to AAQOs (see Table 11 below).

5.2.2 POTENTIAL PROJECT EFFECTS

The Application used a dispersion model to predict ambient concentration and deposition patterns of CACs based on estimated emissions for the Construction and Operations phases of Blackwater, as these phases were expected to emit the most air contaminants. The Application modelled predicted CAC concentrations in the LSA outside the mine site boundary and at four receptors: Blackwater-Spruce Ranch, Laidman Lake Ecolodge, Tatelkuz Lake Resort and Pan Philips Resort. These four locations were selected because they are continuously or regularly occupied by local land users.

For the Construction Phase, emissions were estimated for construction of the mine, road, transmission line and water pipeline. Road construction was used as a conservative case for all linear disturbances, as it was expected to be the most emitting linear disturbance. For the Operations Phase, the Application estimated emissions from the mine site, road and airstrip; the airstrip is only proposed to be used during Construction, but emissions were presented along with Operations emissions. The Application noted that emissions from transmission line and pipeline operations were expected to be negligible and therefore were not included in the modelling. For all predictions, the highest emissions scenario was used, which included emissions from both the Construction and Operations Phases, as activities from these phases might sometimes occur simultaneously. Construction Phase emissions were used as a conservative assessment for the Closure and Post-Closure Phases, as these phases were expected to have lower emissions.

The Application reported on the maximum predicted CAC levels (including background levels) in the LSA. These are summarized in Table 11 below.

The Application compared predicted CACs to background levels and to the AAQOs in effect at the time the Application was produced. The Application predicted that Blackwater would increase concentrations of all CACs. The analysis predicted levels higher than background levels for all CACs, and exceedances of AAQOs for the following CACs:

- 24-hour (hr) average TSP;
- Annual average TSP;
- 24-hr average PM_{10}; and
- Annual average $PM_{2.5}$.

Levels of SO_2, CO and NO_2 were predicted to increase more than 10 percent above background levels but remain below AAQOs (see revision related to NO_2 discussed in Section 5.3.3 of this Report).

Maximum CAC concentrations were projected to occur at various locations depending on the CAC. Figures showed the levels of the different CACs at various locations, including the points outside the mine site boundary where the projected maximum for each CAC would occur (maximum points of impingement [MPOIs]).

These figures were revised subsequent to the Application. As an example, some revised results in Figure 3 below shows modelled maximum daily-average TSP concentrations as a percentage of the National AAQO. For TSP, the revised predicted MPOIs (24-hr and annual) were at the airstrip access road and FSR boundary, respectively. For PM_{10}, the revised projected 24-hr maximum was located at the FSR boundary, and for $PM_{2.5}$, all predicted maxima were on the south mine site boundary. AAQO exceedances of CACs at the "sensitive receptor" locations were not predicted.

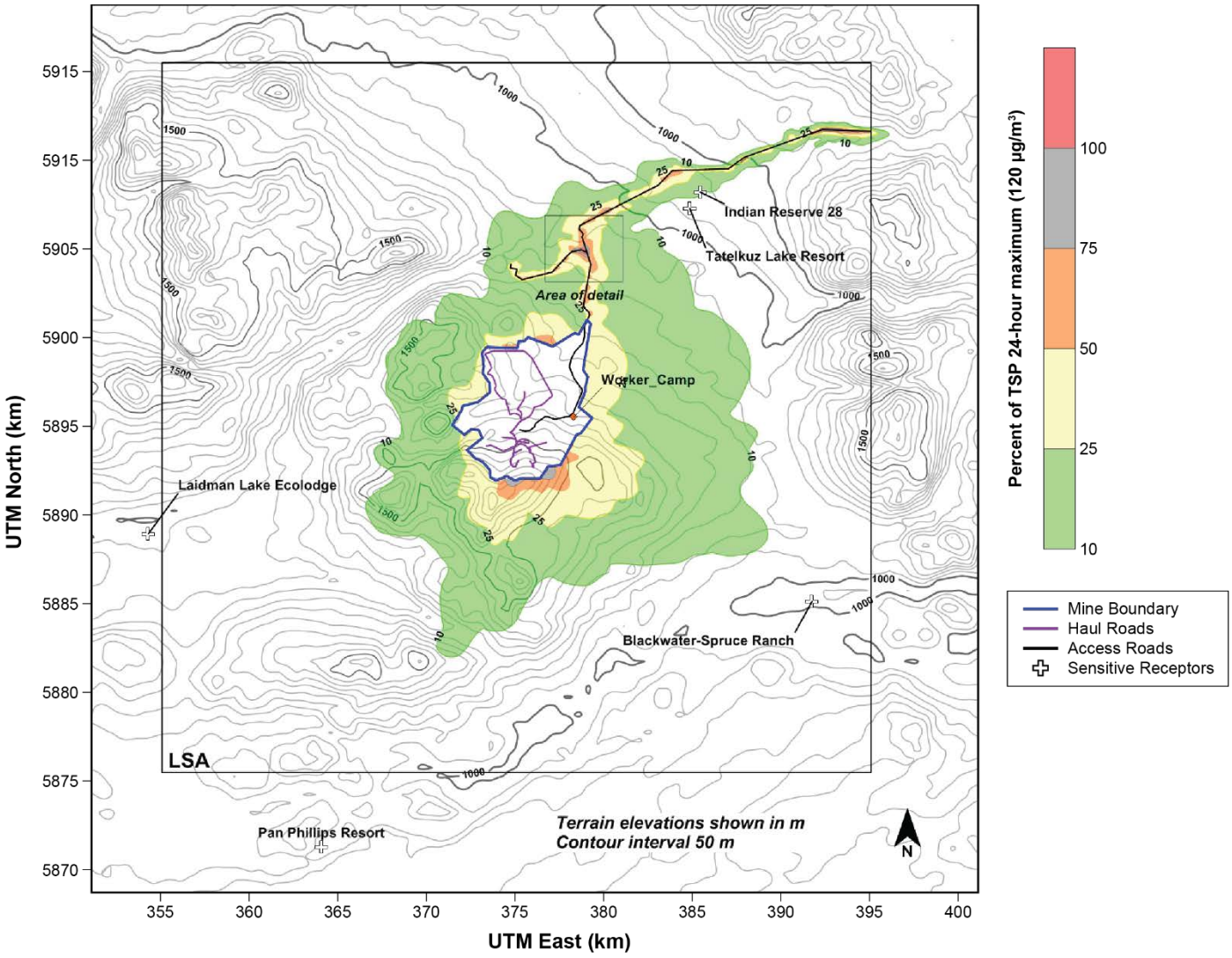

Figure 3: Modelled Maximum 24-hour TSP Concentrations as a Percentage of the National AAQO

For SO_2 and CO, maximum predicted levels for all averaging periods were located along the airstrip boundary. For NO_2, maximum predicted concentrations for all averaging periods were located at the south mine site boundary.

Table 11: Predicted Maximum Total CAC Concentrations in the LSA

CAC	Average Period	Ambient Background Concentration (µg/m³)	Max. Total Concentration (including background, µg/m³)	Most Stringent AAQO Considered in Application (µg/m³)	Max. Total Concentration as a Percentage (%) of Most Stringent AAQO Considered
SO_2	1-hr	1	42.5	450	9
	3-hr	1	27.4	375	7
	24-hr	1	7.49	150	5
	Annual	1	2.59	25	10
NO_2	1-hr	8	210.5	400	53
	24-hr	8	95.8	200	48
	Annual	8	42.3	60	70
CO	1-hr	120	881	14,300	6
	8-hr	120	377	5,500	7
TSP	24-hr	18	**225**	120	**188**
	Annual	18	**87.7**	60	**146**
PM_{10}	24-hr	9	**56.8**	50	**114**
$PM_{2.5}$	24-hr	4	23.5	25	94
	Annual	4	**8.28**	8	**104**

Notes: **Bold and highlighted** numbers exceed the most stringent AAQO considered in the Application
µg/m³ = micrograms per cubic metre

5.2.3 MITIGATION MEASURES

New Gold identified the following key mitigation measures, which would be contained in an Air Quality and Emissions Management Plan (AQEMP), one of the Mine Management Plans New Gold would submit in a joint application for *Mines Act* and EMA permits, to address potential effects to Air Quality during the Construction and Operation Phases:

- Off-road vehicles would meet stringent emission standards and would use ultra-low sulphur diesel;
- Vehicle speeds would be controlled throughout the mine site;
- Unpaved road surfaces would be wetted as needed (which could include use of chemical dust suppressants);
- Materials would be wetted before handling to reduce PM emissions; and
- Road surfaces would be constructed using coarse aggregate with low silt content (as road dust emissions are strongly influenced by silt content).

5.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups and the Working Group. The issues tracking table includes all Air Quality related comments, including those that were for clarification and those that related to subsequent permitting. From the Working Group comments, the EAO distilled four central issues relating to Air Quality:

- Air quality monitoring;
- Effectiveness of dust mitigation measures;
- Revised AQOs; and
- Modelled exceedances of AQOs.

5.3.1 AIR QUALITY MONITORING

The Working Group raised a variety of issues relating to potential uncertainty in the air quality effects assessment and provided recommendations for an air quality monitoring program to verify the results of the assessment.

BC Centre for Disease Control (BCCDC) recommended that New Gold monitor ambient $PM_{2.5}$ and PM_{10} during Construction and Operations to confirm the air quality predictions. ENV recommended that an appropriate air quality monitoring program and an AQEMP be developed to address the assessment uncertainties and minimize the potential for unacceptable impacts to air quality.

CSFNs requested that New Gold provide local baseline information on emissions and ambient levels, including PM, along the proposed access routes and transmission lines, as CSFNs' view was that a lack of local baseline data created uncertainty in the effects assessment. NWFN and StFN also noted that more

information was needed to demonstrate the inclusion of NWFN and StFN traditional, ecological, and community knowledge into the prediction and quantification of potential Blackwater impacts and cumulative effects.

New Gold clarified that local monitoring for PM (PM_{10} and $PM_{2.5}$) was conducted for a full year at the mine site and baseline concentrations for SO_2 and NO_2 were determined by reviewing other data in areas representative of the Blackwater. New Gold's view was that the concentrations were adequately representative of baseline air quality conditions throughout the LSA. Also, New Gold noted that along much of the transmission line route, new fugitive dust emissions are likely to be within the range of baseline conditions in the LSA and that additional baseline data on the transmission line route was therefore not necessary.

New Gold stated that further development of an air quality monitoring and reporting program would be completed to support the EMA air permit application. If issued, the permit is expected to specify the locations, parameters, analytical methodologies, and frequency of required monitoring.

New Gold's AQEMP would include air quality monitoring to: meet regulatory and permitting requirements; assess the effectiveness of mitigation measures; verify predictions in the EA; and support adaptive management. A conceptual level AQEMP was provided in Section 12, subsection 12.2.1.18.4.9 of the Application. New Gold committed to collaborate with NWFN and StFN during the development of the AQEMP. ENV, NWFN and StFN welcomed this commitment to collaboration and NWFN and StFN requested that they be engaged as part of New Gold's development of the AQEMP.

Additionally, NWFN and StFN requested the following as part of New Gold's AQEMP:

- Use of environmental receptors (for example, lichen) to monitor ambient air quality, especially relating to PM and nitrogen, that are longitudinally and spatially representative along the road and transmission line running through NWFN and StFN territories;
- Longitudinal studies of deposition rates and dispersion levels of PM;
- A conceptual adaptive management plan (AMP) that uses results of the longitudinal studies;
- Consultation with NWFN and StFN regarding "acceptable" levels of dust from roads and remedial actions and responses if such levels are exceeded; and
- A description of the roles and responsibilities of NWFN and StFN representatives.

The EAO notes that subsequent permitting would require a Waste (Refuse and Emissions) Management Plan that includes air contaminants. However, given the potential exceedances relate to Blackwater components that are not on the mine site, the EAO cannot assume whether and how these would be addressed in a management plan established during permitting. Therefore, the EAO proposes Condition 20: Air Quality and Dust Management Plan, to require New Gold to monitor air quality in the vicinity of the modelled exceedances, among other purposes (see below). The proposed condition would require that the Air Quality and Dust Management Plan be developed in consultation with Indigenous groups, ENV, EMPR and NHA.

5.3.2 EFFECTIVENESS OF DUST MITIGATION MEASURES

NWFN and StFN expressed concern about potential dust fall levels including from the construction, operation and recreational use of transmission line access roads. HC raised concerns regarding New Gold's proposed mitigation measures for fugitive dust emissions, particularly from the haul roads. For PM from unpaved haul roads, New Gold had assumed a dust control efficiency of 95 percent. HC questioned whether New Gold would be able to continuously achieve this mitigation efficiency, noting that this is unsupported by the literature and would likely underestimate dust generation from haul roads.

During Application Review, New Gold provided a sensitivity analysis including a scenario of 70 percent active mitigation of dust from haul roads, as well as a scenario based on no control (zero percent mitigation) on unpaved haul roads. The analysis predicted levels of TSP, PM_{10} and $PM_{2.5}$ at the MPOI and the worker camp. New Gold noted that the no control scenario would be very unlikely, given New Gold's commitment to appropriate monitoring and application of road watering, or the application of chemical suppressants as a contingency, and the implementation of an AQEMP.

The sensitivity modelling confirmed that roads would be a major contributor to ambient particulate concentrations, as predicted maximum concentrations of PM within the LSA increased significantly. This was most notable for 24-hr standards and for TSP and PM_{10}. Emissions of $PM_{2.5}$ were predicted to increase, but by a smaller amount. At the MPOI for the 70 percent mitigation scenario, New Gold predicted that all concentrations of TSP, PM_{10} and $PM_{2.5}$ would exceed BC objectives, except for 24-hr $PM_{2.5}$ levels. At the worker camp for the 70 percent scenario, New Gold predicted that all TSP, PM_{10} and $PM_{2.5}$ concentrations would be within objectives and standards, except for the 24-hr TSP levels, which would exceed the BC objective three days per year. The sensitivity modelling predicted that all standards and objectives for TSP, PM_{10} and $PM_{2.5}$ would be met at all "sensitive receptor" locations, under both the 70 percent and zero percent haul road control assumptions.

New Gold noted that there was a large decrease in modelled concentrations from the MPOI to the worker camp (at the edge of the LSA) and then again at farther sensitive receptors, indicating that the predicted higher concentrations in the 70 percent control scenario would be limited to areas adjacent to the source of emissions.

The EAO notes that the sensitivity analysis for haul road mitigation effectiveness reinforced the importance of successful mitigation of fugitive dust from haul roads and other sources at Blackwater, and of robust monitoring and adaptive management. To help manage impacts from fugitive dust, the EAO is proposing Condition 20: Air Quality and Dust Management Plan, which would require New Gold to identify and manage sources of dust associated with Blackwater.

5.3.3 REVISED AIR QUALITY OBJECTIVES

ENV and HC noted that the Application did not use new Interim AAQOs for NO_2 and SO_2 adopted by BC in 2014 or the CAAQS for $PM_{2.5}$ adopted in 2013.

In response, New Gold presented the predictions of NO_2, SO_2 and $PM_{2.5}$ with respect to the new AQOs. The revisions relevant to the BC interim AAQOs are summarized in Table 12 below. The CAAQS for $PM_{2.5}$ were not as stringent as the BC AAQOs used in the Application already. For SO_2 there were no additional exceedances of the objectives or standards. For NO_2, the modelled maximum 1-hr total concentration of 210.5 micrograms per cubic metre (µg/m³) (100th percentile) may imply exceedance of the new interim BC AAQO of 188 µg/m³ (based on the 98th percentile of daily 1-hr maximum, over one year).

Considering New Gold's reassessment, the EAO is of the view that the issue of the use of the new Interim AAQOs for NO_2 and SO_2 is adequately resolved for the purposes of the EA.

Subsequently, Canada and BC made additional changes to the structure and levels of their AAQOs. The 2017 changes to the CAAQS for SO_2 and NO_2 resulted in standards more stringent than New Gold had considered to date. These are also shown in Table 12. For SO_2 no additional exceedances are predicted to result. However, for NO_2 New Gold's modelled maximum annual average concentration of 42.3 µg/m³ now exceeds the new CAAQS of 32 µg/m³. The modelled maximum 1-hr total NO_2 concentration of 210.5 µg/m³ (100th percentile) also suggests possible exceedances of the CAAQS of 113 µg/m³ (three-year average of 98th percentile daily 1-hr maximum). The issue of potential exceedances is further addressed below.

Table 12: AAQOs Updated Since Application

CAC	Averaging Period	Max. Total Concentration (Including Background; µg/m³)	BC Interim Objective – Updated Since Application (µg/m³)	CAAQS – Updated Since Application Review (µg/m³)
SO_2	1-hr	42.5[i]	200[i]	183
	Annual	2.59	-	13
NO_2	**1-hr**	**210.5**[ii]	**188**[ii]	**113**
	Annual	**42.3**	**60**	**32**

Bold and highlighted numbers may imply exceedance of the relevant AAQO

[i] The 100th percentile was reported; while the interim objective for SO_2 is based on the 99th percentile.
[ii] The 100th percentile was reported; while the interim objective for NO_2 is based on the 98th percentile.

5.3.4 MODELLED EXCEEDANCES OF AIR QUALITY OBJECTIVES

ENV, NWFN and StFN raised concerns that the Application predicted levels of TSP, PM_{10}, $PM_{2.5}$ and NO_2 that would exceed relevant AQOs.

> In response, New Gold noted that its modelling was conservative, and ENV agreed, notwithstanding the concerns related to dust mitigation discussed earlier. As well, the four sensitive receptors identified by New Gold were not predicted to experience exceedances. Further, people are likely to be in the areas with modelled exceedances for a shorter time than the durations assumed in setting the AQOs. ENV noted that predicted exceedances were based on theoretical 'worst case scenarios' which, in reality, should not occur if appropriate monitoring and mitigation are in place.
>
> A conceptual level AQEMP was provided in Section 12, subsection 12.2.1.18.4.9 of the Application, and New Gold committed to collaborating with Indigenous groups on the development of the AQEMP. The EAO is also proposing Condition 20: Air Quality and Dust Management Plan, which would set out mitigation measures to address atmospheric emissions, including dust emissions management. Condition 20: Air Quality and Dust Management Plan would also include requirements for monitoring and reporting of ambient concentrations of pollutants as discussed above, and would require New Gold to develop the Plan in consultation with Indigenous groups and government agencies.

ENV, NWFN and StFN welcomed New Gold's commitment to collaboration on the development of the AQEMP. ENV suggested that development of the AQEMP in collaboration with regulatory agencies and stakeholders should be a condition of the EAC. ENV also recommended that the AQEMP outline a procedure on how New Gold would handle complaints from the community and corrective actions to mitigate the effects.

NWFN and StFN requested collaboration on the AQEMP be a condition of the EAC, and that the condition require the elements listed above, including a conceptual AMP, consultation regarding "acceptable" levels of dust from roads, and remedial actions and responses.

> In response to these concerns, the EAO proposes Condition 20: Air Quality and Dust Management Plan, which would include a requirement to implement controls to minimize the possibility CAC exceedances, in addition to the air monitoring purposes discussed above. The Air Quality and Dust Management Plan would describe guidelines for reduction and mitigation of emissions from Blackwater, including dust mitigation. The Air Quality and Dust Management Plan would be developed in consultation with Indigenous groups, ENV and other government agencies, and would include consideration of ENV's Dust Management Plan Guidance. To provide an avenue for public complaints, including about dust from Blackwater, the EAO proposes Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, which would include a process for members of the public to submit complaints and would require New Gold to establish a resolution process such complaints, including how and when New Gold would respond to the complaint, and how issues would be identified, tracked and responses documented. .

5.4 CHARACTERIZATION OF RESIDUAL EFFECTS

After considering the proposed mitigation measures, the EAO concludes that Blackwater would result in residual adverse effects on air quality from increases to the following CACs above background levels: TSP, $PM_{2.5}$, PM_{10}, NO_2, CO, and SO_2. The EAO's characterization of the expected residual effects of Blackwater on air quality is summarized below in Table 13, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 13: Characterization of Residual Effects to Air Quality

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	High resilience	Except during wildfire episodes, regional air quality currently is excellent.
Magnitude	Moderate	While modelling predicted exceedances of AAQOs for several CACs, Condition 20: Air Quality and Dust Management Plan would likely prevent actual exceedances from occurring. Nevertheless, CAC levels higher than background levels are expected. Three road dust mitigation efficiency scenarios were modelled (0 percent, 70 percent and 95 percent). AAQO exceedances were predicted for TSP and PM_{10} and the annual AAQO for $PM_{2.5}$ under all three scenarios. Predictions for 24-hr $PM_{2.5}$ indicated no exceedances under the 70 percent and 95 percent scenarios. Modelling predicted limited exceedances of the AAQOs for NO_2. Modelling predicted increases in concentrations of SO_2, CO and 24-hr $PM_{2.5}$ of more than 10 percent above background levels but below AAQOs.
Extent	Local	Predicted residual effects to air quality for all CACs are entirely within the LSA, with exceedances of AAQOs for TSP and PM_{10} restricted to the south mine boundary and limited areas along the haul roads.
Duration	Long-Term	The residual effects would last throughout the Construction and Operation Phases of Blackwater.
Reversibility	Reversible	The residual effects to air quality would stop when the relevant activity ended; any air quality related effects on other VCs such as human health or vegetation might not be as reversible.
Frequency (of residual effect)	Continuous	The residual effects to air quality would be continuous throughout the Construction and Operations Phases of Blackwater.
Likelihood	It is highly likely that there would be some level of impacts to air quality based on the use of similar machines and vehicles, as well as similar operations at other mines.	

CRITERIA	ASSESSMENT RATING	RATIONALE
Significance Determination	**Not Significant**: The Air Quality and Dust Management Plan is expected to prevent effects of the magnitudes modelled. Effects would occur continuously throughout the Construction and Operations Phases of Blackwater but would be reversible shortly after Blackwater ceased operations. Few people are expected to remain in the areas of exceedance for the duration of the relevant objective. The EAO is satisfied that Blackwater would not have significant adverse effects on air quality.	
Confidence	**Moderate**: There is a moderate level of confidence in the likelihood and significance determinations as the Application used standard air quality assessment methodologies, incorporated a range of mitigation efficiencies for TSP and $PM_{10/2.5}$, predicted "worst case scenarios" and used AAQOs as thresholds, which are developed by various regulatory agencies. The permitting process and Condition 20: Air Quality and Dust Management Plan also provide the opportunity to manage adaptively to ensure effects are being reduced.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

5.5 CUMULATIVE EFFECTS ASSESSMENT

There are currently existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with Blackwater (see list in Section 4, subsection 4.3.5.5 of the Application).

The potential for cumulative effects from the three listed Projects (Nulki Hills Wind Project, Coastal Gas Link Pipeline, and Pacific Northern Gas Looping Project) is considered negligible because the predicted residual effects from Blackwater are local in terms of geographic extent and are not anticipated to interact with the other Projects, which are all outside the LSA.

There could be impacts to air quality from a variety of general land uses in the region (for example, forestry); nevertheless, the low baseline levels of CACs suggest that these activities are not causing meaningful impacts. The Application and supplemental information did not provide detailed information about these land uses and their effects on air quality, hampering attribution of emissions to particular types of land use. However, the EAO notes that the background levels that inform the residual effects assessment above include the cumulative effects of all other current activities affecting air quality.

5.6 CONCLUSIONS

Considering the above analysis and having regard to the conditions identified in the Certified Project Description (CPD) and Condition 20: Air Quality and Dust Management Plan in the Table of Conditions (TOC) (which would become legally binding in the event that an EAC is issued), the EAO is satisfied that Blackwater would not have significant adverse effects on air quality.

6 CLIMATE CHANGE

6.1 BACKGROUND

Climate Change was selected as a VC as Blackwater has the potential to emit GHGs during all project phases. GHG emissions for the project would be produced from the combustion of fossil fuels that produce carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). GHG emissions are expressed in carbon dioxide equivalents (CO_2e). GHGs for the project would be produced by stationary combustion, fuel combustion in mobile equipment, electricity generation, industrial wastewater processing and land clearing (including decay of cleared material).

Climate Change was assessed in a manner consistent with 2003 guidance from the Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment.[5]

6.1.1 REGULATORY CONTEXT

Both the federal and BC governments have policies and legislation that support reducing GHG emissions. The Government of Canada's goal is to reduce Canada's total GHG emissions by 30 percent from 2005 levels by 2030. Under the National Pollutant Release Inventory (NPRI), ECCC requires that any facility emitting more than 10 kilotonnes (kt) CO_2e report its annual GHG emissions.

In May of 2018, the BC *Greenhouse Gas (GHG) Reduction Targets Act* was amended, setting new legislated targets to reduce GHG emissions relative to 2007 levels by 40 percent by 2030, and by 60 percent by 2040. The amendment also repealed the 2020 emissions target. BC has implemented a suite of policy, regulatory, and legislative measures to reduce emissions across the province. Most relevant to Blackwater, the *Greenhouse Gas Industrial Reporting and Control Act* (GGIRCA) enacted in January 2016 streamlined several aspects of existing GHG legislation and regulation into a single legislative and regulatory system, including the emission reporting framework established under the *Greenhouse Gas Reduction (Cap and Trade) Act*. GGIRCA provides authority for the Greenhouse Gas Emission Reporting Regulation, the Greenhouse Gas Emission Control Regulation, and the Greenhouse Gas Emission Administrative Penalties and Appeals Regulation. Under the Greenhouse Gas Emission Reporting Regulation, a single facility that emits 10,000 or more tonnes of CO_2e per year is required to report emissions during the reporting period.

Based on expected emissions from Blackwater, New Gold would be required to report Blackwater GHG emissions as per the BC reporting requirements.

[5]The Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment, 2003, Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners.

6.1.2 SPATIAL AND TEMPLORAL BOUNDARIES

As the effects of GHGs from Blackwater (or any other point source) would be global in nature, the Application does not establish a LSA or RSA for the Climate Change VC.

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Description and Location of this Report.

6.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

Table 14 provides a summary of the maximum estimated GHG emissions during Operations from Blackwater. Maximum GHG emissions are estimated to be 469.94 tonnes CO_2e per day, which is 171.5 kt CO_2e per year.

Table 14: Summary of Maximum Estimated GHG Emissions from Blackwater by Source[i]

Source	Total Emissions (t/d)[ii]				Total CO_2e Emissions (kt/yr)[iii]
	CO_2	CH_4	N_2O	CO_2e	
On-Road Vehicles	1.02	0.00	0.00	1.02	0.4
Mine Fleet (Equipment)	339.35	0.023	0.172	453.12	165.4
Aviation	9.22	0.00	0.00	9.32	3.4
Waste Incinerators	6.38	0.00	0.00	6.48	2.4
Total	**355.97**	**0.023**	**0.172**	**469.94**	**171.5**

[i] Table 5.2.3-5 in the Application
[ii] t/d: tonnes per day
[iii] kt/yr: thousand tonnes per year

The Application compared Blackwater Operations phase GHG emissions to the total BC emissions in 2010, Canadian emissions in 2011, and global emissions in 2013. The Application found that Blackwater would increase the total BC emissions by 0.28 percent, Canadian emissions by 0.02 percent, and global emissions by 0.0005 percent. These comparisons are further discussed in Section 6.3.1.1 below.

6.2.1 MITIGATION MEASURES PROPOSED IN THE APPLICATION

New Gold identified the following key mitigation measures to address effects to Climate Change from GHG emissions:

- Use buses and/or airplanes, instead of personal transportation, to transport workers to the mine site during Construction and Operations to reduce traffic emissions;
- Operate and maintain emission control equipment as per manufacturers requirements (for example, refuse incinerator);
- Manage vehicle and equipment emissions by conducting regular vehicle, machinery and equipment maintenance, restricting speeds, sizing of equipment and reducing idling;
- Designing Blackwater to connect to the BC Hydro electricity grid as opposed to having on-site diesel generators; and
- Implement a reclamation and closure plan, which would restore vegetation.

6.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

6.3.1 ISSUES RAISED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups and the Working Group. From these comments, the EAO distilled two central issues relating to Climate Change:

- Construction phase GHG emissions; and
- Mitigations related to emissions from land clearing.

CONSTRUCTION PHASE GHG EMISSIONS

FLNRORD requested that New Gold provide an assessment of Construction phase GHG emissions, including emissions from all land clearing activities related to Blackwater and the method of vegetation removal, if known. FLNRORD requested that New Gold follow FLNRORD guidance on estimating GHG emissions from deforestation. FLNRORD noted that the assessment should include both deforestation from mine site clearing as well as for the transmission line, access roads, and construction of other facilities and linear infrastructure necessary for Blackwater.

In response, New Gold provided a supplementary GHG emission study that estimated GHG emissions from construction land clearing, purchased electricity and worker accommodations, as reflected in Table 15 below (these emissions are categorized as “indirect” emissions by protocol). Land clearing GHG emissions were assumed to be mainly emitted over the Construction phase (although emissions from decaying wood would be emitted over a slower timeframe) and purchased electricity and worker accommodation GHG emissions were assumed to be emitted during both the Construction and Operations phases. New Gold estimated emissions from these sources attributable to the

Construction phase to be 3122 ktCO$_2$e, and 10.9 kt CO$_2$e/y attributable to the Operations phase.

Table 15: Blackwater Indirect GHG Emissions

Source	Annual Emissions Estimate (ktCO$_2$e/y)[i]	
	Construction	Operations
Construction Land Clearing	3122	-
Purchased Electricity[ii]	7.6	8.6
Accommodations	6.9	2.3
Total Construction (Whole Phase)	**3122**	**-**
Total Additional Operations per Year	**-**	**10.9**

[i] Provided by New Gold, memorandum dated July 6, 2016
[ii] Assumes no transmission line during Q1 of Year 1

The 3122 ktCO$_2$e attributable to the Construction phase would be emitted over several years, including about 17 years of material decay following Construction. Considering the sources of GHG emissions and timing of construction activities, the EAO considers a reasonable estimate of worst-year Construction GHG emissions is 900 ktCO$_2$e/y. Emissions close to this level would continue for two years. During those two years, Blackwater GHG emissions would be approximately equivalent to 1.5 percent of total BC GHG emissions.

The Blackwater Operations GHG emissions estimate would increase by a little over 50 percent, to approximately 260 ktCO$_2$e/y, if these additional Operations emissions are factored in (including emissions associated with the decay of material cleared during Construction). Blackwater GHG emissions during Operations would represent approximately 0.4 percent of BC GHG emissions, instead of the 0.28 percent reported above based on "direct" Blackwater emissions only.

Table 16 compares Blackwater Construction and Operations GHG emissions to more recent BC, Canadian and global GHG emissions totals than used in the Application, as well as the recently-legislated 2030 BC target (40 percent below 2007 level). Construction emissions are not compared to BC's 2030 target because Construction is expected to be complete before then.

Table 16: Revised Comparison of Blackwater GHG Emissions

	Estimated GHG Emissions (kt CO2e/y)
BC (2016)	61,300
BC Target (2030)	38,200
Canada (2016)	704,000
Global (2013)	36,700,000
Blackwater Construction Phase	900
Blackwater Operations Phase	260
Blackwater Construction GHG Emissions	**Percentage of Total (%)**
Percentage of 2016 BC total	1.5
Percentage of 2016 Canadian total	0.1
Percentage of 2013 Global total	0.002
Blackwater Operations GHG Emissions	**Percentage of Total (%)**
Percentage of 2016 BC total	0.4
Percentage of 2030 BC target	0.7
Percentage of 2016 Canadian total	0.04
Percentage of 2013 Global total	0.007

The magnitude and significance of these emissions estimates are considered below in Section 6.4. The EAO's view is that the issue of Construction GHG emissions is sufficiently addressed for the purposes of the EA.

MITIGATIONS RELATED TO EMISSIONS FROM LAND CLEARING

FLNRORD commented that New Gold should consider mitigation measures related to emissions generated from land clearing; for example, replanting parts of the mine site or access roads upon Closure.

New Gold responded that the proposed Reclamation and Closure Plan (Application Section 2, subsection 2.6) identified the following measures to mitigate GHG emissions from land clearing, including:

- Integrating disturbed land, including engineered structures and mine-related landforms, into the natural landscape by re-establishing self-sustaining plant communities similar to pre-disturbance ecosystem units and wetlands;
- Establishing native plant communities similar to pre-disturbance ecosystem units, which include plant species with value for wildlife, traditional use, and species at risk naturally occurring in the mine site; and
- Conducting revegetation trials to establish rust-resistant whitebark pine.

New Gold reported that disturbed areas would be progressively reclaimed to the extent possible. Additionally, New Gold would create wetlands at Closure along with reforested areas. Much of the project site would be reclaimed with new forest, and New Gold expects that reforestation would restore the majority of the carbon sink.

The EAO notes that, should New Gold receive an EAC and proceed to permitting, New Gold would be required to develop a Reclamation and Closure Plan for the mine site and update the plan every five years over the mine life, pursuant to requirements in the Health, Safety and Reclamation Code for Mines in BC. The plan would provide for revegetation of the mine site. The EAO is also proposing Condition 25: End Land Use Plan, which would require New Gold to develop a plan to describe both pre-existing and post-mining land capabilities and land conditions, and to minimize the difference between the two, providing overarching support for reclamation and revegetation of areas disturbed by Blackwater.

6.4 CHARACTERIZATION OF RESIDUAL EFFECTS

After considering the proposed mitigation measures, the EAO concludes that Blackwater would result in the following residual adverse effects:

- Increase in GHG emissions during Construction and Operations.

The EAO's characterization of the expected residual effects of Blackwater on Climate Change is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 17: Summary of Residual Effects to Climate Change from GHG Emissions

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Low resilience	The international scientific community is in agreement that past and current GHG emissions are already at levels that are affecting Climate Change.
Magnitude	Low	Operations phase (direct and indirect) GHG emissions from Blackwater would be low when compared to provincial, Canadian and global totals. They would be about 0.4 percent of BC GHG levels. Construction phase (direct and indirect) GHG emissions would be about 1.5 percent of BC emissions, for the two Construction years.
Extent	Global	Impacts to Climate Change through GHG emissions are an issue at a global scale.
Duration	Long-term	The predicted impacts to Climate Change would continue after Post-Closure of Blackwater. Construction phase GHG emissions levels would continue for two years only.
Reversibility	Irreversible	Blackwater emissions would largely cease at Closure. GHG emissions continue to induce Climate Change for decades thereafter. The reversibility of Climate Change is uncertain therefore it is conservatively assumed to be irreversible.

CRITERIA	ASSESSMENT RATING	RATIONALE
Frequency (of residual effect)	Continuous	GHG emissions would be continuous for the life of Blackwater; Post-Closure emissions would be mitigated and negligible.
Likelihood	It is certain that Blackwater would emit GHGs, and thus there is a high likelihood of effects. However, GHG emissions may be reduced over time due to changes in technology and/or regulatory requirements.	
Significance Determination	Although the predicted effects to Climate Change would occur continuously, and be global in extent, the EAO is satisfied that Blackwater would not have significant adverse effects to Climate Change, primarily due to the low predicted magnitude of the residual effects.	
Confidence	The EAO has a high level of confidence in the significance and likelihood determinations, as the GHG estimates presented in the Application are a reasonably conservative estimate of potential GHG emissions during Construction and Operations, and the technical approach for estimating GHG emissions follows a standard methodology.	

Note: Criteria and assessment ratings are defined in Appendix B Summary Characterization of Residual Adverse Effects for Valued Components

6.5 CUMULATIVE EFFECTS ASSESSMENT

There are presently existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with Blackwater (see project list in Application Section 4, subsection 4.3.5.5). The Application notes that a variety of past, present and future activities with the potential to affect Climate Change also exist in the region, including forestry (via the use of machinery, vehicles and the removal of trees) and transportation activities. A cumulative effects assessment of the residual effects of GHG emissions was not undertaken because the comparison of GHG emissions to national and provincial targets inherently considers the cumulative impacts of GHGs from past and present projects and activities on the environment.

6.6 CONCLUSIONS

Considering the above analysis and having regard to the conditions identified in the CPD and Condition 25: End Land Use Plan in the proposed TOC (which would become legally binding in the event that an EAC is issued) the EAO is satisfied that Blackwater would not have significant adverse effects on Climate Change.

7 NOISE AND VIBRATION

7.1 BACKGROUND

Noise and Vibration was selected as a VC because noise and vibration generated by Blackwater would have the potential to affect recreationists, Indigenous land users, fish and wildlife. Open pit mining, including blasting, and ore processing and gold recovery would be the main source of noise and vibration. Noise due to vehicle movement would be intermittent but would also add to the background noise levels. Air traffic noise related to fixed-wing aircraft is expected to be limited mainly to Construction, as New Gold expected that the Operations workforce would be composed of people living in the RSA who would not need to be flown to the site. During Operations, Closure and Post-Closure, aircraft use was expected to be rare.

This section assesses the magnitude and nature of potential impacts of Noise and Vibration from Blackwater. The impacts to human health, wildlife, and fish and fish habitat from Noise and Vibration are also addressed in Section 9.0: Wildlife, Section 11.0: Fish and Fish Habitat and Section 15.0: Human Health of this Report.

New Gold's Application defined noise as any "unwanted sound," and vibration as "the speed of excitation of particles within the ground resulting from vibratory motion."

The closest permanent residents to Blackwater include Tatelkuz Lake Ranch Resort and Tatelkus Lake Indian Reserve 28, both approximately 7.5 km from the airstrip and approximately 10 km from the mine site. The Construction and Operations camps would be approximately three km from the open pit and plant site. In addition, recreational users may be present for outdoor activities in and around Blackwater components, and Indigenous people use the area for traditional and non-traditional uses.

7.1.1 REGULATORY CONTEXT

Noise levels outside the mine site would not be directly regulated. Regulations and guidelines relevant to noise management and this assessment include:

- Noise on a worksite is regulated by the Health, Safety and Reclamation Code for Mines in BC and WorkSafe BC;
- The federal Environmental Code of Practice for Metal Mines recommends an objective of 45 decibels (db) for off-site ambient noise levels in remote locations, and recommends noise control measures;
- The BC Oil and Gas Commission (BCOGC) has developed the BC Noise Control Best Practices Guideline, which provides requirements for noise control pertaining to oil and gas facilities and is considered relevant to other major industrial projects;
- The World Health Organization (WHO) Guidelines for Community Noise (1999), include a guideline value for inside a dwelling to avoid sleep disturbance; and

- HC has published Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise[6], which provides guidance for assessing potential impacts of noise on human health.

7.1.2 SPATIAL AND TEMPORAL BOUNDARIES

The noise assessment LSA and RSA are shown in Figure 4 below. The Application noted that study areas were chosen based on where potential noise effects could interact with human receptors. The LSA was defined by a 45 db contour surrounding the mine site and a three km corridor surrounding linear components, beyond which noticeable changes in Blackwater sound levels were not expected to occur.

The RSA included the LSA and a buffer to account for potential interactions with other projects or activities that generate noise. The existing Kluskus FSR was excluded from noise modelling as New Gold expected that noise and vibration from Blackwater's use of the FSR to be low.

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Description and Location of this Report.

[6] Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Ottawa

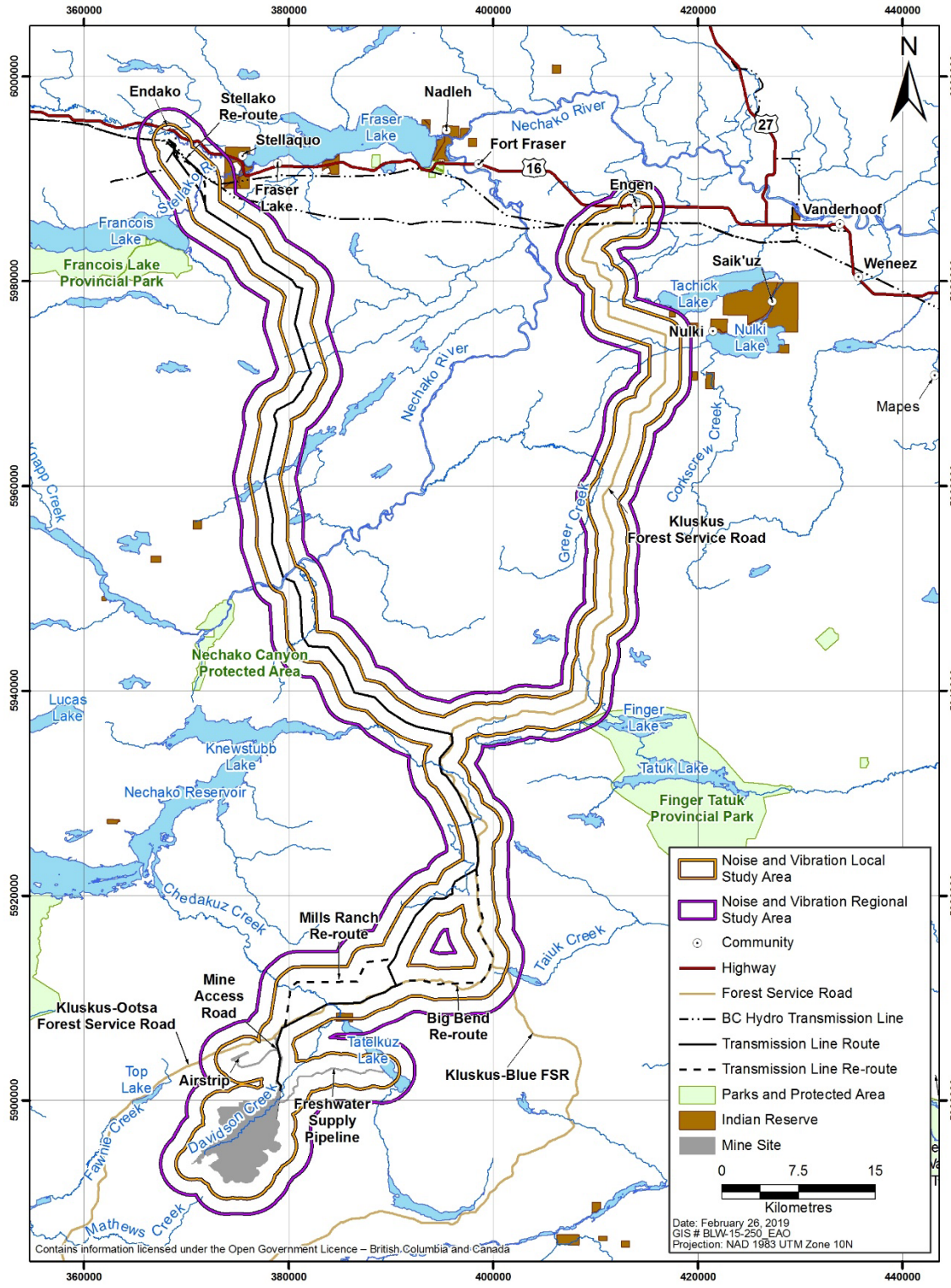

Figure 4: LSA and RSA for Noise Effects Assessment

7.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

7.2.1 BASELINE INFORMATION

New Gold examined baseline noise parameters for four similar open-pit mining projects located in northern BC. To verify the results of the information sources desktop studies, New Gold undertook a real-time baseline noise survey:

- 37-hr continuous monitoring of ambient sound parameters in the vicinity of the proposed open pit mine (long-term survey); and
- Spot sampling at the proposed airstrip area and at the nearest permanently occupied dwelling, located near the northern bank of Tatelkuz Lake (short-term survey).

The baseline noise survey indicated that both the ambient sound levels (ASLs) and sound characteristics in the Blackwater area are low (approximately 31 db), typical of a quiet, remote environment. The baseline is below all relevant ambient noise standards and criteria. There are currently no anthropogenic sources of vibration in the vicinity of Blackwater.

7.2.2 POTENTIAL PROJECT EFFECTS

The primary measurement indicator used in the Application for noise was A-weighted sound pressure level (dBA) at potentially affected human receptor locations. An unoccupied recording studio may have a sound level of 20 dBA, sound levels in an office may be 50 dBA, highway traffic may generate 80 dBA, and a rock concert may reach 110 dBA. When comparing sound levels, a difference of five dBA is noticeable by the human ear, and a difference of 10 dBA corresponds to a halving or doubling in perceived loudness.

For aircraft noise, the Application also used a Noise Exposure Forecast (NEF) system used by Transport Canada for aircraft noise near airports. The NEF factors are based on subjective auditory reactions to specific aircraft noise stimulus including loudness, frequency, duration, time of occurrence, and tone. The NEF system calculates the average noise energy over a representative period (daytime hours for Blackwater) as sound exposure level (SEL) contours. Vibration was quantitatively assessed during Application Review using peak particle velocity of ground vibrations, in millimetres per second (mm/s).

The Application evaluated potential impacts to Noise and Vibration caused by Blackwater. The following broad categories of Blackwater activities were predicted to increase noise levels: Construction; Operations, including pre-stripping (removal of overburden material), open pit mining (including blasting), ore and waste hauling, tailings and waste rock disposal, ore processing and gold recovery; and the construction and operation of supporting infrastructure (airstrip, access road, transmission line and water supply system).

Blackwater activities and resulting noise levels would vary continuously. The Application modelled noise for Construction and Operations, as these were expected to be the loudest phases. For Construction, the analysis was based on the maximum sound levels of commonly used equipment types, as a detailed inventory of construction machinery was not yet available. For Operations, the Application assessed the "worst case scenarios" of the most equipment in operation at one time for the following main noise sources: mine and processing plant, Tatelkuz Lake pump station and booster pump stations, aircraft noise, and blasting.

Actual noise levels (from all sources) at affected points would vary because several factors may increase or decrease the propagation of sound. In general, these can be summarized as:

- Increase in trucking noise due to roughness of road surface;
- Increase due to multiple reflections from vertical surfaces;
- Decrease due to trees and barriers such as hills; and
- Lower composite noise level, as not all equipment would be used at the same time.

The Application did not quantitatively model potential vibration from Blackwater, because there would be no structures within the blasting vibration zone of the mine pit that could be affected. For impacts of Noise and Vibration on Fish and Fish Habitat, please see Section 11: Fish and Fish Habitat of this Report.

The predicted effects noise and vibration from Blackwater are summarized below.

CONSTRUCTION NOISE

CONSTRUCTION EQUIPMENT

The Application predicted that the worst-case construction scenario would have noise levels of 90 dBA at 15 m from a central location where most of the equipment would be located, near the primary crusher. This would diminish to 44 dBA at three km from the area of peak noise, which is the approximate location of the construction camp (see Application Section 5.2.2, Figure 5.2.2-1). The camp indoor noise level was expected to be 20 dBA, which is below the WHO indoor noise threshold of 30 dBA.

AIRCRAFT

New Gold estimated that there would be a maximum of 156 flights per year to transport the mine construction workforce to and from the site. The Application predicted that the highest noise levels would be reached during takeoff and would last up to several minutes at a time. During these periods it was anticipated that there would be large areas in and around the airstrip where noise levels would be 65 dBA and higher, based on the use of a Boeing 737 aircraft, the noisiest aircraft under consideration (see Figure 5 and Figure 6, reproduced from Application Section 5.2.2, Figures 5.2.2-3 and 5.2.2-4). This is considered a conservative scenario, as it is unlikely New Gold would use this size of aircraft all the time. The airstrip is proposed to be used regularly only during the Construction Phase of the mine.

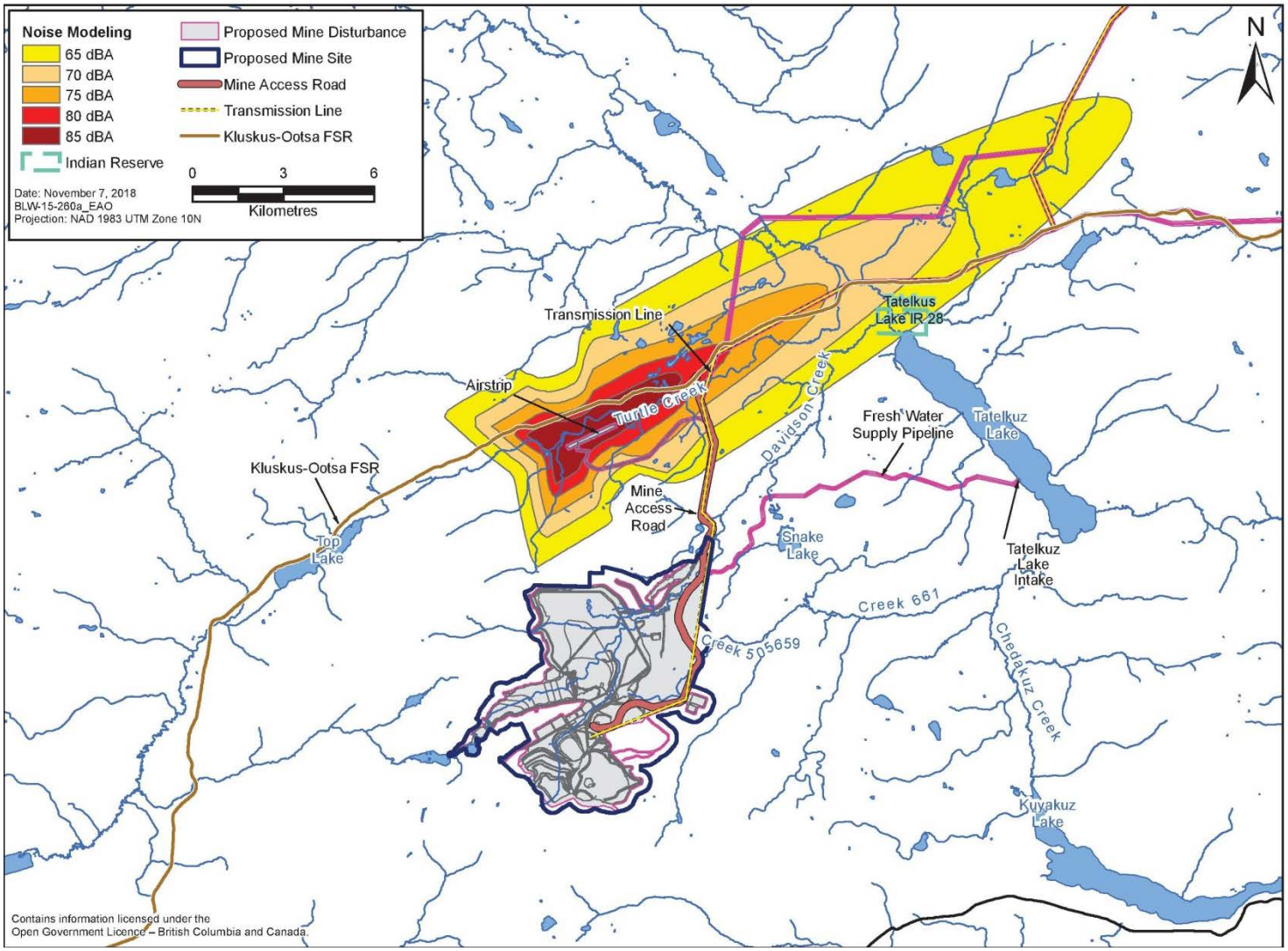

Figure 5: Noise Modeling for Airstrip with Sensitive Receptors – Boeing 737 Takeoff to the Northeast

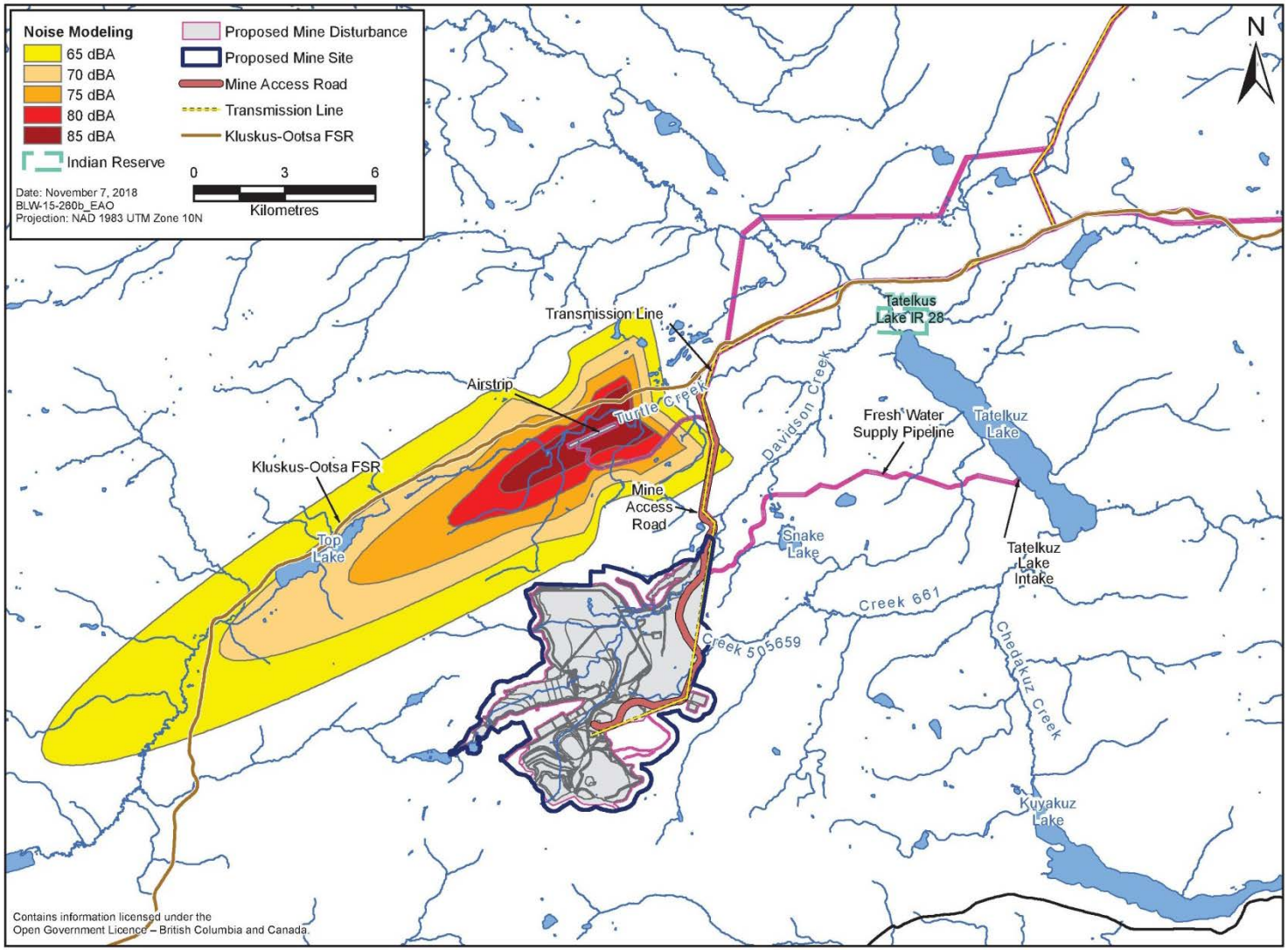

Figure 6: Noise Modeling for Airstrip with Sensitive Receptors – Boeing 737 Takeoff to the Southwest

The potential impact of airstrip noise and related perceptions were delineated by daytime noise level contour lines that took into account the type of plane, size of the airstrip, prevailing wind directions, topography, and other factors. Noise contours highlighted existing or potential areas of significant aircraft noise exposure. The areas within the 65, 70, and 75 dBA noise contours were considered the most likely to be affected by aircraft-generated noise.

The Application also predicted that the NEF level of 25 would be located close (less than one km) to the airstrip. No annoyance is predicted for NEF levels below 25. The Application did not anticipate that any of the five sensitive receptors in the LSA shown in Section 5.2.2, Figures 5.2.2-3 and 5.2.2-4 of the Application (occupants at four ranches and at a cabin) would be exposed to noise levels above 45 dBA or a NEF of 25.

BLASTING

Blackwater would conduct blasting to break rock during Construction, as well as part of the mining process during Operations. At a distance, blasts are usually heard as a low rumble or "popping" sound that lasts one or two seconds. New Gold did not provide information regarding the frequency of blasts. The Application predicted that noise from the detonation of 1000 kilograms (kg) of explosives at a depth of 15 m would be around 137 dBA at 30 m from the site and around 91 dBA at three km from the site, at the Construction and Operations camps. Information about the expected size of actual explosive charges was not provided. New Gold did note that it could commit to developing a general blasting schedule in order for local residents to have some warning of blast timing, but that flexibility would be needed to meet some specific operating situations.

OPERATIONS NOISE

For the Operations Phase, the Application predicted noise contour plots with five dBA intervals for the major noise sources (Application Section 5.2.2; Figure 5.2.2-1 is also relevant to Operations).

MINE AND PROCESSING PLANT

The Application predicted that noise levels would be the highest, at around 60 dBA, inside the mine pit. Due to the dampening effects of the pit walls, noise levels at the surface would be lower, and would have reached the nighttime Permissible Sound Level (PSL) of 45 dBA or lower outside of the mine site boundaries. The Application predicted that noise from the mine and plant would decrease to the 31 dBA background level at a maximum of six km from the site, and noted that the closest inhabited residence and recreation site (Entiako Park) are 10 and 17 km away, respectively. The Application predicted that ambient noise levels in the operations camp would be around 40 dBA and would decrease to 20 dBA indoors due to building materials. This expected noise level is below the WHO sleep-protective guidelines of 30 dBA for the interior of workers' accommodations.

TATELKUZ LAKE PUMP STATION

Water to augment flows in Davidson Creek would be withdrawn from Tatelkuz Lake, located approximately 20 km northeast of the mine site. The water would be piped from the lake to the mine site using a pipeline and pump stations. The Application predicted that noise levels would be around 50 dBA near the pump building and would be attenuated to 30 dBA (the background level) at 200 m over ground

and 300 m over water. New Gold predicted noise levels on the shore of Tatelkuz Lake Recreation Area, which is the closest potential permanent human receptor site, would be around 19 dBA.

BLASTING

As discussed above, Blackwater would conduct blasting during Operations as well as Construction. New Gold did not indicate frequency or size of blasts. New Gold did commit to developing a general blasting schedule.

AIRCRAFT

The Application anticipated no regular aircraft flights during Operations, Closure or Post-Closure. The airstrip would remain in place for emergency and incidental use.

WATER TREATMENT

New Gold anticipated that noise generated by the WTPs during Operations and Closure would make a negligible addition to noise from other sources, as the treatment plants would each have noise abatement equipment installed. The two plants were anticipated to generate sound which would attenuate to 45 dBA, the nighttime PSL, at a distance of 56 m and 180 m respectively. The noise at the mine site boundary was not anticipated to exceed 45 dBA (nighttime) and 55 dBA (daytime).

7.2.3 MITIGATION MEASURES PROPOSED IN THE APPLICATION

New Gold identified the following key mitigation measures to address potential effects from noise and vibration during Construction and Operations of the mine:

- Select vehicles and equipment with industry standard abatement technology for noise;
- Turn off equipment when not in use;
- Maintain equipment in good working condition and on a regular basis;
- Position noisy equipment (for example, main crusher) in sheltered or enclosed locations;
- Set up camps in locations to minimize disturbance by road traffic, mine equipment and airstrip; and
- Implement speed limits for road traffic.

Noise mitigation measures for the airstrip included:

- Implement airstrip construction noise mitigation measures listed above;
- Avoid low altitude flights except on final approach and take off;
- Use smaller aircraft (for example, Dash 8-100) instead of larger (Boeing 737) whenever possible;
- Limit flights to daylight hours;
- Limit taxiing time; and
- Use low-noise supporting ground equipment (for example, power generator with muffler).

7.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups and the Working Group. From these comments, the EAO distilled two central issues relating to Noise and Vibration:

1. Potential impacts to local geology and groundwater; and
2. Noise along the Kluskus FSR.

7.3.1 POTENTIAL IMPACTS TO LOCAL GEOLOGY AND GROUNDWATER

FLNRORD asked whether New Gold had evaluated the potential for mine-related vibrations to cause consolidation, liquefaction, or secondary fracturing, or affect slope stability or hydraulic conductivity.

> New Gold responded with an additional analysis which showed that rock fracturing and increases in hydraulic conductivity as a result of mine blasting vibrations would be limited to areas within 60 m of blast sites. Considering this analysis, New Gold did not expect that that mine vibrations would cause effects such as consolidation, liquefaction or issues with slope stability outside of the immediate blast area where rock is being fractured for extraction from the pit. No structures would be located within the area where mine vibrations could be destructive.

Considering New Gold's response, the EAO is of the view that the issue of potential impacts to local geology and groundwater from mine vibrations is adequately resolved for the purposes of the EA.

7.3.2 NOISE ALONG THE KLUSKUS FOREST SERVICE ROAD

CSFNs raised concerns that the noise and vibration effects of mine traffic on the Kluskus FSR were not evaluated in the noise modelling study and were not addressed in the Application.

> New Gold responded that traffic noise along the Kluskus FSR was not included in the noise modelling study because adverse effects from road traffic noise were unlikely to occur as no permanent human receptors were located within one km of the FSR. New Gold also noted that specific mitigation measures would be taken to minimize the effects of vehicle noise from Blackwater. These mitigations include using vehicles with noise abatement devices and ensuring proper maintenance of those devices.

NWFN and StFN noted concerns regarding the selected receptor locations for the noise and vibrations assessment. They stated that New Gold did not seek their assistance on choosing receptor locations. As a result, no culturally sensitive locations were chosen, particularly in relation to the TLA.

New Gold responded that the three baseline noise receptor locations included one receptor (near Tatelkuz Lake Ranch Resort) along the proposed transmission line route and FSR, and that results from the baseline assessment at this point showed a quiet, remote environment, which New Gold considered representative of the local environment. New Gold also noted that noise effects are expected to be low along the transmission line route, that receptor locations were chosen based on where noise was expected to occur and that no current receptor locations were identified within 1000 m of the transmission line. At the request of Indigenous groups, New Gold also added additional receptor locations near the mine site. New Gold committed to developing a Noise Effects Monitoring Plan during project permitting, and that this plan development would include opportunities for Indigenous groups to review and comment on the Plan.

Subsequently the CSFN and New Gold collaboratively developed and proposed new TLAs to reduce potential effects, including impacts associated with noise and vibration.

NWFN and StFN also asked why New Gold had assessed noise and vibration only through the use of sound pressure level weighted to levels of human hearing, rather than considering additional methods by which to assess the effects of noise such as: noise spectrum content and level, the spectrum complexity and existence of pure tones, amplitude and frequency of level fluctuations, frequency sensitivity of other receptors (for example, wildlife), annoyance (such as percent highly annoyed), even at amplitudes well below regulatory thresholds, and non-auditory effects of noise.

In response, New Gold stated that volume/amplitude and frequency/pitch are the most common determinants of effects of sound on a particular species. New Gold committed to collaborate with NWFN and StFN in development of a Noise Effects Monitoring Plan during permitting, and to collaborate on development of the terms of reference for a proposed Traditional Knowledge (TK)/Traditional Land Use (TLU) committee and Environmental Monitoring Board (EMB). This would include collaboration on determining noise receptor locations for monitoring programs, and the opportunity for Indigenous groups to review and provide feedback on effectiveness of mitigation.

To address Indigenous groups' concerns regarding noise, the EAO proposes Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan that would require New Gold to monitor Blackwater-related noise and implement mitigation measures to minimize adverse effects. Condition 21 would require New Gold to consult Indigenous groups on the development of this Plan, including receptor site selection. The Plan would also require New Gold to provide information to Indigenous groups and potentially affected land users and establish a process for receiving and responding to noise complaints.

Considering the factors discussed above and the EAO's proposed condition, the EAO is of the view that the concerns regarding noise assessment methods are adequately resolved for the purposes of the EA.

7.4 CHARACTERIZATION OF RESIDUAL EFFECTS

After considering the proposed mitigation measures, the EAO concludes that Blackwater would result in residual adverse effects on Noise and Vibration from increased noise and vibration levels in the area of the mine site and the airstrip. Due to the nature of noise, vibration, and blasting, mitigation measures are only

expected to reduce noise and vibration rather than eliminate it. Any sound caused by the Construction and Operations of Blackwater would be above the baseline condition.

The EAO's characterization of the expected residual effects of Blackwater on Noise and Vibration is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 18: Summary of Residual Effects for Noise and Vibration

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Low resilience	The area currently has low levels of noise and is a remote wilderness environment. The Construction and Operations of Blackwater is expected to result in increased noise and vibration in the Blackwater vicinity. The area currently has low levels of noise, consistent with a remote location. The nearest inhabited residence to the Blackwater site is 7.5 km from the air strip and 10 km from the mine site. Recreational users may be present for outdoor activities, and Indigenous groups' members use the area for traditional and non-traditional uses.
Magnitude	Negligible to Moderate	The Application predicted that noise levels from continuous activities at the mine site, processing plant and pumps would be below the ECCC Environmental Code of Practice for Metal Mines' nighttime PSL threshold of 45 dBA at any human receptor locations, including Blackwater worker camps. Noise levels from non-continuous activities such as aircraft use and blasting would exceed PSL daytime levels of 55 dBA at some human receptor locations.
Extent	Site Specific to Local	The effect of increased noise would be limited to areas around the mine site, airstrip, pump station and immediate surrounding areas. Beyond the limits of the LSA and airstrip, the effect was predicted to be indistinguishable from baseline noise levels.
Duration	Short-Term to Long-Term	Short term: Noise from aircraft use and blasting would have a very short duration, lasting a maximum of several minutes at a time. The airstrip is only to be used during the Construction Phase of Blackwater. Long term: Noise from activities in the mine pit, processing plant, and pump house would be long term, lasting from the start to the end of Operations, with the exception of water treatment continuing into Post-Closure.
Reversibility	Reversible to Permanent	The effects from noise from mining would cease at the end of Operations with the exception of water treatment continuing through Post-Closure.

CRITERIA	ASSESSMENT RATING	RATIONALE
Frequency (of residual effect)	Infrequent to Continuous	Infrequent to Regular: Noise from aircraft use would occur up to 156 times per year (156 landings + 156 takeoffs) during Construction. The precise frequency of blasting is unknown, but it would occur regularly. Continuous: Noise from activities in the mine pit, processing plant and pump house, and permanent water treatment facilities.
Likelihood	It is certain that Blackwater would create noise beyond baseline levels, resulting in a high likelihood of effects.	
Significance Determination	Predicted continuous residual noises from Blackwater are estimated to be negligible to low in magnitude, based on the Environment Canada (2009) thresholds. Non-continuous noises may be moderate in magnitude. They would occur (depending on the source) throughout the Blackwater mine life and would be immediately reversible upon site Closure, with the exception of the activities associated with permanent water treatment. The EAO proposes Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan that would require New Gold to monitor Blackwater-related noise and implement mitigation measures to minimize adverse effects. The EAO is satisfied that Blackwater would not have significant adverse effects from noise and vibrations.	
Confidence	There is uncertainty as to the frequency of blasting and aircraft use, the size of the blasts and the aircraft. The EAO has moderate confidence in the likelihood and significance determinations as the sources of noise and vibrations were considered. The noise assessment in the Application relied on benchmarks developed by various regulatory agencies that are designed to be protective of human receptors.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components.

7.5 CUMULATIVE EFFECTS ASSESSMENT

There are currently existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with Blackwater (see list in Application Section 4, subsection 4.3.5.5).

The Application determined that past, present, and reasonably foreseeable future projects and activities within the RSA would not overlap with Blackwater-related changes in ASLs in a way that would cause the objectives to be exceeded. As such, New Gold stated that no other projects would interact with Blackwater to create cumulative effects on Noise and Vibration (see Application Section 5.2.2, subsection 5.2.2.3.3).

The potential for cumulative effects is considered negligible because no past, present or reasonably foreseeable future projects or activities that emit noise or vibration overlap with Blackwater in time or space.

The EAO is satisfied that there are no significant cumulative adverse effects to Noise and Vibration.

7.6 CONCLUSIONS

Considering the above analysis and having regard to the conditions identified in the CPD and Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan in the proposed TOC, (which would become legally binding in the event that an EAC is issued), the EAO is satisfied that Blackwater would not have significant adverse effects on Noise and Vibration.

8 TOPOGRAPHY AND SOILS

8.1 BACKGROUND

This chapter discusses potential impacts from Blackwater on soils and topography. At a broader scale, topography includes landforms such as mountains, plateaus, hills and valleys. At a finer scale it includes features such as ridges, slopes, terraces, and gullies. Soil and soil quality relate to overburden, sediments and soils located overtop of bedrock. Major alterations to topography and soils result from the development of open pit mining projects such as Blackwater, which alter baseline topography, soil quality and soil cover, accelerate erosion and affect terrain stability.

Three VCs were selected for study as part of the assessment of topography and soil:

- Physiography and Topography;
- Surficial Geology and Soil Cover; and
- Soil Quality.

Consistent with the AIR, New Gold assessed these components as VCs with a significance assessment. However, following further policy development since the AIR was issued, the EAO assessed these as pathway components and did not conduct a significance determination. Generally, the assessment of these VCs that are pathway components is focused on how they interact with other VCs or act as a pathway for effects to other VCs (sometimes referred to as receptor VCs); as such, a significance determination is not included as this is captured in the assessments for the receptor components.

The following VCs are considered to be the end point or receptor VCs associated with Physiography and Topography, Surficial Geology and Soil Cover, and Soil Quality pathways, where the effects of changes to these three pathway VCs would be observed:

- Wildlife and Ecosystems (Section 9 of this Report);
- Water (Section 10 of this Report); and
- Fish and Fish Habitat (Section 11 of this Report).

8.1.1 REGULATORY CONTEXT

The Application identified the following legislation, guidance and classification system as relevant context for assessment of Topography, Surficial Geology and Soil Cover, and Soil Quality:

- *Mines Act* and Health, Safety and Reclamation Code for Mines in BC (regarding mine reclamation);
- Aggregate Operators Best Management Practices Handbook for BC (regarding borrow sources); and
- The Terrain Classification System for BC (classifies features such as dams, quarries, mines, waste rock dumps, and tailings storage facilities as anthropogenic features which are not reclassified as natural landforms post reclamation).

8.1.2 SPATIAL AND TEMPORAL BOUNDARIES

The spatial boundaries for the assessment of topography and soil VCs included the following:

- LSAs: The boundary of the mine site LSA extends 500 m beyond the mine site footprint and is approximately 6,123 ha in area. The LSAs of the mine access road, FWSS, airstrip access road, airstrip, transmission line and Kluskus-Ootsa FSR range in width from 310 m to 400 m.
- RSAs: The boundary of the mine site RSA is 3000 m beyond the 4400-ha mine site. The mine site RSA is approximately 14,609 ha in area. The RSAs of the mine access road, FWSS, airstrip access road, airstrip, transmission line and Kluskus FSR range in width from 1.11 km to 1.20 km.

The temporal boundary for the assessment is defined in Part A Section 2.2.1 Project Description and Location of this Report.

8.2 POTENTIAL EFFECTS AND PROPOSED MITIGATION IDENTIFIED IN THE APPLICATION AND SUPPLEMENTAL REPORTS

8.2.1 BASELINE INFORMATION AND POTENTIAL EFFECTS

PHYSIOGRAPHY AND TOPOGRAPHY

The Blackwater site is located on the Nechako Plateau in an area characterized by undulating hills and gently to moderately sloping topography. About 95 percent of the mine site would be within the Davidson Creek and Creek 661 watersheds (the mine pit is within both). The rest of the Blackwater site is within three other watersheds. Potential adverse effects on Topography and Physiography from the Blackwater airstrip, the mine access road, and the mine site include the alteration of landforms, terrain instability, and accelerated erosion due to surface disturbance.

Varying degrees of terrain alteration would occur within the mine site. Mining activities would alter terrain, remove terrain materials, and create new terrain features. The proposed TSF, mine pit, waste rock dump, and other facilities are grouped near each other and would occupy an area of approximately 1,790 ha (29 percent of the LSA). This does not include landform alterations that would occur within the mine site area associated with, for example, the:

- Mine access road (approximately 24 ha);
- ECD and reservoir (approximately 35 ha) downstream of the TSF;
- FWSS dam and reservoir (approximately 11 ha); and
- Area that would be a source of borrow materials (approximately 43 ha).

Within the mine site there is an area of approximately 265 ha where extensive alteration of landforms is not expected. Facilities within this area include, for example, the LGO stockpile, construction and operations camp, processing plant, heavy equipment maintenance shop, warehouse and administration building, and assay lab.

Potential adverse effects on Physiography and Topography include:

- Alteration of baseline landscape; and
- Terrain stability and accelerated erosion.

Table 19 below summarizes the potential effects on Physiography and Topography from Blackwater components and the VCs the components are expected to impact.

SURFICIAL GEOLOGY AND SOIL COVER, AND SOIL QUALITY

Soils in the Blackwater area are primarily comprised of sediments deposited and processed by glacial and river activity,[7] or organic material accumulations in wetlands. Bedrock outcroppings and areas of standing water are also present.

One of the major considerations in the assessment of Soil Quality was the availability and/or suitability of soils for reclamation purposes, as New Gold would be required to reclaim the mine site by the end of the Closure phase. New Gold assigned reclamation suitability ratings to mapped soil units based on the characteristics of the terrain units and the physical and chemical properties of the soils. The majority of the soils in the LSA were considered "Fair" (46 percent) to "Poor" (38 percent) in terms of reclamation suitability. This overall rating is due to the relatively high coarse fragment content of the soils and coarse textures of the soil matrix and, to a lesser extent, the soil pH.

Soils rated as "Good" account for seven percent of the LSA. Soils rated as "Unsuitable" for reclamation account for approximately three percent of the Blackwater footprint. To the extent possible, New Gold would salvage all Good and Fair soil units. Soil units rated as "Poor" or "Unsuitable" would not be salvaged. Approximately 1,680 ha of soil cover would not be salvaged.

The potential adverse effects to Soil Cover include:

- Removal of overburden during construction;
- Soil disturbance during construction; and
- Soil and overburden redistribution during reclamation activities.

The potential adverse effects to Soil Quality include:

- Soil contamination (due to spills or leaks);
- Alteration and loss of soil due to terrain instability and accelerated erosion;
- Contamination due to dust deposition; and
- Physical alteration due to soil disturbance and soil redistribution.

Table 19 summarizes the potential effects to Soil Cover and Soil Quality as identified in the Application, and the VCs they are expected to impact.

[7] Morainal and glaciofluvial materials, and fluvial and colluvial materials.

Table 19: Summary of Potential Effects to Topography and Soils (Cover and Quality) Identified in the Application and Corresponding Receptor VCs

PROJECT COMPONENT	NATURE OF DISTURBANCE	RECEPTOR VC CATEGORY
Air Strip	About 15.5 ha would be leveled for the air strip. Airstrip construction would remove soil cover and level and grade the overburden, permanently altering the distribution of surficial sediments. When decommissioned, the airstrip would be re-contoured to blend into the surrounding landscape. Stockpiling and redistribution of soil during reclamation could affect soil quality if soils were unintentionally mixed.	Wildlife and Ecosystems
Waste Rock Dump	The waste rock dump would create a new landform that would be approximately 188 ha in area and 160 m high. The waste rock dump would be located immediately adjacent to the mine pit.	Wildlife and Ecosystems Water Fish and Fish Habitat
Mine Access Road	Construction of the mine access road would remove soil cover and level and grade the overburden, permanently altering the distribution of approximately 27 ha of surface sediments. The disturbance and removal of soil cover would also affect soil quality through mixing of windrowed salvaged soils.	Wildlife and Ecosystems Water Fish and Fish Habitat
Mine Infrastructure	The mine site would undergo considerable permanent overburden and soil alteration through mining operations, cut, fill and leveling of the site in order to support mine infrastructure.	Wildlife and Ecosystems Water
Open Mine Pit	The open mine pit would be approximately 238 ha in area and 550 m deep, with steep slopes. After mining, flooding of the pit would form a waterbody approximately 161 ha in area. Some exposed PAG pit walls would remain after flooding of the mine pit.	Wildlife and Ecosystems Water Fish and Fish Habitat
Water Treatment Infrastructure	New Gold's proposed WTP (55 ha footprint) and associated pumping stations, water conveyance systems/pipes, power distribution lines, the transmission line and substation, site access roads, mine access road, and staff accommodation would be permanent fixtures within the mine site (no specified end-date).	Wildlife and Ecosystems Water Fish and Fish Habitat
TSF	The largest change to the landscape is the of creation of the conventional valley-fill style TSF, which would be approximately 1,117 ha in area. The maximum height of the TSF dam would be about 149 m. At about the midpoint of the facility there would be another dam and a lift/step up in the surface of the TSF. The dam at the furthest upstream or southwestern end of the TSF would be approximately 15 m high and about 400 m long. This dam (the TSF) would cause flooding in the upper Davidson Creek valley over a distance of about 1.5 km and at the height of land water would be diverted through a channel to the southwest and into another watershed.	Wildlife and Ecosystems Water Fish and Fish Habitat

8.2.2 MITIGATION MEASURES PROPOSED IN THE APPLICATION

PHYSIOGRAPHY AND TOPOGRAPHY

The measures proposed in the Application and supplemental information to mitigate adverse effects on Topography and Physiography were largely focused on minimizing the mine footprints, including:

- Designing a compact mine site (for example, locating the mine pit, waste rock dump, and TSF in close proximity to each other);
- Using overburden and waste rock from the mine pit and other facilities as construction material on the mine site, whenever feasible;
- Sourcing aggregate for construction within areas of anticipated disturbance where possible during development of additional components;
- Using previously disturbed areas such as access roads; and
- Developing the following management plans:
    - Landscape, Soil, Vegetation and Restoration Management Plan;
    - Sediment and Erosion Control Plan (managing slope gradients and exposed soil; and
    - Reclamation and Closure Plan.

Effects to Topography and Physiography on the mine site would be mitigated in part by development and implementation of a detailed Reclamation and Closure Plan required as part of a *Mines Act* permit application. In the Application, New Gold provided an outline of this plan as a conceptual Reclamation and Closure Plan, which would:

- Develop the irreversible landscape alterations (mine pit, TSF and waste rock dump) into new features that are physically and functionally integrated with the adjacent, undisturbed landscape; and
- Achieve a post-closure condition that is, to the extent feasible, functionally similar to the pre-disturbance or baseline use and capability.

SURFICIAL GEOLOGY AND SOIL COVER, AND SOIL QUALITY

The measures identified and proposed in the Application and supplemental information to mitigate adverse effects to Surficial Geology and Soil Cover, and Soil Quality included:

- Minimizing the Blackwater footprint;
- Managing slope gradients and controlling erosion and reclamation measures, including redistributing salvaged soil and planting vegetation;
- Developing the following management plans:
    - Soil Salvage Plan (and salvage and storage of overburden material);
    - Landscape, Soil, Vegetation and Restoration Management Plan;
    - Emergency and Spill Response Management Plan;
    - Sediment and Erosion Control Plan (managing slope gradients and exposed soil);
    - AQEMP (managing dust); and
    - Reclamation and Closure Plan.

Comments from the Working Group related to water management led to a number of changes being made to the mine design, including the elimination of the proposed 158 ha east waste rock dump, which indirectly reduced effects on topography and soils VCs. Material would be added to the remaining west rock dump and would increase its average thickness. The maximum elevation of this dump would not change, but its footprint area would be increased from 172 ha to 188 ha.

8.3 POTENTIAL EFFECTS AND PROPOSED MITIGATION IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received comments from the Working Group related to Topography and Soils VCs and distilled one key issue: the effectiveness of mitigation measures.

The Working Group did not agree with New Gold's assertion that the mine pit, TSF and waste rock dump would be functionally similar to baseline conditions after reclamation of the mine site. EMPR commented that assumptions made about the effectiveness of mine reclamation to mitigate effects were unsupported, and that the Reclamation and Closure Plan in the Application did not meet *Mines Act* requirements.

The Working Group also did not agree that the Soil Salvage Plan and Reclamation and Closure Plan provided in the Application would effectively mitigate the adverse effects of Blackwater to Soil Cover and Soil Quality in the mine site. EMPR questioned the assertion that soil cover needed to be left in place under the TSF and waste rock dump to help improve the quality and reduce the quantity of mine water that would seep from these structures.

EMPR noted that soil that would be disturbed as part of mine development should be salvaged to the greatest extent possible. In particular, topsoil, as it is generally better suited for reclamation, should not be buried or inundated. The Soil Salvage Plan should have considered salvage of all safely accessible soil resources, especially topsoil, using the principle of relative suitability (that is, suitability should be rated based in comparison with the materials that a particular soil will be used to cover).

> New Gold elected not to update the conceptual Reclamation and Closure Plan provided in the Application during the EA, noting that the detail required for a *Mines Act* Reclamation and Closure Plan would address concerns regarding reclamation of mine landscapes.
>
> To address the uncertainty associated with the unknown degree of reclamation success, the EAO is proposing Condition 25: End Land Use Plan which require New Gold to provide analysis and modelling of the pre- and post-mining landscapes, and to work to minimize the difference between the two states.

8.4 CHARACTERIZATION OF RESIDUAL EFFECTS

8.4.1 PHYSIOGRAPHY AND TOPOGRAPHY

Changes to Topography and Physiography as a result of Blackwater would cause broad and lasting effects on the landscape, which would in turn result in effects to other VCs. Excluding the smaller mine site components and associated effects, the TSF, mine pit and waste rock dump would occupy approximately 25 percent of the LSA and 11 percent of the RSA. The effects from Blackwater would be particularly notable in the TSF, mine site and waste rock dump, and area of the water treatment infrastructure.

After considering the potential effects to Physiography and Topography, New Gold's proposed mitigation measures and the EAO's proposed Condition 25 End Land Use Plan, the receptor VCs summarized in Table 20 were identified as being affected by changes to Physiography and Topography.

8.4.2 SURFICIAL GEOLOGY AND SOIL COVER, AND SOIL QUALITY

Soil Cover and Soil Quality would be altered in about 48 percent of the LSA (20 percent of the RSA). Existing soil cover over a total area of about 1,600 ha (26 percent of the LSA and 11 percent of the RSA) would not be salvaged for use in reclamation and would be buried or otherwise lost. In other areas soil cover could be windrowed but this could affect the quality of the material for use in reclamation. Where salvage of soil cover is conducted, discontinuous cover of material and uneven terrain may limit salvage success. Soil quality would also be affected during salvage and long-term storage. The effects from Blackwater on soils would be greatest in the mine footprint, mine pit, waste rock dump, and TSF.

After considering the potential effects to soils and reviewing New Gold's proposed mitigation measures and the EAO's proposed Condition 25: End Land Use Plan, the receptor VCs summarized in Table 20 were identified as being affected by alteration of Soil Cover and Soil Quality.

Table 20: Summary of Receptor VC affected by changes to Physiography and Topography, Surficial Geology and Soil Cover and Soil Quality

PATHWAY	RECEPTOR VC GROUP
Flooding in the upper Davidson Creek valley and diversion of surface water from the construction of the TSF.	Water Wildlife and Ecosystems Fish and Fish Habitat
Potential changes in natural geological or terrain processes from the filling of terrain features in the Davison Creek Valley due to TSF construction.	Wildlife and Ecosystems
Reduction in the drainage area of the Davidson Creek watershed by up to 63 percent during mine Construction and Operations and up to an additional 5 percent after 41 years.	Water Wildlife and Ecosystems
Alterations to terrain from the TSF covering approximately 1,100 ha, or over roughly half the length of Davidson Creek valley.	Wildlife and Ecosystems

Add effects from mine site and waste rock dump.	Wildlife and Ecosystems
Loss of about 1,600 ha (26 percent of the LSA and 11 percent of the RSA), and changes to soil quality due to windrowing.	Wildlife and Ecosystems
Deficit of soils required to re-establish soil cover within the mine footprint.	Wildlife and Ecosystems
Replacement of existing soil cover by water and delayed reclamation of other areas of the mine site due to ongoing water treatment in Post Closure.	Wildlife and Ecosystems Water

8.5 CONCLUSIONS

The EAO is of the view that changes to Physiography and Topography, Surficial Geology and Soil Cover, and Soil Quality including alteration and loss would result in effects to VCs in the following groupings: Wildlife and Ecosystems, Water, and Fish and Fish Habitat. The assessment for those receptor VCs takes into consideration the relevant related effects to the pathway VCs identified in this Section.

9 WILDLIFE AND ECOSYSTEMS

9.1 BACKGROUND

This section assesses the effects of Blackwater on wildlife and ecosystem VCs. Groups of wildlife species and individual wildlife species were selected as VCs because Blackwater has the potential to cause loss and degradation of wildlife habitat, harm wildlife, and impact wildlife movement and populations. Ecosystems were selected as VCs because Blackwater has the potential to cause loss and degradation of vegetation and ecosystems. Table 21 describes the VCs selected for assessment and their respective indicators below.

Table 21: Wildlife and Ecosystems Valued Components

Valued Components	Representative Species/Indicators	
Wildlife		
Amphibians	Western toad	
Water birds	Ring-necked duck	
	Yellow rail	
	Greater yellowlegs	
	Wilson's snipe	
Forest and grassland birds	Song birds	Olive-sided flycatcher
		Clark's nutcracker
	Raptors	Red-tailed hawk
		Short-eared owl
	Forest interior birds	
Moose	-	
Caribou	-	
Grizzly bear	-	
Furbearers	Marten	
	Beaver	
	Fisher	
	Wolverine	
Bats	Little brown myotis	
Invertebrates	Jutta Arctic (butterfly)	
	American emerald (dragonfly)	
Ecosystems		
Wetlands	-	
Ecosystem composition	Riparian areas	
	Old growth forest	
	Ecosystem distribution	
Plant species and ecosystems at risk	Whitebark pine	
	Ecosystems at risk	
	Plant species-at-risk	

The Wildlife and Ecosystems Effects Assessment has linkages to, and has been informed by, the assessment of other VCs discussed in the following sections in this Report:

- Section 5: Air Quality;
- Section 7: Noise and Vibration;
- Section 8: Topography and Soils;
- Section 10: Groundwater, Surface Water and Sediment Quality; and
- Section 11: Fish and Fish Habitat.

9.1.1 REGULATORY CONTEXT

Numerous federal and provincial statutes, policies and guidelines were identified in the Application (Section 4.1-1) as being relevant context for the assessments of the wildlife and ecosystem VCs. Key regulations and guidelines that New Gold considered at the time the Application was prepared included:

- Federal *Migratory Birds Convention Act* (1994): Prohibits activities that may result in the capturing, killing, injuring, taking, or destroying of migratory birds or damaging, destroying, removing, or disturbing of nests;
- Federal SARA (2002): Provides for the protection of plant and wildlife species to conserve their biological diversity and prevent extirpation or extinction;
- Federal *Fisheries Act* (2012): Prevents serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery;
- BC *Wildlife Act (1996):* Provides for the protection, conservation, and management of wildlife populations and wildlife habitats and provides for the designation of WMAs. Legal designation as Endangered or Threatened increases the penalties for harming a species and enables the protection of habitat;
- BC *Forest and Range Practices Act* (2002): Outlines standards and requirements for forest and range practices and natural resource activities on Crown land. The legislation also protects old-growth forests and riparian areas;
- Vanderhoof Land and Resource Management Plan (1997): Describes resource management zones and access management objectives for the purposes of the *Forest and Range Practices Act*.
- BC Invasive Plants Regulation (2004): Identifies species of invasive plants;
- BC *Mines Act (1996)* and Health, Safety and Reclamation Code for Mines in BC (2017): Provides for the protection of the land and watercourses by minimizing the environmental risks associated with mining activities and reclamation requirements for disturbed areas;
- WSA *(2014) (formerly Water Act (2004))*: Regulates changes made in and around streams and provides directives regarding the maintenance of water quality and quantity for aquatic ecosystems;
- BC *Weed Control Act* (1996) and Weed Control Regulation (2011): Provides for control of designated noxious plants; and
- A variety of federal and provincial policy, guidance and BMP related to wetlands, forests, range and water. For wetlands this included Federal Policy on Wetland Conservation (Environment Canada

1991), Wetland Ways Provincial Best Management Practices (Cox and Cullington 2009), and Procedures for Mitigating Impacts on Environmental Values (Ministry of Environment 2014).

9.1.2 SPATIAL AND TEMPORAL ASSESSMENT BOUNDARIES

SPATIAL BOUNDARIES

There were three spatial boundaries used for the assessment of the wildlife and ecosystem VCs:

- **Blackwater footprints:** Footprints are the areas where temporary and permanent physical works and physical activities would occur. The combined footprints of all Blackwater components total approximately 7 000 ha (this includes the 4 400 (ha) mine site, the FWSS, mine access road, transmission line, airstrip and access road, and FSR upgrade);
- **LSAs:** LSAs are the areas within which all or most potential effects are expected to occur. The LSAs differ between the components of Blackwater. As well, the wildlife LSA, ecosystems LSA and wetlands LSA are all different. The wildlife LSA is the same for all the wildlife VCs, except for caribou which excludes portions of the transmission line and FSR. The ecosystem LSA is the same for all the ecosystem VCs. For all project components combined the wildlife LSAs total approximately 17 000 ha, the ecosystem LSAs total approximately 14 000 ha, and the wetlands LSAs total approximately 26 000 ha; and
- **RSAs:** RSAs provide context for the assessment of potential effects and are also used to assess cumulative effects. The RSAs differ between the components of Blackwater. As well, the wildlife RSA, ecosystems RSA and wetlands RSA are all different. The wildlife RSA is the same for all wildlife VCs excluding caribou for which the RSA is the local population unit area. The ecosystem RSA is the same for all ecosystem VCs. For all project components combined the wildlife RSAs total approximately 290 065 ha excluding caribou for which the local population unit area is about 1.2 million ha, the ecosystem RSAs total approximately 45,000 ha, and the wetlands RSAs total approximately 117 000 ha.

TEMPORAL BOUNDARIES

The temporal boundaries (durations of project components) are discussed in Part A, Section 2.2.1: Project Description and Location.

9.2 POTENTIAL EFFECTS AND PROPOSED MITIGATION IDENTIFIED IN THE APPLICATION

This section includes information from the Application as well as supplemental materials provided by New Gold during Application Review.

9.2.1 BASELINE INFORMATION

The Application reported that in the absence of Blackwater, mountain pine beetle, forestry roads, cutblocks, and wildfires (and disease in the case of whitebark pine) are affecting ecosystems, wildlife habitat and wildlife species in the study areas. Forest conversion from activities such as agriculture is prevalent at the northern end of the transmission line. Within the 290 065-ha wildlife RSA, over 50 percent has been affected by mountain pine beetle, and eight percent has been affected by wildfire. There are also 3497 ha of forestry roads, 58 448 ha of existing forestry cutblocks, and 23 713 ha of future cutblocks planned. Effects to wildlife populations could potentially be occurring from the cumulative effects of these natural disturbances and industrial developments, as noted below for caribou, moose and grizzly bear.

The mine site is in the Davidson Creek Resource Management Zone (RMZ) of the Vanderhoof Land and Resource Management Plan. This RMZ is bordered by the Chedakuz Creek and Laidman Lake RMZs. The Davidson Creek RMZ has important habitat for grizzly bear, marten, and moose. The Chedakuz Creek RMZ provides important habitat for moose, mule deer, grizzly bear, and black bear. The Laidman Lake RMZ has important habitat for grizzly bear and moose.

About 136 ha of the Blackwater mine site already has been disturbed by mineral exploration activities and works associated with determining the locations of project components such as the TSF.

LIMITATIONS

The Application identified the following limitations with respect to baseline information for wildlife:

- Field surveys were conducted over a limited time frame and may not represent the full range of species occurrence and habitat use, particularly for furbearers, forest and grassland birds, and water birds;
- Field surveys for ungulates/moose, grizzly bear, and furbearers did not cover the transmission line corridor or adjacent areas; and
- Regional wildlife abundance and habitat use are not known beyond habitat suitability models and professional judgment (all wildlife VCs except for caribou and moose).

There were additional surveys and analysis during Application Review associated with comments from the Working Group and the realignment of the transmission line which addressed some of the above.

WILDLIFE SPECIES

Field surveys in the study areas confirmed the presence of 32 mammal species (including at least 14 furbearers and nine bats), 122 bird species (18 raptors, 81 forest and grassland birds, and 23 water birds),

four amphibian species, one reptile species, 45 butterfly species, and 40 dragonfly species. Wetlands have the potential to support 78 mammal, bird and amphibian species for part of their life cycles. This is based on surveys conducted in 2011, 2012 and 2013.

SPECIES-AT-RISK

Within the study areas, 28 federally and provincially listed species-at-risk (species of conservation concern), for which habitat loss is a contributing factor, have the potential to occur and 18 were confirmed present. These species and their conservation status, excluding six invertebrates, are listed in Table 22 below. The species-at-risk confirmed present include: amphibians (1); water birds (1); forest and grassland birds (6); caribou; grizzly bear; furbearers (2); bats (3); and, invertebrates (3). Excluding invertebrates, 19 species of conservation concern have the potential to occur in the mine site LSA and of these 10 were recorded.

Table 22: Wildlife Species-at-Risk Potentially Affected by Blackwater (Excluding Invertebrates)

Common Name	*SARA*[9] Status	Provincial Status	Mine Site LSA	Transmission Line LSA	FSR LSA	MAR[10] LSA	FWSS LSA[11]	Airstrip LSA	RSA[12]
			Potential	Potential	Potential	Potential	Potential	Potential	Potential
			Recorded	Recorded	Recorded	Recorded	Recorded	Recorded	Recorded
Western toad	Special Concern	Blue[13]	✓	✓	✓	✓	✓	✓	✓
			✓	✓	✓	×	×	×	✓
Olive-sided flycatcher	Threatened	Blue	✓	✓	✓	✓	✓	✓	✓
			✓	✓	✓	✓	✓	✓	✓
Rusty blackbird	Special Concern	Blue	✓	✓	✓	✓	✓	×	✓
			✓	✓	×	×	✓	×	✓
Barn swallow	Threatened	Blue	✓	✓	✓	×	×	×	✓
			✓	✓	✓	×	×	×	✓
Bank swallow	Threatened	Yellow[14]	✓	✓	✓	×	×	×	✓
			×	×	×	×	×	×	×
Common nighthawk	Threatened	Yellow	✓	✓	✓	✓	✓	✓	✓
			✓	×	×	×	×	×	✓
Sharp-tailed grouse	N/A	Blue	✓	✓	✓	✓	✓	✓	✓
			×	×	×	×	×	×	✓
Short-eared owl	Special Concern	Blue	✓	✓	✓	✓	✓	×	✓
			×	×	✓	×	×	×	✓
Great blue heron	N/A	Blue	×	✓	✓	✓	✓	×	✓
			×	×	×	×	×	×	✓
American white pelican	N/A	Red	×	✓	×	×	×	×	✓
			×	×	×	×	×	×	×
Long-billed curlew	Special Concern	Blue	×	✓	✓	×	×	×	✓
			×	×	×	×	×	×	×
American bittern	N/A	Blue	✓	✓	✓	✓	×	×	✓
			×	×	×	×	×	×	×
American golden plover	N/A	Blue	✓	×	×	✓	×	×	✓
			×	×	×	×	×	×	×

Common Name	*SARA*[9] Status	Provincial Status	Mine Site LSA	Transmission Line LSA	FSR LSA	MAR[10] LSA	FWSS LSA[11]	Airstrip LSA	RSA[12]
			Potential	Potential	Potential	Potential	Potential	Potential	Potential
			Recorded	Recorded	Recorded	Recorded	Recorded	Recorded	Recorded
Horned grebe	Special Concern	Yellow	✓	✓	✓	✓	×	×	✓
			×	×	×	×	×	×	×
Yellow rail	Special Concern	Red[15]	✓	✓	✓	✓	✓	×	✓
			×	×	×	×	×	×	×
Fisher	N/A	Blue	✓	✓	✓	✓	✓	✓	✓
			×	×	✓	×	×	×	✓
Wolverine	Special Concern	Blue	✓	✓	✓	✓	✓	✓	✓
			×	×	×	×	×	×	✓
Grizzly bear	Special Concern	Blue	✓	✓	✓	✓	✓	✓	✓
			✓	×	✓	×	×	×	✓
Caribou	Threatened	Red	✓	✓	✓	✓	✓	✓	✓
			✓	×	×	×	×	×	✓
Eastern red bat	N/A	Red	✓	✓	✓	✓	✓	✓	✓
			✓	×	×	×	✓	✓	✓
Little brown myotis	Endangered	Yellow	✓	✓	✓	✓	✓	✓	✓
			✓	×	×	×	×	✓	✓
Northern myotis	Endangered	Blue	✓	✓	✓	✓	✓	✓	✓
			✓	×	×	×	×	✓	✓
TOTAL			**19**	**21**	**20**	**18**	**15**	**11**	**22**
			10	**4**	**6**	**1**	**3**	**4**	**15**

[9] *SARA: Species at Risk Act*
[10] MAR: Mine Access Road
[11] FWSS: Fresh Water Supply System
[12] RSA includes the LSAs
[13] Blue status: ecological communities of Special Concern in BC (formerly, Vulnerable)
[14] Yellow status: Secure ecological communities in BC
[15] Red status: Extirpated, Endangered or Threatened ecological communities in BC

AMPHIBIANS

Western toad, Columbia spotted frog, wood frog, and long-toed salamander breed within the mine site LSA. Western toad is a provincially Blue-listed species and federally designated as a species of Special Concern. It is sensitive to habitat deterioration and home ranges are approximately three to seven ha.

CARIBOU

The mine site is partially within the herd (local population unit) boundary and winter range of the Tweedsmuir-Entiako caribou herd which is estimated by FLNRORD to consist of 150-180 animals and is in a declining population trend. Government agencies believe that a combination of natural disturbance (for example, fire, mountain pine beetle infestation) and industrial development (including forestry and roads) has created habitat that favors other ungulate species (primarily moose) resulting in increased wolf populations and therefore increased predation on caribou. This herd is part of the Northern Group of the Southern Mountain Caribou population which is listed as threatened under SARA and for which there is a federal Recovery Strategy. Currently, the loss of caribou habitat exceeds the 35 percent disturbance threshold for low elevation and matrix type habitat that is recommended in the Recovery Strategy. New Gold projects this will be reduced to about 20 percent by the 2050s. The Province is in the process of developing an approach to protect and preserve caribou populations (the Caribou Recovery Program). Information about caribou from Indigenous groups is reported in Part C.

The Province has established UWR for caribou on Mount Davidson under order #U-7-012. Two small areas of the mine site described in the proposed EAC extend into the UWR. The water diversion channel between the Davidson Creek and Creek 705 watersheds is within the UWR. A water diversion structure bordering the waste rock dump may be within the UWR. Sensory disturbance from mine activities would extend further into the UWR. FLNRORD and ECCC have identified caribou High Elevation Winter Range on Mt. Davidson outside of the UWR, and which comes within about 250 meters of the open pit.

MOOSE

Provincial government surveys have indicated that moose numbers have declined substantially in the Central Interior of the province, including in the Blackwater area. A “Provincial Framework for Moose Management in BC” was developed to help understand and address the factors that may have led to the declines. It is believed that mountain pine beetle effects on habitat, increased road densities from forest harvesting, and increased hunting pressure may be contributing to the declines. There have also been impacts to moose from Blackwater exploration activities, including the destruction of an ungulate mineral lick.

GRIZZLY BEAR

Grizzly bear is a provincially Blue-listed species and federally designated as a species of Special Concern. The project area is located primarily within the Blackwater–West Chilcotin grizzly bear population unit which is designated provincially as Threatened and has an estimated population of 53 bears. Grizzly bears are year-round residents within the Blackwater area, and are dependent on mature and old-growth coniferous forests. There is evidence that there is an increased presence of grizzly bears in the area during the kokanee spawning season. Surveys detected 15 grizzly bears (of which at least five were different

bears, as opposed to sightings of the same bear more than once) within about 10 km of the mine site, and one was observed at the mine site. Several females with cubs were detected indicating that breeding takes place in the area. Two bear dens and two potential dens were located near each other in the mine site LSA, three of which were in close proximity to the boundary of the mine site and one was in the mine site area.

BATS

Nine species of bats were recorded in the mine site and transmission line study areas, three of which are species of conservation concern: little brown myotis; northern myotis; and eastern red bat. Bats feed in areas with insect populations and roost in areas with mature trees. Some bat species are year-round residents in BC while other bats are migratory. The forests within the Blackwater area provide suitable habitat for little brown myotis, which were detected in all study areas and were the most frequently detected species. The majority of these detections were in the area of a wetland in the mine site at the headwaters of Davidson Creek upstream of the proposed TSF.

CLARK'S NUTCRACKER AND WHITEBARK PINE

Whitebark pine seeds are a preferred food source for Clark's nutcracker. Clark's nutcrackers are critical to natural dispersal and regeneration of whitebark pine. Whitebark pine is a keystone species and it provides food and habitat for numerous birds and mammals such as grizzly bears. Whitebark pine is slow growing, often taking between 40 and 80 years before cones are produced in sufficient quantities for effective reproduction and ecosystem functions.

Of the various components of Blackwater, whitebark pine is only present in and around the mine site. A limited amount of whitebark pine has been recorded within the wildlife RSA and most of this is on Mt. Davidson adjacent to the mine site. Existing effects to the whitebark pine on Mt. Davidson includes blister rust (approximately 30 percent affected) and mountain pine beetle (about six percent affected). Exploration activities by New Gold have also removed some whitebark pine in and adjacent to the mine site. New Gold reported that there is not sufficient whitebark pine on Mt. Davidson to support continual use by Clark's nutcracker, and that the area is used by Clark's nutcracker only during periods of abundant cone production.

ECOSYSTEMS

WETLANDS

Wetlands in the Blackwater study areas have the potential to support at least 132 wildlife species for a portion of their life cycle, including 4 amphibians, 64 birds, 10 mammals, 54 dragonflies, and 7 butterflies. Of these, 16 are listed as species at risk. In field surveys, 69 of these 132 species were observed. Of these eight are listed as species at risk.

There are approximately 582 ha of wetland ecosystems throughout the mine site. These wetlands are diverse and strongly connected with upland ecosystems. The wetlands play an important role in: providing habitat for wildlife species; providing surface water storage, groundwater recharge, downstream flow supply, and flood protection and erosion control; and, maintaining water quality. Wetlands can also

support unique flora and fauna, including species-at-risk.

Of the 56 wetlands surveyed that would be affected by Blackwater, seven were ranked high for habitat function, 48 were ranked moderate for habitat function, and one was ranked low for habitat function. Wildlife species used to determine habitat functional values included grizzly bear, fisher (furbearer), caribou, moose, bat, olive-sided flycatcher (forest and grassland bird), common nighthawk (forest and grassland bird), and western toad (amphibian).

PLANT SPECIES AND ECOSYSTEMS AT RISK

There are approximately 2 284 ha of habitat capable of supporting plant species-at-risk in the LSAs of all Blackwater components combined, and of this over 60 percent are in the LSA of the mine site component (excluding whitebark pine). 159 plant species-at-risk are potentially occurring in the Blackwater study areas. There are approximately 341 ha of whitebark pine in the mine site LSA which is listed as endangered under SARA and for which there is a proposed federal Recovery Strategy. The following plant species-at-risk were documented in wetlands:

- Meesia moss;
- Sickleleaf tomentypnum moss;
- Small-flowered lousewort; and
- Swollen beaked sedge.

In the transmission line LSA there are about 49 ha of seven upland ecosystems at risk:

- Bluegrass - Slender wheatgrass grassland;
- Black cottonwood - spruce - Dogwood - Prickly rose;
- Douglas-fir - Soopolallie - step moss;
- Lodgepole pine - common juniper - Rough-leaved ricegrass;
- Saskatoon - Slender wheatgrass;
- Douglas fir - Lodgepole pine – Cladonia; and
- Hybrid white spruce - Pink spirea - Prickly rose.

In the transmission line LSA there may be 17 blue-listed wetlands (four different types), five of which are in the Mills Ranch re-route area.

9.2.2 POTENTIAL EFFECTS: WILDLIFE

The Application and supplemental information provided during Application review identified that Blackwater would have the following unavoidable residual adverse effects on the wildlife VC species:

1. **Habitat loss and degradation** – All wildlife VC and representative species.
2. **Risk of mortality** – All wildlife VC species except forest and grassland birds and furbearers other than beaver, and indirect risk for caribou. This includes mortality from: site clearing (amphibians); managing problem wildlife because of attractants; vehicle traffic; increase in road density (grizzly bears); increase in harvesting pressure (legal or illegal) as a result of increased access; collisions with the transmission line (water birds); disruption of movements; displacement from breeding and feeding habitats; reduced security due to habitat fragmentation; altered predator-prey dynamics; and unsuccessful breeding (amphibians).
3. **Impacts to movement patterns** – Amphibians and moose. For amphibians this is related to barriers to movement. For moose this is related to alterations to habitat, and avoidance of, or displacement from, habitats by activities and disturbances. Changes in movement patterns can affect breeding and survival rates, and predation/mortality.
4. **Impacts to populations (population dynamics)** – Water birds, moose, and caribou. This includes the risk of indirect impacts to populations from: changes to habitat availability; and, mortality from changes in predator population levels or access, competing species, and predator-prey relationships. For caribou, this may be addressed with successful implementation of mitigation (that is, habitat offsets).
5. **Impacts to health (reduced survival and reproduction)** – Furbearers (beaver only) and invertebrates. For beaver this is related to the potential for disease outbreaks. For invertebrates this is related to potential contaminant loading.

HABITAT LOSS AND DEGRADATION

The Application reported that habitat loss and degradation can increase risk of wildlife mortality, impact wildlife movement patterns, and impact wildlife populations. The Application also reported that wildlife population abundance and distribution are directly affected by habitat availability and displacement from effective habitat.

The total ha of habitat loss and degradation by wildlife VC is presented in Table 23 below. Habitat is moderate and high value habitat (for amphibians it is high value habitat). The effects do not include all the options for locating three segments of the transmission line as these would not all be used. The effects do not include those that would occur because of flooding and works upstream of the TSF which were omitted in the assessment (identified during the Application Review). Excluding amphibians and invertebrates, the effects also do not include areas in the mine site LSA where residual effects from nitrogen deposition from blasting and dust would occur after mitigation.

The EAO has not included the 126 km of the Kluskus and Kluskus-Oostsa FSRs in the LSA percentages in Table 23 below as: clearing of vegetation would be limited to the two km section to be realigned and effects from this to wildlife VCs would be limited (no reductions in habitat were reported in the RSA of the

FSRs); there is some overlap between the FSR and transmission line LSAs; and mitigation measures are expected to be highly effective in controlling traffic dust and as a result there is no potential for residual effects. Table 23 below includes the RSA for the FSRs (approximately 10 percent of the all RSAs) and the magnitude of effects (percentages) are somewhat lower than they would be if this was excluded. The majority of the RSAs is comprised of the mine site RSA which considered wide ranging species such as caribou and grizzly bear.

Table 23: Habitat Loss and Degradation for Wildlife VCs

Representative Species/Indicators	Total Area Affected (ha)	Reduction in Mine Site LSA (%)	Total Reduction in all LSAs (%)	Total Reduction in all RSAs (%)
Amphibians VC (4 species; 1 species-at-risk)				
Western toad (at-risk)	2203	69	31	3.0
Water Birds VC (23 species; 1 species-at-risk)				
Ring-necked duck	19	38	15	<1
Yellow rail (at-risk)	13	10	14	<1
Greater yellow legs	2019	80	49	4.4
Wilson's snipe	572	56	29	3.1
Forest & Grassland Birds VC (99 species - 18 raptors; 6 species-at-risk)[1]				
Olive-sided flycatcher (at-risk) / red-tailed hawk	2599	70	34	2.1
Forest interior birds	1263	73	33	2.0
Short-eared owl (at-risk)	167 (nesting)	none	23	1.3
	164 (growing)	25	22	1.5
Clark's nutcracker	1891	74	mine site only	22
Furbearers VC (14 species; 2 species-at-risk)				
Beaver	35 (growing)	38	20	<1
Fisher (at-risk)	59 (denning)	50	25	<1
Marten	2629 (growing)	72	39	2.3
	2501 (winter)	72	40	2.2
Wolverine (at-risk)	1839 (growing)	64	52	2.6
	1185 (winter)	59	42	1.4
Bats VC (9 species; 3 species-at-risk)				
Little brown myotis (at-risk)	4262 (growing)	72	38	2.5
Invertebrates VC (85 species; 3 species-at-risk)				
Jutta Arctic (at-risk) / American Emerald	1394	72	41	2.8
Other Wildlife VCs (2 species-at-risk)				
Moose	1749 (growing)	70	37	2.6
	1439 (winter)	70	37	2.7

Representative Species/Indicators	Total Area Affected (ha)	Reduction in Mine Site LSA (%)	Total Reduction in all LSAs (%)	Total Reduction in all RSAs (%)
Caribou (at-risk)	3965 – 4716 (winter)	83 – 97	83 – 97	<1
Grizzly bear (at-risk)	2457 (spring)	72	45	2.8
	3374 (summer)	74	43	2.7
	3603 (fall)	74	44	2.6

[1] Does not include reduced habitat use from project activities and disturbances.

The Application and supplemental materials reported that habitat loss and degradation for all wildlife VCs would be chronic (permanent) in duration, with the exception of moose (long-term). The majority of habitat loss and degradation would be within the mine site. Some project components (for example, transmission line and road rights-of-way) may increase suitable habitat for some forest and grassland birds (for example, olive-sided flycatcher, red-tailed hawk, short-eared owl) and some invertebrates, but such habitat may not be in limited supply given existing conditions.

RISK OF MORTALITY

The Application and supplemental materials reported that the risk of mortality for all wildlife VCs would be chronic (permanent) in duration, with the exception of furbearers (long-term for beaver only), invertebrates (long-term), forest and grassland birds (no potential for measurable residual effect), and caribou (not considered a residual effect after mitigation). Mitigation measures may help reduce mortalities from occurring but would not eliminate them. Some mortality of amphibians that overwinter terrestrially may be unavoidable.

IMPACTS TO MOVEMENT PATTERNS

The Application and supplemental materials reported that impacts to movement patterns would be chronic (permanent) in duration for moose, and long-term for amphibians.

IMPACTS TO POPULATIONS

The Application and supplemental materials reported that impacts to populations would be chronic (permanent) in duration and confined to the LSA for moose, and chronic (permanent) in duration and site-specific for water birds. Changes in caribou population dynamics was identified as a potential adverse effect but was not considered a residual effect after mitigation.

IMPACTS TO HEALTH

The Application and supplemental materials reported that impacts to health would be long-term for beaver and invertebrates. Spread of disease was not considered a potential health issue or mortality risk for bats with respect to white-nose syndrome.

9.2.3 POTENTIAL EFFECTS: ECOSYSTEMS

Within the mine site, topography and terrain would be substantially and permanently modified. Excluding species and ecosystems at risk and wetlands, the Application reports that:

- 1495 ha of natural ecosystems would be permanently lost within the mine site, resulting in a loss of 28 percent of ecosystems within the LSA. With the exception of the open pit and TSF, vegetation established in reclaimed areas would differ substantially from natural baseline conditions.
- There would be a temporal loss of another 1 585 ha for the total project, 1 100 ha of which would be within the mine site. New Gold states that the latter would be reclaimed to baseline conditions over time. In some cases, this would take about 80 to 120 years or longer after construction, such as for trees/forest to reach a mature stage.

Reclamation in the mine site would occur largely from 17 to 41 years after construction, excluding areas occupied by water treatment infrastructure and the FWSS, transmission line and substation, access road and infrastructure for housing personnel. The FWSS, providing water (flows) to Davidson Creek, would be decommissioned about 42 years after being constructed. The airstrip would be decommissioned about 20 years after being constructed.

Overall, approximately 65 percent of the footprints of Blackwater facilities or rights-of-way would have permanent effects (mine site areas, mine access road, transmission line and FSR upgrade), and approximately 35 percent would be decommissioned and potentially restored to baseline conditions over time (mine site areas, airstrip and FWSS).

The unavoidable loss and degradation of ecosystems are summarized Table 24 below. Note that the same areas of exclusion and inclusion apply to the ecosystems as noted in the Wildlife section above. The effects do not include additional areas in the mine site LSA where residual effects from nitrogen deposition from blasting would occur after mitigation (61 ha of ecosystem distribution; two ha of riparian areas; 14 ha of whitebark pine; 52 ha of potential plant species-at-risk habitat). Table 24 below includes the RSA for the FSRs (approximately 24 percent of all RSAs) and the effects (percentages) are lower than they would be if this was excluded.

Table 24: Loss and Degradation of Ecosystems VCs

Indicators	Total Area (ha) Affected	Reduction in Mine Site LSA (%)	Reduction in all LSAs (%)	Reduction in all RSAs (%)
Wetlands VC				
Wetlands[1]	638	14.4	14.4	13.6
Ecosystem Composition VC				
Riparian areas[2]	436	56	38	12.1
Old growth forest[3]	232	36	23	4.8
Upland Ecosystem distribution	3089	47	31	12.1
Plant Species & Ecosystems at Risk VC				
Whitebark pine	181	53	mine site only	14.9
Ecosystems at risk	4	-	12	1.1
Plant species-at-risk[4]	860	54	38	3.4

[1] Analysis largely based on watershed boundaries where the mine may affect hydrological resources.
[2] 30 m from wetlands, lakes, streams and floodplains.
[3] Greater than 140 years for Sub-Boreal Spruce, and 250 years for Engelmann Spruce-Subalpine Fir.
[4] Area of habitat capable of potentially supporting plant species at risk.

New Gold reported that after considering mitigation measures, residual adverse effects for all project components combined would be high in magnitude for both the loss of ecosystems, and loss of plant species and ecosystems at risk (based on the LSAs).

WETLANDS

New Gold reported that after considering mitigation measures, residual adverse effects would be moderate in magnitude for loss of wetland extent and function for all project components combined. This magnitude rating is largely based on watershed boundaries intended to incorporate the effects of the mine on surface and groundwater resources in the wetlands effects assessment (the magnitude rating for the ecosystem VCs is based on smaller study areas for vegetation). This magnitude rating does not include wetlands where only wildlife habitat function may be affected. In the mine site for example, use of wetlands by individual wildlife species may be discouraged by the proximity of activities. This effect may vary depending upon the wildlife VC and species.

The Application reports potential adverse effects to the ecological, habitat, hydrological and biochemical functions of wetlands. The total RSA for wetlands (all project components) is an area of approximately 117 000 ha in area and about four percent of this is wetlands. The total LSA for wetlands (all project

components) is about 26, 000 ha in area and about 17 percent of this is wetlands. About 13 percent of wetlands in the RSA and 14 percent of wetlands in the LSA would be affected by Blackwater.

The vast majority of effects to wetlands occur within the proposed mine site where a total of approximately 524 ha of wetlands will be affected, of which approximately 316.5 ha would be lost, 113 ha would be degraded, and 94.5 ha would be hydrologically affected. In its Application, New Gold notes that predicting the hydrological effects to wetlands over time is difficult and speculative. Of six watersheds in the mine site LSA, approximately 98 percent of affected wetlands would be within the Davidson Creek and Creek 661 watersheds. Approximately 36 percent of the wetlands within the Davidson Creek watershed and 20 percent of wetlands within the Creek 661 watershed would be affected. The magnitude of effects to wetlands would be high within the Davidson Creek watershed.

The transmission line would interact with about 61 wetlands, of which 17 are potentially blue-listed. Of these, the RoW for the line would cross about 38 wetlands that vary in width from about 24 m to 1000 m. About 66 to 83 ha of wetlands would be lost and degraded depending on options for routing three segments of the line. The degree to which wetlands could be affected would be influenced by whether transmission line support poles or access roads or trails for constructing the line would be located within them, and any clearing of vegetation in the RoW. An additional 31 ha of wetlands would be lost and degraded by the mine access road, airstrip, and FWSS.

Overall, Blackwater could affect about 638 ha of wetlands, of which about 345 ha would be lost, 199 ha would be degraded, and 94 ha would be hydrologically affected. This includes bogs (about 12 percent), fens (about eight percent), marshes (about one percent), swamps (about 77 percent) and shallow-waters (about two percent). There are an additional 58 ha of wetlands in the mine site where wildlife habitat function may be affected.

WHITEBARK PINE

New Gold reported that residual adverse effects would be high in magnitude for loss of whitebark pine habitat in the LSA. Approximately 141.7 ha has been affected in the mine site due to exploration activities. Some of this, such as 66 ha in the area of the open pit, is associated with components of the mine. An additional 115 ha would be affected with development of Blackwater. The total amount predicted to be affected is 256.7 ha. The Application and supplemental materials report that:

- The whitebark pine population in and potentially adjacent to the LSA, is predicted to experience population decline as a result of direct removal, habitat degradation from dust and nitrogen deposition, and reduced habitat suitable for seed caching by Clark's nutcracker;
- Cumulative effects to whitebark pine are high in magnitude with Blackwater; and,
- With the presence of blister rust disease, the entire population of whitebark pine in the LSA and RSA needs to be assessed for health and monitored for changes.

9.2.4 PROPOSED MITIGATION MEASURES

Measures identified in the Application to mitigate adverse effects on the wildlife and ecosystem VCs can be summarized as follows:

1. Designing as compact a mine site as possible and co-locating other project components with existing disturbances where practical;
2. Implementing best practices during project phases through management plans such as the: Wetlands Management Plan; Landscape, Soils, and Vegetation Management and Restoration Plan; Invasive Species Management Plan; Wildlife Management Plan; Whitebark Pine Management Plan; AQEMP; Water Quality and Liquid Discharges Management Plan; Industrial and Domestic Waste Management Plan; and, Transportation and Access Management Plan;
3. Managing vegetation in the transmission line RoW to BC Hydro standards, and reclaiming construction access roads as soon as practicable;
4. Site reclamation after decommissioning of mine facilities and other project components; and
5. Implementing a Wetland Compensation Plan. The plan proposes to create 305 ha of wetlands in the mine site of which 294 ha would be in the TSF ponds and restore or enhance 52 ha of wetlands off-site.

Mitigation that will be implemented though management plans includes measures such as:

- Identifying no-work zones and setbacks for sensitive habitats where this is possible;
- Conducting surveys before construction and clearing activities for some wildlife species;
- Conducting clearing activities during least risk wildlife work windows;
- Implementing measures to reduce wildlife sensory disturbance;
- Implementing no hunting, no firearms, no feeding and no wildlife harassment policies;
- Implementing bear and caribou awareness programs;
- Enforcing speed limits, suppressing road dust, and avoiding attractants such as road salts to reduce potential vehicle collisions with wildlife;
- Removing carrion along roads to reduce attracting predator species; and
- Re-vegetating roadsides with plant species that minimize attracting wildlife and preventing the spread of invasive plant species.

With the mitigation measures proposed New Gold reported there would be residual adverse effects to the following VCs which warranted assessment of cumulative effects:

- Water birds, forest and grassland birds, moose, caribou, grizzly bear, furbearers and invertebrates;
- Wetlands; and
- Ecosystem composition, and plant species and ecosystems at risk.

9.3 POTENTIAL EFFECTS AND PROPOSED MITIGATION IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups and the Working Group. From these comments, the EAO distilled ten central issues relating to Wildlife and Ecosystems:

1. Effectiveness of mine site reclamation as mitigation;
2. Effects on caribou;
3. Effects on wetlands and the habitat these provide for wildlife species;
4. Effects on furbearers;
5. Effects on grizzly bears;
6. Effects on moose;
7. Effects of construction activities on wildlife;
8. Effects on whitebark pine and Clark's nutcracker;
9. Effects associated with the transmission line; and
10. Information gaps.

Additional information about the issues raised by Indigenous groups, including those of the LDN, UFN, and CSFNs, can be found in Part C.

CSFNs raised concerns about the effects of the transmission line on moose, furbearers and grizzly bears, and impacts to their Aboriginal Interests.

> In response New Gold worked with the CSFNs to relocate about 67 km of 140 km (48 percent) of the transmission line. Approximately 79 km or 60 percent of the line is located immediately adjacent to roads (within 50 m), in forestry cut-blocks, areas affected by forest fires and mountain pine beetle affected timber with greater than 75 percent mortality.

In the short-term, locating the transmission line to more previously disturbed areas reduces effects. However, the above areas would not all be permanent disturbances. As the duration that the transmission line would be in use was increased from about 35 years to more than 300 years, the effectiveness of its relocation as mitigation for impacts to wildlife VCs over the long-term is reduced.

9.3.1 EFFECTIVENESS OF MINE SITE RECLAMATION

The Application notes that except for the open pit and TSF, mine reclamation will result in new ecosystems where possible, however reclaimed areas will differ substantially from the baseline condition. EMPR commented that assumptions made about the effectiveness of mine reclamation to mitigate effects to many VCs were unsupported, and that the Reclamation and Closure Plan in the Application did not meet *Mines Act* requirements. FLNRORD commented that due to the time lag, reclamation will not reduce the residual effects of Blackwater and is not considered effective mitigation for wildlife or wetlands. Further, there are potentially conflicting mitigation objectives between some VCs, such as caribou, moose and

wetlands. For caribou the Application reported that reclamation of the mine site would not develop habitats suitable for alternate prey species (for example, moose) and increase wolf densities. For moose and wetlands, the Application and supplemental information reported that wetlands would be established in TSF ponds that would provide forage for moose.

Further information was not provided by New Gold for the EA. A Reclamation and Closure Plan would be required for a permit under the *Mines Act*. To support the outcomes of the Reclamation and Closure activities identified through the EA, the EAO is proposing Condition 25: End Land Use Plan, which would require New Gold to set out objectives for end land uses of the mine site as well as for other project components.

9.3.2 EFFECTS ON CARIBOU

The Blackwater mine site is located at the eastern edge of the Tweedsmuir-Entiako caribou local population unit boundary and is in the herd's winter range. The major components of the mine (for example, open pit and TSF) are within the local population unit boundary. The boundary of the herd's core winter range based on telemetry data, is about 10 km from the mine site. Working Group members expressed concern about effects occurring to caribou without Blackwater, and commented on the accuracy of the effects assessment, the assumptions used by New Gold in the mapping of caribou habitat, and New Gold's assessment of cumulative effects. Of concern regarding the federal Recovery Strategy, was the amount of High Elevation Winter Range in the mine site.

The Recovery Strategy describes critical habitat for caribou. The caribou seasonal winter range around Blackwater is comprised of High Elevation Winter Range, Low Elevation Winter Range, Type 1 Matrix Range, and Type 2 Matrix Range. Type 1 Matrix Range, which can include high and low or mid elevation habitats, provides some forage, connectivity for movement among habitats, security from human disturbance, and a low risk of predation. Type 2 Matrix Range, which can include high and low elevation habitats, influences predator/prey dynamics and provides connectivity between subpopulations.

After considerable discussion between the Working Group and New Gold, the EAO provided a Letter of Expectations (LoE) to New Gold in June 2018, which communicated FLNRORD's and ECCC's shared opinion on the appropriate characterization of critical caribou habitat in the Blackwater area. The LoE stated that "the mine site footprint falls within Type 1 Matrix critical habitat with high elevation attributes, and there is High Elevation Winter Range at the top of Mount Davidson that is outside the mine site footprint but within a disturbance buffer." The LoE set out that New Gold would need to provide an updated assessment of the direct, indirect, and cumulative effects of Blackwater on Southern Mountain Caribou and critical habitat and identify appropriate measures to mitigate potential effects.

In response, New Gold produced updated habitat mapping for caribou which indicates that approximately 40 percent of the available low elevation winter range habitat across the local population unit boundary has been disturbed, which surpasses the disturbance threshold of 35 percent identified in the federal Recovery Strategy. New Gold updated its characterization of critical

habitat at the mine site. The mine site is primarily Type 1 Matrix habitat with high elevation attributes (as opposed to High Elevation Winter Range). The area above 1700 meters on Mt. Davidson that was identified by FLNRORD and ECCC as High Elevation Winter Range, comes within about 250 meters of the open pit. New Gold also mapped Matrix Type 1 habitat with low elevation attributes, and Type 1 Matrix habitat without specific elevation attributes within the mine site. The remainder of the mine site is located within Type 2 Matrix habitat outside of the local population unit. A portion of the TLA, the mine access road, FWSS, airstrip access road and much of the airstrip are also located within Type 2 Matrix habitat. The boundary for Matrix Type 2 habitat outside of the local population unit area was based on guidance from ECCC.

New Gold estimated habitat loss and degradation separately for the different phases of Blackwater and differentiated between features to be reclaimed and permanent features that will not be reclaimed. New Gold considered the footprints of the open pit/pit lake, TSF, works upstream of the TSF (flooded area and water diversion channel), WTP, and portions of the transmission line and mine access road within the local population unit area, plus a 500 m sensory buffer around the WTP, to be permanent effects.

In August 2018, New Gold revised its proposed mitigations based on BC's policy and procedures for mitigating impacts on environmental values and included proposed offsetting to address impacts and to contribute to the overall recovery efforts for caribou. New Gold's proposal included the identification of potential non-habitat and habitat-based offset measures. Non-habitat offset measures included providing financial support for activities identified in future caribou herd plans which FLNRORD indicated could potentially include things such as maternal penning, supplemental feeding and predator control.

The habitat-based offset would include a land securement within New Gold's mineral tenures in the caribou local population unit. New Gold predicted an impact of approximately 2300 ha from physical disturbance and an additional 1600 to 2400 ha from sensory disturbance. New Gold proposed to implement the offset prior to commencing construction. Eight locations were identified where habitat-based offset measures could potentially be established. New Gold's view is that the options are sufficient to offset the predicted residual effects to caribou habitat from Blackwater, and these areas will provide good quality habitat. The options include High Elevation Winter Range and Low Elevation Winter Range, which are relatively uncommon and are of higher value compared to matrix habitat. New Gold proposed an offsetting ratio between 1:1 and 4:1 that considers the ecological value of the offset location relative to Blackwater.

The EAO is of the view that the habitat-based offset options identified provide a level of certainty that an offset can be secured on the land base. The options identified are useful for preliminary planning, and a detailed habitat-based offset plan can be developed once additional information is available to prioritize areas for selecting the offset and a rationale can be provided to support the offset selected.

To ensure that New Gold's proposed mitigation measures are implemented, the EAO is proposing Condition 22: Caribou Mitigation and Monitoring Plan (CMMP), which would include habitat offsets

and require that the plan consider and be consistent with provincial caribou recovery plans and strategies. The CMMP would also include a requirement for New Gold to decommission and reclaim the existing access road to the mine site and another exploration road located in high elevation winter habitat, which were key mitigation measures proposed by New Gold. The CMMP would be developed in consultation with FLNRORD, ENV, EMPR, ECCC and Indigenous groups and would need to be implemented prior to construction.

9.3.3 EFFECTS ON WETLANDS AND THE HABITAT THESE PROVIDE FOR WILDLIFE SPECIES

Working Group members noted that the Application proposed to establish 294 ha of wetlands in the TSF to both treat mine water and contribute to compensating for the loss of 309 ha of wetlands in the mine site. Provincial guidance notes that wetlands constructed to treat wastewater should not be considered as a replacement for naturally occurring wetlands and aren't always desirable from a species or habitat perspective.

As a result of Working Group concerns about the effectiveness of wetlands to passively treat mine effluent, New Gold proposed to use WTPs. Further discussion on the proposed water treatment and related discussion can be found in Section 10: Groundwater, Surface Water and Sediment Quality.

Further, Working Group members noted that water quality in the TSF ponds (with the use of WTPs) would not be suitable for wildlife for an estimated 42 years after construction, and New Gold's wetland compensation proposal did not mitigate impacts to all wetlands that would be lost or permanently or temporarily degraded (about 345 ha will be lost, 199 ha will be degraded, and 94 ha will be hydrologically affected). In addition, the wetlands to be created through the compensation plan would not fully reflect (be ecologically equivalent to) the types of wetlands that would be lost or degraded as a result of Blackwater.

In response to the concerns about the effectiveness of its compensation plan to mitigate for lost and degraded wetlands, New Gold clarified that it's Wetland Compensation Plan was not intended to offset all impacts to wetlands from the mine, and that the approach was to meet federal and provincial requirements and policy.

New Gold indicated that: wetland loss within the Blackwater area will not reach critical levels; wetlands that will be affected by Blackwater have not been designated as socio-economically important to the region; ecologically important wetlands within the Blackwater area were assumed to include red and blue-listed wetland ecological communities; and, it has committed to compensate impacts to blue or red-listed wetlands that would be lost or altered by project components/activities that are enabled by federal authorizations at a 2:1 ratio.

Following further assessment, New Gold reported that there are no blue or red-listed wetlands in the mine site where most of the impacts to wetlands would occur. EAO understands that federal authorization, requirements and policy may not apply to wetlands affected by the transmission line

where 17 potentially blue-listed wetlands have been identified. New Gold reported that wetlands support plant and wildlife species that are used by Indigenous groups, and that they harvest from areas that have not been disturbed by industry. Additional potential off-site opportunities for wetland compensation in the region were identified by New Gold memo of October 2018.

Given the extent of effects to wetlands and the importance of wetlands to wildlife, the EAO is proposing Condition 24: Wetland Management and Offsetting Plan, which would require New Gold to prepare and implement a plan that will identify and offset the loss and degradation of wetlands caused by Blackwater. The plan would be developed in consultation with Indigenous groups and regulatory agencies. The plan will require that the amount wetlands affected by Blackwater be confirmed, that potential effects be monitored, and that offsets be implemented to adequately mitigate effects to all impacted wetlands according to provincial Procedures for Mitigating Impacts on Environmental Values.

9.3.4 EFFECTS ON FURBEARERS

Indigenous groups expressed concern about effects from mortality and displacement on wide-ranging carnivores such as lynx, wolverine and fisher.

In response to concerns, New Gold relocated about 48 percent of the transmission line. New Gold also committed to developing a Wildlife Management Plan to address project-related effects to furbearers in consultation with Indigenous groups. New Gold also committed to allowing vegetation in the transmission line RoW to regrow, and after initial clearing, not reducing the height of vegetation to any lower than one metre from ground level (unless required for tower bases or guy anchor points). As well, New Gold committed to deploy berms, woody debris or other visual barriers along the line that may facilitate cover and movement for smaller animals.

The EAO is proposing Condition 23: Wildlife Management and Monitoring Plan that would require New Gold to mitigate as well as monitor and adaptively address effects to furbearers. This would include, among other things, the measures noted above.

9.3.5 EFFECTS ON GRIZZLY BEARS

Indigenous groups expressed concern about potential effects on grizzly bears. FLNRORD commented that significant cumulative effects to grizzly bear habitat are occurring without Blackwater and recommended that New Gold ensure there is not a further incremental increase in road density and implement measures that would reduce linear disturbance and benefit grizzly bears.

In response to concerns, New Gold relocated about 48 percent of the transmission line. New Gold also committed to developing a Wildlife Management Plan to address project-related effects to grizzly bears, to align the Plan with regional objectives, and to participate in regional initiatives in Wildlife Management Units 6-01 and 7-12, which may include contributions and or activities to reduce linear disturbance. As well, New Gold committed to reclaiming any new transmission line

access roads following construction.

The EAO is proposing Condition 23: Wildlife Management and Monitoring Plan that would require New Gold to mitigate as well as monitor and adaptively address effects to wildlife, including grizzly bear. This would include, among other things, the measures noted above.

9.3.6 EFFECTS ON MOOSE

Indigenous groups raised concerns about declining moose populations in the region, loss and degradation of moose habitat, increased harvesting pressure (legal or illegal) as a result of increased access, and increased predation.

In response to concerns raised, New Gold relocated about 48 percent of the transmission line. New Gold also committed to conducting winter aerial surveys prior to construction, and then every five years after until the end of mining operations (17 years after construction), to track moose abundance and distribution in the mine site area. As well, New Gold committed to reclaiming any new transmission line access roads following construction, creating visual barriers along the transmission line RoW, and participating in regional wildlife and resource management initiatives related to moose in Wildlife Management Units 6-01 and 7-12.

The EAO is proposing Condition 23: Wildlife Management and Monitoring Plan that would require New Gold to mitigate as well as monitor and adaptively address effects to wildlife, including moose. This would include, among other things, the measures noted above.

9.3.7 EFFECTS OF CONSTRUCTION ACTIVITIES ON WILDLIFE

Working Group members raised concerns about the potential effects of construction activities on wildlife that were not addressed in management plans originally proposed by New Gold. In response New Gold committed to additional measures, such as pre-construction surveys.

The EAO is proposing Condition 23: Wildlife Management and Monitoring Plan that would require New Gold to conduct pre-construction surveys and implement mitigation for effects to: mineral licks; grizzly bear dens bat roosts and hibernacula; furbearer dens and, active bird nests. The plan would also require that sensitive life stages for wildlife be established and impacts during these time periods be mitigated. As well, the plan would require other measures which would continue during operations, such as: prohibiting employees from hunting or feeding wildlife; controlling lighting; establishing vehicle speed limits and wildlife crossing signs where wildlife corridors exist; and, monitoring and managing wildlife use of the TSF. The EAO is also proposing Condition 20: Air Quality and Dust Management Plan, and Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan, which would require New Gold to implement measures to control dust and noise.

9.3.8 EFFECTS ON WHITEBARK PINE AND CLARK'S NUTCRACKER

ECCC expressed concern that Blackwater could result in the destruction of whitebark pine critical habitat, jeopardizing recovery or survival of the species in this area, as this could result in a decline of Clark's nutcracker and fewer birds available for seed dispersal. FLNRORD commented that significant cumulative effects to whitebark pine are occurring without Blackwater and questioned if there would be sufficient whitebark pine with Blackwater to sustain Clark's nutcracker.

New Gold conducted additional analysis and responded that with its proposal to establish a blister rust-resistant population there would be no residual effect to whitebark pine, and there should be sufficient whitebark pine habitat to sustain current Clark's nutcracker populations.

Federal conditions have been established for whitebark pine and Clark's nutcracker which require development and implementation of a whitebark pine management plan consistent with any applicable recovery strategy related to whitebark pine. The plan is required to include: criteria to evaluate the health of whitebark pine trees and for the selection of whitebark pine to be transplanted; collecting whitebark pine rust-resistant seeds prior to vegetation clearing for use in reclamation; identifying the locations to plant whitebark pine in undisturbed areas prior to construction; implementing measures to support whitebark pine growth and use by Clark's nutcracker; and, implementing a follow-up program in consultation with Indigenous groups to determine the effectiveness of mitigation measures. This program is to: monitor populations of whitebark pine, including their health, within the reclaimed areas, at a minimum every five years; and, monitor use of the reclaimed areas by Clark's nutcracker for the purpose of whitebark pine regeneration. Should the results of monitoring demonstrate that use of the reclaimed areas by Clark's nutcracker is not adequate, additional mitigation measures are to be implemented.

9.3.9 EFFECTS ASSOCIATED WITH THE TRANSMISSION LINE

FLNRORD raised questions regarding the routing options proposed by New Gold in the Stellako River WMA, and the potential Mills Ranch re-route, and how the final routing will be selected.

The transmission line would cross the WMA, which is established under the *Wildlife Act*. This is one of two WMAs designated within the Omineca Region. The Stellako River WMA was established in 2011 for the benefit of regionally to internationally significant fish and wildlife species. The primary management goal for the WMA is to maintain and, where possible, secure and enhance fish, wildlife, and their habitat; and to provide compatible public recreational and educational use of the area through effective management. Under Section 4(4) of the *Wildlife Act*, a person may not use land or resources in a WMA without written permission of the regional manager.

FLNRORD commented that of the two crossing locations identified in the WMA, the one adjacent to the BC Hydro RoW (the re-route option) is preferred to minimize the loss of WMA values, and also noted that compensation for the loss of values would be needed.

Closer to the mine there are two other areas where there are options (re-routes) for locating the transmission line. In these areas the line would either be adjacent to FSRs or not, and effects to wildlife and ecosystem VCs would differ depending upon where the line is built. FLNRORD commented that the Mills Ranch re-route is not preferred. This 15 km option is in the Chedakuz and Chedakuz Lakes areas of the Vanderhoof Land and Resource Management Plan, which are designated as follows:

- Chedakuz (semi-primitive motorized recreation) – Supports high ecological biodiversity with significant wildlife habitat (travel corridors) for moose and grizzly bears. Blue-listed bird species and red-listed plant communities may be present around Chedakuz Creek. Access is to be managed to reduce the impacts of increased road density on wildlife habitat.
- Chedakuz Lakes (semi-primitive non-motorized) – Supports a high quality, wild stock rainbow trout fishery.

New Gold proposed to select the final routings post-EA in consultation with FLNRORD and Indigenous groups, and to mitigate the effects following the province's Environmental Mitigation Policy, which may include offsetting.

The proposed CPD allows for either of the routing options to be built. In light of New Gold's commitment to undertake further consultation in the route selection and refining mitigation measures, as well as the subsequent provincial approval that will be required for New Gold to site the transmission line within the WMA, the EAO is proposing Condition 39: Final Transmission Line Routing Plan to ensure that appropriate consultation is undertaken and appropriate mitigations are applied for the final route selection.

In the Application, the transmission line was to be decommissioned after approximately 35 years. However, during Application Review, the duration of the transmission line increased to at least 300 years to provide power for water treatment at the mine site. FLNRORD questioned how the increase in the duration of effects to wildlife from the transmission line would be mitigated.

New Gold committed that new roads and trails required for construction of the transmission line would be temporary and only located within the RoW, and these would be deactivated and reclaimed early after construction. New Gold also committed to allowing vegetation in the transmission line RoW to regrow, and after initial clearing, not reducing the height of vegetation to any lower than one metre from ground level (unless required for tower bases or guy anchor points). As well, New Gold stated that access for managing vegetation would be from existing roads and this would be conducted by foot and visual barriers would be used to reduce line of sight which may also provide cover for furbearers.

To ensure these mitigation measures are implemented, the EAO has proposed Condition 23: Wildlife Management and Monitoring Plan which would require New Gold to develop and implement a plan that would include the measures noted above. Roads may need to be periodically re-activated during the life of the transmission line to, for example, maintain or replace the support poles for the line.

9.3.10 INFORMATION GAPS

In addition to the issues discussed above, some areas were identified during the Application Review where information was not fully available to support the EA review, and where further information was needed to confirm or update assessment conclusions and mitigation.

In particular, effects to wildlife (excluding caribou) and vegetation (ecosystem) VCs were not assessed in the Davidson Creek watershed upstream of the TSF where flooding would occur and there would be works to divert water to the Creek 705 watershed.

> New Gold committed to address the baseline and assessment gaps in this area (August 22, 2018, Lake 16 Enlargement Memo), and the EAO is proposing to include a requirement for this in the Wildlife Management and Monitoring Plan (Condition 23).
>
> With respect to wetlands, the transmission line is a conceptual design and within the 140 m wide transmission line corridor the location of the RoW to be cleared, access roads for constructing the line and locations of the support towers for the line are not known. Wetlands are to be avoided or clear-spanned by the line where practicable, but the transmission line corridor crosses about 38 wetlands and the degree to which these may be impacted by the construction road and the line is unclear. As well, the Application indicates wetlands could see reduced surface and groundwater inputs because of the mine and notes that predicting the hydrological effects to wetlands over time is difficult and speculative. There are wetlands connected to Davidson Creek downstream of the mine site, and supplemental information indicates a reduction in average monthly stream flows after the FWSS is decommissioned and augmentation of Davidson Creek flows ends (about 42 years after construction).In light of this uncertainty, as well as the identified potential effects to wetlands, the EAO is proposing a Wetland Management and Offsetting Plan (Condition 24) that will require that the amount of wetlands affected by Blackwater be confirmed, that potential effects be monitored, and that offsets and compensation be implemented to adequately mitigate effects to all impacted wetlands according to provincial Procedures for Mitigating Impacts on Environmental Values.

9.4 CHARACTERIZATION OF RESIDUAL EFFECTS

After considering the proposed mitigation measures, the EAO concludes that Blackwater would result in the following residual adverse effects to wildlife and ecosystems:

- Loss and degradation of wildlife habitat and ecosystems. Because of this there may be increased risk of indirect wildlife mortality and impacts to wildlife movement patterns and populations for some species.

For direct risk of wildlife mortality, impacts to movement and impacts to health, EMPs that will include best practices would help minimize but not eliminate effects.

The EAO is of the view that, in addition to mitigation measures in EMPs proposed as Conditions (wildlife, noise and air quality), the Conditions proposed to offset for effects to caribou habitat and wetlands as well

as the End Land Use Plan condition will help to reduce potential residual adverse effects to many wildlife species. The EAO's characterization of the expected residual effects of Blackwater on wildlife and ecosystems is summarized below, as well as EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 25: Summary of Residual Effects for Wildlife and Ecosystems

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Low to High	• Low resiliency for wildlife species of conservation concern (Table 22) and moderate to high for other species. Effects to wildlife populations could potentially be occurring from the collective effects of forestry, mountain pine beetle and wildfires. • Low resiliency for plant species and ecosystems at risk, and wetlands. Moderate to high for other ecosystems.
Magnitude	Low to High: wildlife VCs Moderate to High: ecosystems VCs	• In the LSAs combined, high for habitat for all wildlife VCs, except moderate for some indicators (two water birds, and one furbearer). In the RSAs combined, low for habitat for all wildlife VCs, except for some indicators (high for one forest and grassland bird - Clark's nutcracker; and, negligible for two water birds, one forest and grassland bird, and two furbearers). • In the LSAs combined, high for ecosystems, and plant species and ecosystems at risk, and moderate for wetlands.
Extent	Local	• Most or all adverse effects are expected to occur within the LSAs.
Duration	Permanent and Long-term: wildlife VCs Permanent: ecosystems VCs	• About 65 percent of the footprints of Blackwater's facilities would be permanent physical works (mine site areas, mine access road, transmission line and FSR upgrade) where effects would not be reversed, or conditions restored to baseline. Generally, sensory disturbance to wildlife would be long term. • Approximately 35 percent of Blackwater facilities or rights-of-way (mine site areas, airstrip and FWSS) would be decommissioned and potentially restored to baseline about 80 to 120 years or longer after construction.
Reversibility	Irreversible and Reversible	• About 65 percent of the footprints of Blackwater's facilities would be permanent physical works where effects would not be reversed. Generally, sensory disturbance to wildlife would be reversible. • About 35 percent of the footprints of Blackwater's facilities may be restored to conditions similar to baseline over time (about 80 to 120 years or longer after construction).

Frequency	Continuous: wildlife VCs Frequent: ecosystems VCs	• The effects of habitat loss and degradation to wildlife would occur continuously. • Physical works would occur regularly throughout construction and in the mine site continue during mine operations. Vegetation management in the transmission line RoW would occur at regular intervals.
Likelihood	There is a high likelihood that residual effects would occur given the wildlife species and ecosystems present in the Blackwater areas, types and durations of project facilities and infrastructure, and limitations of the mitigation measures (for example, time-lag before restoration and offsets would become effective).	
Significance Determination	Impacts to wildlife and ecosystems VCs are expected to be not significant. While residual effects to wildlife habitat after mitigation will be permanent and long-term in duration, continuous and some will be irreversible, the EAO gave greater weight to the effects being low in magnitude in the RSA and local in geographic extent. While residual effects to ecosystems after mitigation will be moderate to high in magnitude in the LSAs and permanent in duration, the EAO gave greater weighting to the effects being local in geographic extent and that some effects may be reversible.	
Confidence	There is a high level of confidence in the likelihood determination given that the limitations of mitigation and the residual effects are clear and easily understood. There is a low to moderate level of confidence in the significance determination based on: the limitations identified; current habitat and ecosystem conditions and lack of information about wildlife populations (excluding caribou); information gaps; and uncertainty about the effectiveness of mitigation (for example, time-lag before restoration and offsets would become effective). When finalized, the offsets or compensation for adverse effects to wetlands, whitebark pine, caribou, and the Stellako River WMA, and use of options for locating segments of the transmission line that would reduce effects, could increase the level of confidence in the significance determinations for the wildlife and ecosystems VCs.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

9.5 CUMULATIVE EFFECTS ASSESSMENT

There are a number of past, present and reasonably foreseeable projects and activities in the RSA that have the potential to act cumulatively with Blackwater residual effects on wildlife and ecosystem VCs. These include:

- Forestry activities where the mine access road, airstrip and its access road, FWSS and transmission line are located;
- Mining exploration activities within and outside of the Blackwater mine site. New Gold holds mineral tenures covering a large portion of the wildlife and ecosystem study areas around the mine (excluding most of the transmission line and FSRs). New Gold has constructed roads and conducted mineral exploration activities in these areas, including in UWR, high elevation caribou winter range and whitebark pine habitat, and could continue activities in the future. There are also other mineral tenure holders in the study areas; and
- Various other non-forestry activities where the transmission line is located, including roads,

agriculture, mining exploration, another transmission line, quarries, and activities on private lands.

Large long-term forestry and mining tenures exist within the RSAs. Blackwater infrastructure would remain in place and activities would continue for over 300 years after mining ends. During this period new forestry and mining exploration activities would likely occur within the RSAs.

9.5.1 ISSUES RAISED DURING APPLICATION REVIEW

Working Group members (Indigenous groups, and provincial and federal agencies) noted that without Blackwater, industrial activities and natural disturbances are collectively affecting ecosystems, wildlife habitat and wildlife species in the RSAs.

9.5.2 WITHOUT BLACKWATER

It was reported in the Application and supplemental information that of about 118 000 ha of grizzly bear habitat (average of spring, summer and fall) in the 290 065-ha wildlife RSA, about 90 percent overlaps with forestry roads and cutblocks, mining activity, mountain pine beetle and fire (burn severity is unknown). Forest stands affected by mountain pine beetle still provide functional habitat for grizzly bears. Overall, caribou habitat has had considerable past forestry activities and associated roads, and fires in mountain pine beetle-killed stands, and by the time mining (ore processing) ends it is predicted 336,304 ha of caribou habitat will have been altered in the caribou local population unit from these other sources (excluding any future forest fires). The amount of habitat overlapping with existing disturbances was not reported for all wildlife VCs. The areas of affected grizzly bear and caribou habitat would overlap with the habitats of other wildlife VCs.

The Application reports that 14 689 ha of other projects or activities overlap with the ecosystem composition VC, and 8 080 ha overlap with the plant species and ecosystems at risk VC in the 45 000 ha RSA.

The Application and supplemental information reported that the following cumulative effects exist for wildlife VCs in the RSAs without Blackwater:

- **Habitat loss and degradation:**
  - Caribou – effects are chronic (permanent) in duration but reversible;
  - Grizzly bear – effects are chronic in duration but reversible;
  - Furbearers (marten and wolverine) – effects are long-term in duration but reversible;
  - Forest and grassland birds – effects are long-term in duration but reversible;
  - Water birds – effects are long-term in duration but reversible; and
  - Invertebrates – effects are chronic in duration but reversible.

- **Mortality risk:**
  - Moose – effects are chronic in duration but reversible; and
  - Grizzly bear – effects are chronic in duration but reversible.

- **Changes in movement patterns:**
  - Moose – effects are chronic in duration but reversible.
- **Changes in populations (population dynamics):**
  - Caribou – effects are chronic in duration but reversible; and
  - Moose – effects are chronic in duration but reversible.

The Application and supplemental information reported that the following cumulative effects exist for ecosystem VCs in the RSAs without the Blackwater:

- **Wetlands:** cumulative loss and degradation – effects are chronic in duration and irreversible;
- **Ecosystem composition:** cumulative loss – effects are chronic in duration but reversible; and
- **Plant species and ecosystems at risk (includes whitebark pine):** cumulative loss – effects are chronic in duration but reversible.

9.5.3 WITH BLACKWATER

The Application and supplemental information reported that the following cumulative effects would exist for wildlife VCs with Blackwater:

- **Habitat loss and degradation:**
  - Caribou – effects on winter habitat would be chronic (permanent) in duration and not reversible (except long-term and reversible for sensory disturbance);
  - Grizzly bear – effects would extend outside the LSA and would be chronic in duration but reversible;
  - Furbearers (marten and wolverine) – effects would occur within the LSA and would be chronic in duration but reversible;
  - Forest and grassland birds – effects would occur within the LSA and would be chronic in duration but reversible;
  - Water birds – effects would extend outside the LSA and would be long-term in duration but reversible and
  - Invertebrates – effects would occur within the LSA and would be chronic in duration but reversible.

Associated with the loss and degradation of wildlife habitat with Blackwater there may be increased risk of indirect wildlife mortality and impacts to wildlife movement patterns and populations for some species. The Application and supplemental information also reported the following:

- **Mortality risk:**
  - Moose – effects would occur within the LSA and would be long-term in duration but reversible; and
  - Grizzly bear – effects would extend outside the LSA and would be chronic in duration but reversible.
- **Changes in movement patterns:**

    - Moose – effects would extend outside the LSA and would be chronic in duration but reversible.
- **Changes in populations (population dynamics):**
    - Moose – effects would extend outside the LSA and would be chronic in duration but reversible.

The Application and supplemental information reported that the following cumulative effects exist for ecosystem VCs with Blackwater:

- **Wetlands:** cumulative loss and degradation – effects would extend outside the LSA and would be chronic in duration and irreversible;
- **Ecosystem composition**: cumulative loss – effects would extend outside the LSA and would be chronic in duration but reversible; and
- **Plant species and ecosystems at risk (includes whitebark pine):** cumulative loss – effects would extend outside the LSA and would be chronic in duration but reversible.

The EAO notes that:

1. There are cumulative effects occurring to wildlife habitats and ecosystems without Blackwater which may be affecting wildlife populations;
2. There are uncertainties regarding: the limitations of studies; the status of wildlife populations (excluding caribou); information gaps; and mitigation for loss and degradation of habitat;
3. Cumulative effects would extend outside LSAs (six VCs) and largely be chronic in duration; and
4. Blackwater infrastructure would remain in place and activities would continue for over 300 years after mining ends, and during this period it is reasonable to assume that new forestry, mining exploration or other activities would likely occur that could interact with the project.

The EAO concludes that expected cumulative effects to the wildlife and ecosystem VCs discussed above as a result of the residual effects of Blackwater interacting with the effects of other past, present and reasonably foreseeable future projects and activities due to the loss and degradation of wildlife habitat and ecosystems (and associated with these effects, potential increased risk of wildlife mortality and impacts to wildlife movement patters and populations for some species) would be:

Wildlife VCs

- Low in magnitude for effects extending outside the LSA – water birds, moose, caribou, and grizzly bear; and
- Moderate in magnitude for effects within the LSAs – water birds; forest and grassland birds; moose; caribou; grizzly bear; furbearers; and, invertebrates.

Ecosystem VCs

- Low in magnitude for effects extending outside the LSA – wetlands; ecosystem composition; and plant species and ecosystems at risk (excluding whitebark pine);

- Moderate in magnitude for effects within the LSAs – wetlands; ecosystem composition; and plant species and ecosystems at risk (excluding whitebark pine); and
- High in magnitude for effects – whitebark pine (this would be addressed by the federal conditions identified above).

Subject to finalization of the offsets or compensation for effects to wetlands, whitebark pine, caribou, and the Stellako River WMA, and options selected for locating segments of the transmission line, the EAO concludes that significant cumulative effects to wildlife and ecosystem VCs are not expected as a result of the effects of Blackwater interacting with the effects of other past, present and reasonably foreseeable future project and activities.

9.6 CONCLUSIONS

Considering the above analysis and having regard to the conditions identified in the CPD and TOC (which would become legally binding in the event that an EAC is issued), including Condition 20: Air Quality and Dust Management Plan, Condition 21: Noise and Vibration Effects Monitoring and Mitigation Plan, Condition 22: Caribou Mitigation and Monitoring Plan, Condition 23: Wildlife Management and Monitoring Plan, Condition 24: Wetland Management and Offsetting Plan; Condition 25: End Land Use Plan; Condition 33: Mine Waste and Water Management Plan and Condition 39: Final Transmission Line Routing Plan the EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems.

10 GROUNDWATER, SURFACE WATER AND SEDIMENT QUALITY

10.1 BACKGROUND

The Application assessed impacts to water using five VCs, which were selected due to their potential to be altered by Blackwater and related project activities:

- Groundwater Flow;
- Groundwater Quality;
- Surface Water Flow;
- Surface Water Quality; and
- Sediment Quality.

The water VCs also fed into the assessment of the following VCs:

- Fish and Aquatic Habitat (Section 11);
- Terrestrial Ecology (Section 9);
- Wildlife (Section 9); and
- Human Health (Section 15).

The Blackwater mine would be located in the sub-alpine areas north of Mt. Davidson, primarily in the headwaters of Davidson Creek. Below the Blackwater mine site, Davidson Creek flows into lower Chedakuz Creek downstream of Tatelkuz Lake, and ultimately drains into the Nechako Reservoir. The area near Blackwater contains stream systems typical of the central BC interior, with steep, low temperature, low nutrient sub-alpine headwater tributaries (and some small headwater lakes) draining to lower-gradient, warmer, higher-nutrient reaches with higher quality fish habitat, which in turn drain into valley-bottom streams that form the inlets and/or outlets of large valley-bottom lakes, such as Tatelkuz Lake.

10.1.1 REGULATORY CONTEXT

The Application considered the following federal and provincial legislation, regulations, and guidelines:

- The provincial WSA, Water Sustainability Regulation, and Groundwater Protection Regulation apply to the use and protection of water resources;
- The federal Fisheries Act protects the quality and integrity of fish habitat in commercial, recreational, and Aboriginal fisheries by prohibiting unauthorized activities that may cause serious harm to fish. The Act also prohibits the deposition of deleterious mine waste in fish bearing water bodies unless authorized by an amendment to Schedule 2 of the MDMER;
- Provincial legislation governing surface water quality includes the EMA; and

- CCME Water Quality Guidelines (WQGs), CCME Interim Sediment Quality Guidelines, and the BC Approved (and working) WQG and BC Working Sediment Quality Guidelines represent levels that, when met, are highly unlikely to result in adverse effects on a given water use. Guidelines are not regulatory instruments. Exceeding a WQG does not necessarily mean detrimental effects will occur; it simply means that the potential risk to water uses may be increased and should be considered in resource management situations. Generally, the BC guidelines are used where BC and CCME guidelines exist, as the BC guidelines are intended to represent more closely the conditions in BC.

10.1.2 SPATIAL AND TEMPORAL BOUNDARIES

GROUNDWATER QUANTITY AND QUALITY

The LSA for groundwater quantity and quality, shown in Figure 7 below and Section 5.3.5, Figure 5.3.5-2 of the Application, includes the entire mine site and a one km buffer around it. The RSA for groundwater includes the entire watersheds of Davidson Creek, Creek 661, Creek 705, and Turtle Creek; and portions of the Chedakuz Creek, Laidman Lake, Blackwater River; and Fawnie Creek drainage basins. The linear components of the Blackwater project were not expected to interact with the groundwater quantity VC and were not included in the spatial boundary.

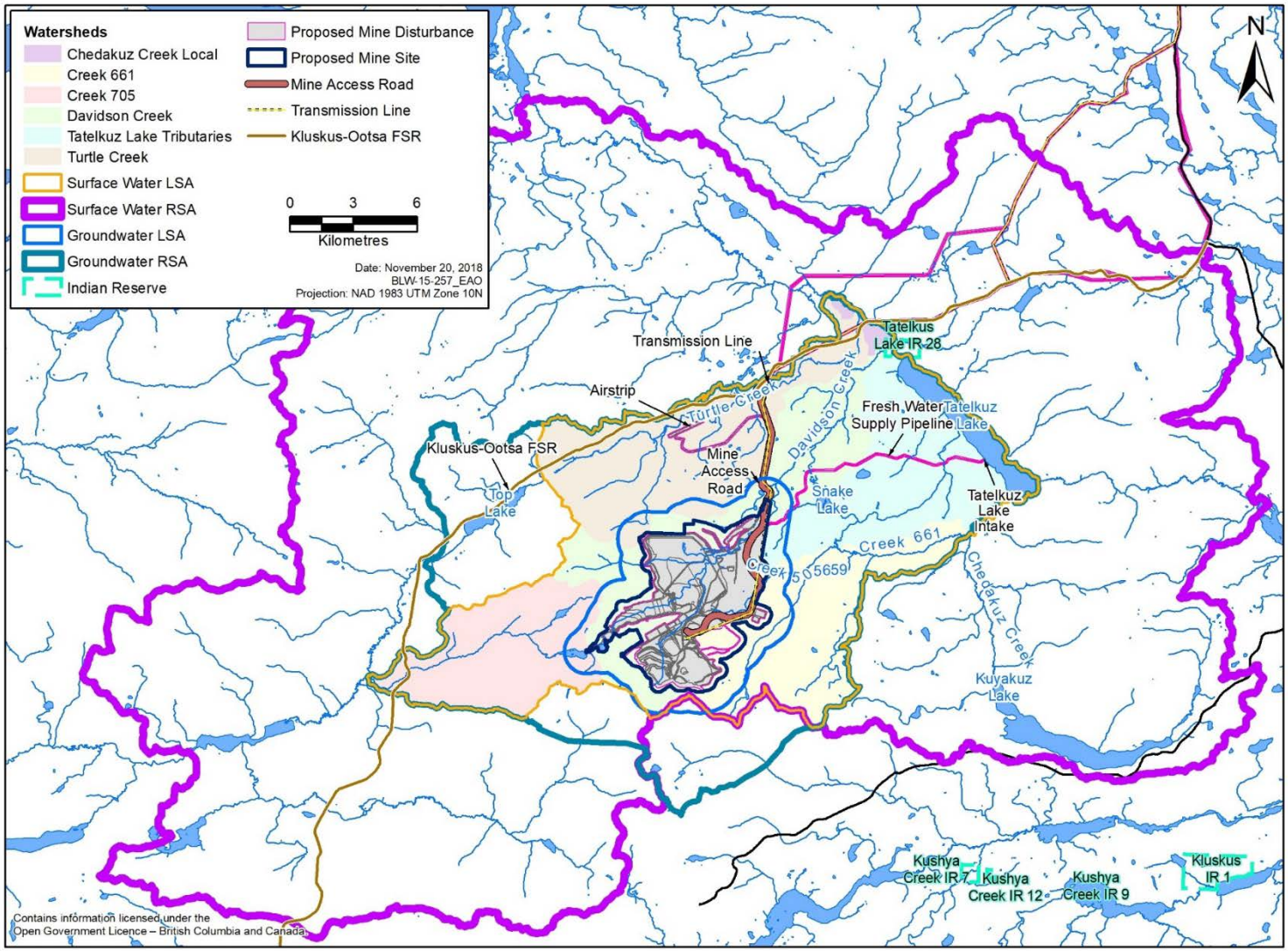

Figure 7: Groundwater and Surface Water LSAs and RSAs

SURFACE WATER FLOW, SURFACE WATER QUALITY, AND SEDIMENT QUALITY

The LSA for Surface Water Flow and Quality, and Sediment Quality, shown in Section 5.3.5, Figure 5.3.2.1 in the Application and Figure 7 above, includes the mine site and the transmission line and other associated developments,[8] with the intention of capturing all water bodies that could be measurably affected during any phase of the project, as well adjacent water bodies. It includes the Creek 705 watershed, which drains from the peak of Mt Davidson southwest into Fawnie Creek and the following water bodies which fall within the larger Chedakuz Creek drainage basin:

- The Davidson Creek, Creek 661, and Turtle Creek Watersheds;
- Tatelkuz Lake;
- Other tributaries draining into the west side of Tatelkuz Lake;
- Chedakuz Creek from the confluence with Creek 661 to Tatelkuz Lake; and
- Chedakuz Creek from Tatelkuz Lake to the confluence with Turtle Creek.

The RSA includes the LSA, the entire Chedakuz Creek drainage basin, and the entire Laidman Lake drainage basin, for a total area of approximately 146 448 ha (1464 km^2). The RSA is intended to include water bodies downstream and upstream of Blackwater that either could influence LSA water body water quality or could be influenced indirectly by Blackwater. The RSA does not include the Nechako Reservoir.

Most of the project components would be built within the Davidson Creek and Creek 661 watersheds, with the airstrip and limited portions of the mine access road to be located within the Turtle Creek watershed. The transmission line would cross a number of other watersheds.

10.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

The following sections describe baseline conditions, the potential effects of Blackwater, and proposed mitigation measures.

10.2.1 BASELINE INFORMATION

GROUNDWATER

The groundwater baseline was characterized based on-site field investigations with associated laboratory test results, combined with a review of published reports, mapping, photography, and climate and hydrometeorology data. On-site groundwater field investigations included the installation of groundwater monitoring wells and water flow and quality sampling; determination of groundwater levels and seasonal variation; and, completion of field hydrogeologic testing. The water levels of 18 groundwater wells were

[8] For the purposes of the LSA and RSA boundaries, the "transmission line and other associated developments" include the transmission line, reroute options, transmission line access roads, mine access road, and water supply pipeline, 100 m on either side of the centre line of these proposed developments (that is, 200 m total width study area boundary), and the airstrip. However, the transmission line and other associated developments were not included in surface water flow or quality modelling, based on the assumption that the impacts would be so small as to be negligible. A change of 48 percent or 67 km of the 140 km TLA was proposed during Application Review, and a third possible re-route was added.

measured from spring of 2012 to spring of 2014. A full description of the baseline is available in Section 5.1 of the Application.

The baseline site investigations indicated that groundwater in the Blackwater project area flows from recharge zones located in topographic highs (like Mt. Davidson) to the area of the proposed open pit, and then further to discharge in the valleys of Davidson Creek, Turtle Creek, Creek 661, and Creek 705. Groundwater discharges provide most of the surface water flow in these creeks in the winter and early spring months.

The main groundwater flow pathways in bedrock are through highly fractured zones of rock, which are found in the upper 10 m to 20 m of bedrock, and in a nearly circular zone extending almost 500 m from the top of the bedrock on the southeastern slope of Mt. Davidson. This fractured rock would be excavated for the proposed mine.

Groundwater quality baseline results, described in Appendix 5.1.2.4B of the Application, did not indicate groundwater contamination. Most of the samples New Gold analyzed showed total suspended solids (TSS) higher than guideline, which New Gold attributed to inadequate purging of wells prior to sampling. Major ions, nutrients, and trace metals met applicable drinking WQGs, with the exception of aluminum, lead, arsenic, iron, and manganese, which slightly exceeded guidelines. These exceedances were only slightly above the guidelines except for iron and manganese, for which elevated concentrations are typical near mine sites.[9]

SURFACE WATER FLOW

The surface hydrology baseline was developed using hydrologic data collected from seven hydrometric stations within the Blackwater area between 2011 and 2013. This site hydrometric data was combined with regional climate and hydrometric data to estimate a set of baseline hydrological parameters, including mean monthly and annual flows, wet and dry monthly and annual flows, peak flood flows, and low flows. The full description of baseline can be found in Section 5.1 and Section 5.3 of the Application.

Surface water flow predictions for Turtle Creek, Davidson Creek, Creek 661, and Creek 705 watersheds (Figure 7) were made for watershed modelling nodes that included existing hydrometric stations as well as additional water quality nodes.

Surface flows in the LSA are influenced by a climate characterized by brief warm summers and long cold winters, with roughly half of annual precipitation falling as snow. The rainy season is from May to September. Peak flows occur in May, with low flows in February or March.

Current and future hydrological conditions in the LSA are also influenced by logging in the affected watersheds, and by any trends resulting from climate change (see Section 17: Effects of the Environment of this Report). The lower portions of the watersheds in the LSA have been heavily logged, resulting in high

[9] AMEC Environment and Infrastructure, 2014. Blackwater Gold Project Groundwater Quality 2012-2014 Baseline Report, Version B. Prepared for: New Gold Inc.

equivalent clearcut area (ECA)[10] values within the watersheds in the LSA, with the exception of Creek 705, which has a moderate ECA value. Both mountain pine beetle infestation and logging can alter watershed hydrology, resulting in changes to water yield, peak flows, low flows, flow timing, soil moisture, and groundwater levels. New Gold's Application confirmed the influence of logging, noting that there were differences in the 2012 and 2013 field-verified stream classifications relative to the 2002-2006 classifications, and stating that these differences "can be explained in part by the increase in harvest activity in the area over the last 10 years, which has likely led to altered hydrology and changes in stream discharge rates." (Application, Section 5.3.3, subsection 5.3.3.3.1.4).

SURFACE WATER QUALITY

The Application states that prior to the EA, no baseline water quality information was available for the streams and lakes near the Blackwater project. New Gold undertook a baseline water quality monitoring program from March 2011 to June 2013 to inform the water quality baseline.

New Gold's baseline studies indicate that the local surface water has low alkalinity, and low concentration of nitrogen species (relative to BC WQG). Most trace metal concentrations are low, with the exception of aluminum (total and dissolved), total cadmium, total copper, total iron, and total zinc, which exceed BC and/or CCME WQGs at some locations. These exceptions result from naturally elevated concentrations of these metals in the bedrock and soils, a common occurrence near proposed mine sites.

Total dissolved solids were within water quality guidelines (WQGs) within the LSA.

SEDIMENT QUALITY

New Gold collected baseline stream sediment samples between 2011 and 2013 at a number of sites. Lake water quality sites were sampled for sediment in 2013.

Exceedances of sediment quality guidelines occurred for the stream sediment quality samples; most frequently for arsenic, iron, and manganese.

Lake-bottom sediment samples showed relatively low concentrations of sediment metals, with the exception of mercury levels, which were slightly above guidelines for all lakes sampled except for Tatelkuz Lake.

In general, New Gold found no correlation between sediment metal concentrations and water metal concentrations, likely because of the methods used to measure metals in sediment. New Gold concluded that the only source of sediment metals is precipitation/adsorption from surface water, the potential impact of which was assessed qualitatively in the Application (due to the lack of numerical correlation to support a quantitative analysis).

[10] ECA is a metric describing the extent of forest disturbance, while accounting for forest regrowth. It provides relative indication of potential hydrologic impact. In general terms, ECA increases, peak flows increase, and low flows decrease, although patterns depend on the specific terrain and hydrologic characteristics of the watershed (for example, slope, aspect, overall forest cover, drainage density), and the location of cutblocks in the watershed.

10.2.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

OVERVIEW OF BLACKWATER INTERACTIONS WITH GROUNDWATER AND SURFACE WATER

The following paragraphs provide an overview of the key effect pathways and mitigations for all five water VCs. Detailed discussion of predicted effects follows in subsequent sections.

Blackwater would result in a number of physical changes to drainage patterns in surrounding watersheds. The Application notes that Blackwater would eliminate stream reaches in the Upper Davidson Creek watershed under a 1117 ha TSF and would alter surface and groundwater flows downstream. The open pit would straddle the Davidson Creek and Creek 661 watersheds, altering groundwater and surface water flows downstream.

To mitigate downstream flow changes in Davidson Creek, New Gold has proposed the construction of a FWSS: a FWR with a 400 000 m^3 capacity and a 14 km long pipeline that would pump freshwater from Tatelkuz Lake to the FWR and release it into Davidson Creek during the Operations and Closure phases. Withdrawing water from Tatelkuz Lake would have an effect on the lake level. To further reduce the effect on lake levels and Davidson Creek, New Gold proposed diverting fresh water around the mine site, sourcing water for the mill from the TSF during Operations and treating and discharging pit water to Davidson Creek during Operations.

Blackwater would also result in a small headwater lake (Lake 16) at the top of the Davidson Creek watershed being isolated from downstream Davidson Creek fish habitat. To address this issue, New Gold has proposed to direct Lake 16 into the Creek 705 watershed.

The TSF is designed to store a total of 784 Mt of tailings and PAG and/or ML waste rock. The waste materials in the TSF would be saturated with water, an oxygen limiting barrier, to limit the development of acidic drainage.[11] The water in the TSF would remain contained on-site until Post-Closure. In the Post-Closure phase, water from the TSF would be either treated and then discharged into Davidson Creek, or discharged directly from the TSF (this TSF water would have been partially treated during the Closure phase). In addition, there would be seepage from the TSF, open pit, and west dump into groundwater, which provides a pathway to surface waters. Treatment methods were developed to address potential impacts from dissolved metals, ammonia, and sulphate to Davidson Creek.

In order to mitigate the potential effects of contact water seepage, the Application proposed that two interceptor trenches and an ECD would be built downstream of the TSF to capture seepage, which would be pumped back to the TSF.

[11] Acid rock drainage (ARD) is formed by the natural oxidation of iron-sulphur minerals when they are exposed to water and air, often catalyzed by bacteria. The oxidation of pyrite (iron sulphide), which is responsible for most ARD formation, results in ferric sulphate and sulphuric acid. This creates low pH conditions that can result in high concentrations of dissolved metals in ARD. Because ARD chemical reactions require the presence of both air (oxygen) and water, ARD can be mitigated by eliminating exposure of waste rock materials to either air or to water, for example by submersion under water, or through creating arid conditions

Water from sediment control ponds (SCPs) would be discharged to Davidson Creek and Creek 661. Water quality in Davidson Creek and Creek 661 would be affected by surface water discharges; seepage; erosion and sedimentation; and atmospheric dust deposition. Potential contaminant loading sources from the TSF include the tailings supernatant[12], tailings, waste rock, and sludge from the metals treatment plant (during the mine Operations phase). Contaminant loading sources from the open pit include tailings supernatant (which would be used to fill the pit), ML from exposed high walls, and water treatment waste products stored at depth in the pit. During Closure, water from the TSF and the ECD would be pumped to the open pit to limit the potential for acidic drainage from the pit walls.

Surface water quality could be further affected by erosion and sedimentation, blasting residues, including nitrogen compounds, and atmospheric dust deposition from various mining activities and equipment.

Off-site components could also affect water VCs. In addition to the FWSS, these include a 140 km long transmission line, an up to 16 km long mine access road, and an up to 1706 m long and 100 m wide airstrip within a 200 m wide airstrip corridor.

New Gold developed a number of models to predict potential impacts to the receiving environment from changes to surface water and groundwater flow and quality. During Application Review, New Gold changed its modelling assumptions and approach, due to comments from the Working Group, such that the model-predicted results in the Application are no longer a meaningful representation of potential effects from Blackwater. In addition, New Gold also proposed substantial changes to the Blackwater project design. Given the changes to modelling and changes in proposed mitigation by design occurred together, the following sections focus on the most recent version of New Gold's predictions, whether that is the version presented in the Application, or an updated version developed during Application Review.

The description of mitigations for each VC first lists mitigations presented in the Application, then describes additional mitigations proposed during Application Review, highlighting where a key mitigation was changed or replaced. An overview of changes to Blackwater project design made during Application Review is provided in Part A of this Report. A detailed description of all mitigations proposed in the Application and during Application Review, including which mitigations were retained and which were changed, is available in the document entitled "Blackwater Gold Project Master Mitigation Table_ September 28."

GROUNDWATER

In order to summarize the modelling results for the changes to groundwater, the EAO has grouped the findings for the metric "percent change in monthly mean total groundwater discharge to a stream compared to baseline conditions" in each sub-catchment[13] into the following categories (using the same categories developed by New Gold for surface flows):

- *Negligible:* < five percent change from baseline conditions. Effects are not measurable; changes in flow are less than the inherent data and modelling uncertainty;

[12] Supernatant is the liquid overlying the deposited tailings following the settling of tailings over time.
[13] This indicator captures the change in the sum of groundwater discharge to streamflow within a sub-catchment, on a monthly basis.

- *Low:* five percent to 10 percent change from baseline conditions;
- *Moderate*: 10 percent to 20 percent change from baseline conditions; and
- *High:* > 20 percent change from baseline conditions.

The information below is based on New Gold's Application as well as the updated predictions for groundwater flows for Creek 705, Creek 661, and Davidson Creek, provided during Application Review and presented on the EAO's ePIC website.[14]

MINE SITE

The Application predicted the following changes to groundwater flows on the mine site:

- Water table drawdown of one m extending an average distance of approximately 1200 m from the pit edge by the end of active pit dewatering (Year 13). This maximum zone of water table drawdown was predicted to merge with the drawdown zone of influence from the two planned camp potable water wells, with no material influence from the wells predicted in either Davidson Creek or Creek 661. Near the Blackwater River side of the pit, the one m drawdown contour would extend approximately 600 m from the pit edge toward the Blackwater River, resulting in a negligible reduction in groundwater flow contribution to the Blackwater River;
- Altered groundwater recharge beneath the waste rock dumps, with a decrease in recharge during the spring, and an increase during the winter (low flow) season.

CREEK 705

New Gold's updated predictions estimated that re-routing of streamflow from the Upper Davidson Creek watershed to Creek 705 would provide a high magnitude (45 to 375 percent) increase in groundwater discharge to the headwaters of Creek 705 during all mine phases. In downstream sub-catchments of Creek 705, the change in rate of groundwater discharge to the stream is predicted to be negligible during all mine phases. These changes would result in an increased percentage of groundwater contributing to the total streamflow along Creek 705 watershed (by zero to 11 percent, depending on location along the stream), particularly during low flow periods. The change in percent groundwater contribution would be lower during freshet and within downstream reaches of Creek 705.

CREEK 661

Groundwater modelling predictions were provided for two tributary sub-catchments to Creek 661, as well as for a downstream sub-catchment of Creek 661. One of the two tributary sub-catchments is found directly downstream of the open pit. The updated predictions indicate that changes in groundwater discharge to the downstream sub-catchment of Creek 661 would be negligible during all months and all project phases. In the tributary sub-catchment that is not downstream of the open pit, during Construction and Post-Closure the change in groundwater discharge would be negligible, while changes would range from negligible to high magnitude decreases during remaining project phases, with the negligible decreases occurring during the highest flow months. In the tributary sub-catchment to Creek 661 that is

[14] "Blackwater Gold Project: Estimated Groundwater Discharge to Streamflow for Davidson Creek, Creek 661 and Creek 705." (https://projects.eao.gov.bc.ca/api/document/5c8c0197d69ab9002440614c/fetch)

downstream of the open pit, groundwater discharge decreases would be negligible to low during Construction, moderate to high magnitude in Operations and Closure, and high magnitude during Closure.

In the tributary sub-catchment to Creek 661 that is downstream of the pit, the groundwater contribution to streamflow would mainly increase, with an increase of up to 19 percent (in the summer). The change in groundwater contribution to streamflow would be small (less than six percent) during all months and project phases in the Creek 661 downstream sub-catchment, and in the tributary sub-catchment that is not downstream of the pit.

DAVIDSON CREEK

The updated groundwater flow predictions indicate that rate of groundwater discharge at the top of Davidson Creek would cease with project Construction. Further downstream, groundwater discharge would decrease during Construction and no longer contribute to streamflow starting in Operations when the ECD collects groundwater from the mine site. Moderate to high magnitude decreases (ranging from 18 to 43 percent decrease from baseline) continue at about two thirds of the way downstream in the watershed in all other project phases following Construction. In downstream portions of Davidson Creek, the rate of groundwater discharge to the stream is predicted to remain unchanged from baseline during all mine phases.

Downstream of the mine site and ECD, streamflows in Davidson Creek would see an increased contribution from surface water runoff and a decreased contribution from groundwater. In the winter months, total streamflows would change from originating mostly from groundwater to comprising mostly surface water runoff (with a decrease from baseline groundwater contribution of up to 91 percent). During high flow months, the percent groundwater contributing to total streamflow would decrease moderately (11 to 18 percent decrease). The potential impact of this change on fish populations is discussed in Section 11: Fish and Fish Habitat.

SEEPAGE FLOWS AND QUALITY

The Application reported that simulated seepage travel times varied by project feature and discharge location, ranging from a minimum of 0.1 years to a maximum of almost 7 000 years.

Varying degrees of seepage from the TSF Site D, Pit Lake, and TSF spillway were predicted to bypass seepage collection measures and discharge to downstream locations. New Gold predicted that at the maximum build out of the TSF at year 17, approximately 2 L/sec of the total 61.5 L/s TSF seepage was predicted to be unrecoverable and flow further downstream into Davidson Creek or Creek 661. Of the 1.3 L/s total seepage predicted to leave the Pit Lake, about 0.15 L/s is expected to discharge to Creek 661. A very small amount of Pit Lake seepage (0.03 L/s) is expected to discharge to Davidson Creek, with travel times exceeding 400 years.

Seepage water quality estimates were incorporated into the updated surface water quality modelling. The effects for all predicted seepage releases on surface water quality are reflected in the EAO's assessment for Surface Water Quality below. Groundwater quality impacts are considered to be captured in the surface water quality results and therefore are not assessed separately.

GROUNDWATER MITIGATIONS

GROUNDWATER MITIGATIONS PROPOSED IN THE APPLICATION

New Gold proposed the following mitigation measures in the Application to reduce potential impacts to groundwater:

- Clustering of facilities around the TSF, to limit the number of watersheds affected;
- Building the ECD to capture seepage;
- Using collection and diversion ditches/trenches/perimeter drains and pump-back systems to manage water on site (with captured seepage pumped to the TSF);
- Creating a hydraulic barrier at the Site C West Dam (Creek 705), and enhancing the hydraulic gradient toward the TSF through the enlargement of Lake 16, forcing groundwater back toward the dam and away from Fawnie Creek drainage;
- Adding wetlands in the TSF, ECD, and in the FWR in Post-Closure, to reduce and improve quality of seepage bypass;
- Ensuring the design of dams minimizes seepage losses;
- Segregating PAG/ML tailings and waste rock, and submerging with co-disposal in TSF;
- Treating process plant tailings, LGO, and temporary ore drainage prior to discharge to the TSF; and
- Closing and reclaiming facilities to reduce seepage flow and improve seepage quality.

In addition, New Gold proposed to monitor seepage, groundwater, and surface water downstream of the TSF and waste dumps and implement additional contingency measures when needed, which were to include:

- Lowering the Pit Lake level to direct Pit Lake and some East Dump seepage back towards the pit;
- Using recovery wells to reduce seepage migration;
- Installing thicker engineered covers on the waste rock dumps to reduce infiltration and seepage;
- Using additional (or re-sited) deep trenches to intercept seepage; and
- Constructing wetlands at or near groundwater discharge areas in Davidson Creek and Creek 661 to improve water quality upon discharge to surface water.

GROUNDWATER MITIGATIONS PROPOSED DURING APPLICATION REVIEW

During the course of Application Review, changes were made to the project design that may alter groundwater effects, and include:

- The elimination of the East Dump and associated water management infrastructure, with the addition of those waste materials to the West Dump instead;
- Earlier construction of the TSF spillway (in Year 10) and barge reclaim system; which should increase capture of unrecoverable seepage from the TSF; and
- Collection of pit lake seepage in the east seepage collection system, to be conveyed by pipeline to the TSF.

New Gold stated in a submission in August 2016, that any changes to the quality of seepage from the West Dump due to the addition of material from the East Dump would not interact with groundwater VCs because this seepage does not report to the downstream environment. Further, other design changes are intended to capture project seepage.

Additional groundwater mitigations proposed during Application Review are also discussed in Section 10.3.

SURFACE WATER FLOW

The predicted changes to surface water flows vary by month, project phase, watershed, and by location in the affected watershed. These changes are provided in tables on the EAO's ePIC website.[15]

The EAO has summarized New Gold's predicted changes to stream mean monthly stream flows as follows:

- *Negligible:* < five percent change in baseline conditions. Effects in streamflow are not measurable; changes in streamflow are less than the inherent data and modelling uncertainty in hydrologic studies;
- *Low:* five percent to 10 percent change from baseline conditions. A change in streamflow is less than 10 percent the baseline flow is in agreement with recommendations from the Science Advisory, Fisheries and Oceans Canada (DFO 2013);[16]
- *Moderate*: 10 percent to 20 percent change from baseline conditions; and
- *High:* > 20 percent change from baseline conditions.

CREEK 705

Changes in flows in Creek 705 are predicted to be the same for all project phases, including Post-Closure. In the uppermost portion of the stream, changes are predicted to be high in magnitude for all months, ranging from a 40 percent increase in May (when flows are highest) up to a 370 percent increase in March (when flows are lowest). This increase in flow would likely result in changes to the stream channel in the upper watershed and would result in increased sedimentation downstream during spring freshet, when sediment levels are naturally high. This pattern of flow increases persists all the way down the watershed, but the magnitude decreases as the stream catchment area increases, falling to a four percent increase (in April and May) to an 11 percent increase in February just above the confluence with Fawnie Creek.

CREEK 661

Overall, flows in Creek 661 would be reduced as a result of reduced flows from two tributaries. Flow changes in the Post Closure phase for Creek 661 are shown in Figure 8 below. The magnitude of the decrease varies considerably by project phase and month. As an example:

- In one tributary (Node H1), changes range from no decrease during Post-Closure, to a decrease of one percent in February, July, November, and December during the Construction phase, to a

[15] "Blackwater Gold Project: Summary of Baseline and Projected Monthly Average Flows for Davidson Creek, Creek 661 and Creek 705." (https://projects.eao.gov.bc.ca/api/document/5c8c019cff91be0024990149/fetch)
[16] Fisheries and Oceans Canada, 2013. Framework for assessing the ecological flow requirements to support fisheries in Canada. Canadian Science Advisory Secretariat Science Advisory Report 2013/017. National Capital Region. (http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2013/2013_017-eng.html)

decrease of 67 percent in March during late Operations and Closure phases.

- In the second tributary (Node 1-505659), the changes range from a decrease of three percent during April in early the Operations phase, up to a permanent decrease of 54 percent during May and June (the months with the highest flows), in the Post-Closure phase.

A decrease in flows during high flow months would be expected to result in a change in instream conditions, including a change in streambed composition.

Where Creek 661 flows into Chedakuz Creek (Node 1-661), changes to mean monthly flows range from negligible to moderate impacts depending on the month and project phase. For example, during Post-Closure, decreases range from -2 percent in March (low flows) to -18 percent in June (when flows are higher).

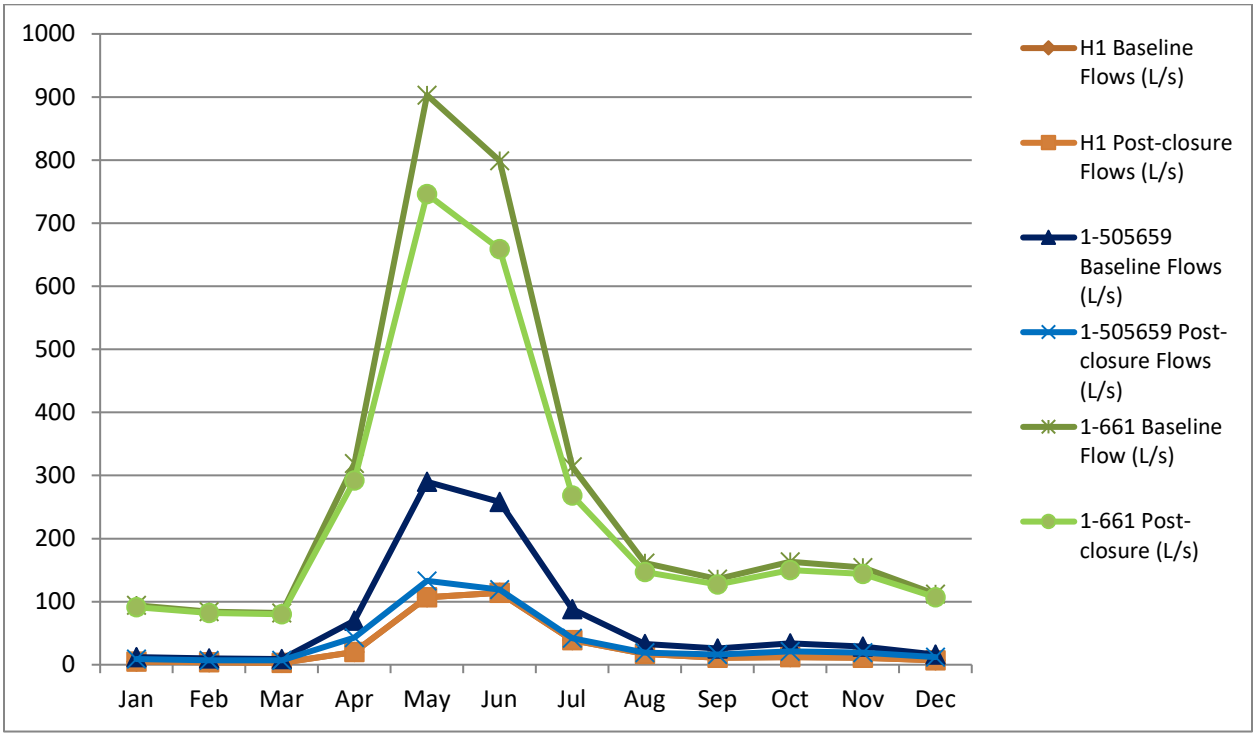

Figure 8: Baseline versus Post-Closure Surface Flows for all Creek 661 Nodes[17]

[17] There are three watershed model nodes on Creek 661: Nodes 1-505659, H1, and 1-661. Nodes 1-505659 and H1 are at the two tributaries to Creek 661 just above their confluence, while node 1-661 is at the bottom of the watershed just upstream of upper Chedakuz Creek. At node H1, Post-Closure flows are identical to baseline flows.

DAVIDSON CREEK

Upper Davidson Creek

The construction of the mine and associated infrastructure would alter more than half of the watershed area, and eliminate several stream reaches from the upper Davidson Creek watershed. The overall changes can be summarized as:

- A 100 percent loss of streamflow at the top of the watershed (Node 11-DC) beginning two years prior to Operations, since streamflow from Lake 16 would be reversed into Lake 15 and the Creek 705 watershed;
- At the downstream extent of the ECD (Node H2):
    - Moderate magnitude flow decreases are predicted throughout Construction;
    - Variable changes are predicted during Operations and Closure, ranging from a decrease of one percent in January of early Operations, up to a decrease of 49 percent, in April of Closure; and
    - In Post-Closure, there would be a permanent 100 percent reduction of surface flows (since the ECD would remain, and flow supplementation from the FWSS would have stopped). Surface water from the TSF closure spillway, fresh water diversions, and effluent discharge from the water treatment systems would provide flow to lower Davidson Creek in the long term.

Lower Davidson Creek

In the lower portion of the Davidson Creek watershed below the ECD (Nodes 4-DC and 1-DC), high magnitude monthly flow decreases occur from April through November, generally ranging from a decrease of 21 percent to 34 percent in early Operations, as well as during Closure, which lasts 24 years. In Post-Closure, high magnitude flow decreases persist for one or two months of the year (in June or June and July). Flow changes during May, the highest flow month, are negligible (two to three percent increase).

Changes for Davidson Creek nodes, except node 11-DC, or shown in Figure 9 below.

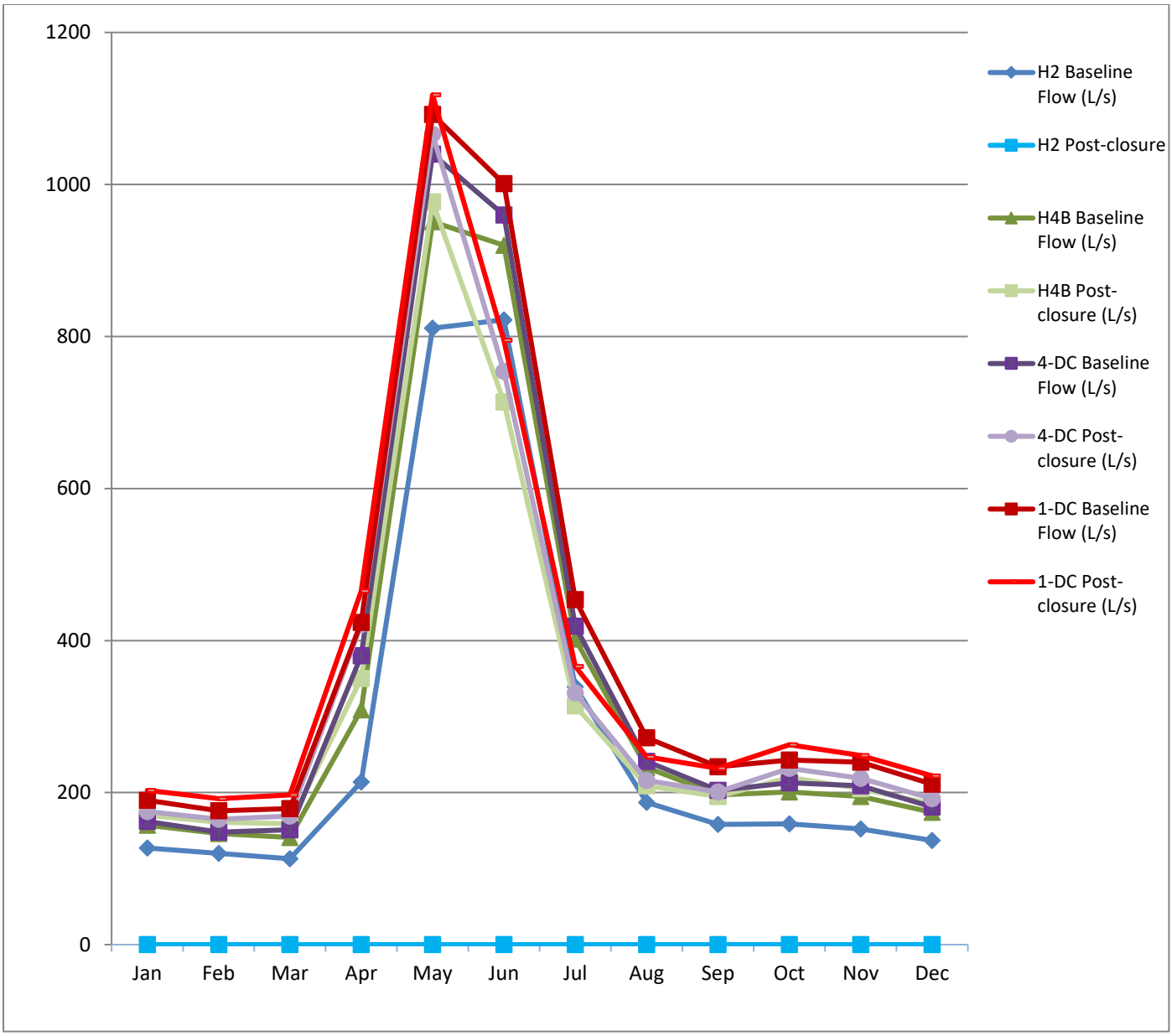

Figure 9: Baseline versus Post-Closure Surface Flows for all Davidson Creek Nodes[18]

Chedakuz Creek

The magnitude of changes to flows in Chedakuz Creek was predicted to be negligible during Construction, and negligible to low during Post-Closure.

At the outlet of Tatelkuz Lake, the magnitude of change during other Blackwater phases ranges from a

[18] Except 11-DC, the uppermost node in the watershed, where streamflow is reduced by 100 percent during Construction. Node H2 is located at the downstream extent of the ECD and includes flows from the FWSS. Node H4B is located roughly three-quarters of the way down the Davidson Creek watershed, node 4DC is located further downstream, and node 1-DC is the most downstream node, just above the confluence with lower Chedakuz Creek.

decrease of six percent (low magnitude, March of late Operations) to a decrease of 17 percent (moderate magnitude, June of Closure). These reflect the decrease in Tatelkuz Lake volume resulting from water withdrawals for the FWSS.

Similarly, downstream of the confluence with Davidson Creek, the magnitude of change during other project phases ranges from a decrease of four percent (low magnitude, March in late Operations) to a decrease of 17 percent (moderate magnitude, June in Closure). These changes capture the reduction of input flows from Davidson Creek.

Tatelkuz Lake

In its updated August 2016 assessment, New Gold predicted a change from baseline lake levels of between two and three centimetres (cm) in mean and 1:50 dry years, respectively, during Blackwater Operations. These changes would continue through Closure, until the decommissioning of the FWSS. With an annual lake level change of 80 cm, this change amounts to a change of less than four percent of baseline fluctuations. While this residual effect is negligible from the perspective of overall surface flow changes, the effects to fish habitat within the littoral zone may be important for fish. This residual effect is further discussed in Section 11 (Fish and Fish Habitat).

Lake 16 and Connector Channel

New Gold proposes connecting Lakes 16 and 15 with a connector channel 650 m long and greater than 4 m wide. Lake 16 would double in size, with an increase in area of approximately 125 500 m^2.

Geographic Extent of Surface Flow Changes

Predictions for changes to surface flows and lake levels were provided only for watershed modelling nodes within the LSA and have not been assessed for the RSA. The information provided indicates that there could be reduced flows beyond the LSA as, at the most downstream modelling node assessed in the Chedakuz Creek drainage basin:

- The mean annual baseline flow is 2,507 L/s;
- Those flows would decrease by as much as 17 percent during June in the Closure phase; and
- Below that point is the confluence with Turtle Creek, which adds an additional mean annual flow of 277 L/s.

In the case of the areas downstream of Creek 705, the most downstream modelling node is predicted to show an increase in monthly mean flows ranging from four percent to 11 percent. Given the confluence of the higher volume Fawnie Creek below that point, it seems unlikely that any changes would be detectable very far downstream of the LSA in the Fawnie Creek drainage basin.

SURFACE WATER FLOW MITIGATIONS

SURFACE WATER FLOW MITIGATIONS PROPOSED IN THE APPLICATION

New Gold proposed a Mine Waste and Water Management Plan (MWWMP) as its key mitigation measure for reducing potential impacts to surface water (Section 12, subsection 12.2.1.18.4.18 of the Application). The strategies included in the MWWMP relevant to surface water flow are:

- Use the water within the Blackwater area to the maximum practicable extent by collecting and managing site runoff from disturbed areas, maximizing the recycle of process water, and storing surplus water within the TSF (concerns were raised during Application Review about the storage of surplus water in the TSF; see Section 10.3.4: Volume of Water Stored in TSF);
- Pump water from Tatelkuz Lake to provide process plant make-up water and to maintain in stream flows needs for fish in Davidson Creek; and
- Provide a flushing flow of 1.1 m^3/s to Davidson Creek during Operations and Closure. Flushing flows are short-term flow pulses that mimic natural flows of moderately high magnitude and short duration (several days), flushing fine sediment and organic material from gravel stream beds, while providing environmental cues and the hydraulic conditions needed for fish upstream migration.

SURFACE WATER FLOW MITIGATIONS PROPOSED DURING APPLICATION REVIEW

A number of changes were made to proposed water management on the mine site during the course of Application review, which included changing the timing of some of the mitigations. Additional mitigation strategies developed during Application Review include:

- Construction of northern and southern diversions to divert freshwater around the mine site, supplement the FWSS, reducing the need for water withdrawals from Tatelkuz Lake and associated flow reductions in Chedakuz Creek;
- Elimination of the East Dump and associated water management infrastructure to reduce mine disturbance in the Creek 661 watershed;
- Construction and operation of a Metals Removal Water Treatment Plant (MRWTP) to treat open pit surface water and groundwater before discharging to Davidson Creek during years 5-14 of Operations, to reduce water stored in TSF, and reduce water withdrawal from Tatelkuz Lake and associated flow reduction in Chedakuz Creek;
- Flooding the open pit with TSF supernatant water and water pumped from the ECD, without supplementing with Tatelkuz Lake water via the FWSS; and
- Sourcing water for the mill from the TSF to reduce water withdrawal from Tatelkuz Lake and associated flow reduction in Chedakuz Creek.

In addition, surface water flow mitigations proposed during Application Review are discussed in Section 10.3.

SURFACE WATER QUALITY

Discussions with the Working Group resulted in several iterations of revised water quality modelling and results. Only final modelling results provided by New Gold in July 2017 are discussed further below.

Concentrations of 28 parameters were predicted to be more than 10 percent higher than the seasonal range of background conditions during one or more Blackwater phases; these are listed in Table 26 below. For most of these modelled water quality parameters, predicted concentrations were below WQGs. New Gold identified water quality parameters as contaminants of potential concern (COPCs) if the predicted concentrations represented a greater than 10 percent increase over average background concentrations and were also greater than the applicable WQG value. COPCs identified by New Gold are noted by grey shading in Table 26.

Table 26: Surface Water Quality Parameters Expected to Exceed the Seasonal Range of Variability

Parameter	Davidson Creek	Creek 661	Chedakuz Creek
Chloride	Y[i]	Y	Y
Fluoride	Y	Y	--
Sulphate	Y	Y	--
Ammonia	Y	Y	Y
Nitrate	Y	Y	Y
Nitrite	Y	Y	--
Total Antimony	Y	Y	Y
Total Arsenic	Y	Y	--
Total Barium	--	Y	--
Total Beryllium	Y	Y	--
Total Boron	Y	Y	Y
Total Chromium	Y	Y	Y
Total Cobalt	Y	Y	Y
Total Copper	Y	Y	Y
Total Iron	Y	--	--
Total Lead	Y	Y	Y
Total Manganese	Y	Y	
Total Mercury	Y	Y	
Total Molybdenum	Y	Y	Y
Total Nickel	Y	Y	--
Total Selenium	Y	--	--
Total Silver	Y	Y	--

Parameter	Davidson Creek	Creek 661	Chedakuz Creek
Total Thallium	Y	Y	Y
Total Uranium	Y	Y	Y
Total Zinc	Y	Y	Y
Dissolved Aluminum	Y	Y	Y
Dissolved Cadmium	Y	Y	Y
Dissolved Iron	Y	--	Y

[i] **Note:** Parameters are listed as "Y" if the predicted concentration of a modelled parameter was greater than the baseline seasonal 95th percentile value by more than 10 percent, for a minimum of one monthly timestep, during one or more project phases, for any water quality node within the Creek. Grey shading highlights parameters that New Gold identified as COPCs.

A summary of New Gold's final water quality predictions for COPCs which also exceeded the baseline variability (95th percentile) is provided on the EAO's ePIC website.[19] Final detailed predictions, including graphic representations of water quality for key parameters over time, are provided in a memorandum to New Gold from ERM titled Additional Water Quality Model Sensitivity Scenario (dated July 2017).[20]

The following WQG exceedances also exceeded the range of baseline variability:

- Davidson Creek:
  - Nitrate;
  - Total antimony; and
  - Total zinc;
- Creek 661:
  - Dissolved aluminum;
  - Total chromium; and
  - Total zinc.

The exceedances for aluminum, total chromium, nitrate, and total zinc are generally small exceedances of the long-term aquatic life guidelines and were predicted to occur during a limited number of months. Small and occasional exceedances may not result in chronic impacts to aquatic life and are unlikely to cause significant effects. In addition, the potential for a contaminant to negatively affect organisms depends on its bioavailability. Total metal concentrations include metals bound to sediment and organic complexes and may include a substantial fraction that is not bioavailable. Therefore, exceedances for total metals, such as the predicted exceedances for chromium and zinc, may not indicate an effect.

[19] "Blackwater Gold Project: Summary of Contaminants of Potential Concern (COPCs) Exceeding BC Water Quality Guidelines and the Range of Baseline Seasonal Variability." (https://projects.eao.gov.bc.ca/api/document/5c917657d69ab90024406226/fetch)
[20] Wolff, G., and L. Shelley, ERM Consultants Canada. July 20, 2017. Blackwater Gold Project: Additional Water Quality Sensitivity Scenario. Memorandum to Sachi De Souza and Ryan Todd. (https://projects.eao.gov.bc.ca/api/document/5c89547b4c3fd40024c377d5/fetch)

With respect to antimony, Post-Closure exceedances in Davidson Creek are predicted for the drinking water guideline. These exceedances are an order of magnitude higher than the upper limit (95th percentile) of observed seasonal variability. However, the drinking water guideline was developed with the assumption that the consumer would be drinking the water repeatedly over a long period of time, and Davidson Creek is not known to be a regular source of drinking water for individuals (including Indigenous and recreational users) in the area. This issue is also discussed in Section 15: Human Health of this Report.

Although not included in the water quality modelling predictions, it is expected that mercury concentrations would increase in Lake 16[21] during Operations as a result of the enlargement of the lake, then decrease again in Closure and Post-Closure. The impact of this prediction on rainbow trout is discussed in Section 11: Fish and Fish Habitat of this Report. With the construction of Blackwater, outflows from Lake 16 would be re-directed to drain to Creek 705. Effects on water quality in Creek 705 are unknown.

Water quality modelling did not include predictions regarding sedimentation. New Gold identified that construction of the transmission line, water supply line, mine access road, and access road upgrades have the potential to cause sediment to enter water bodies at stream crossings. New Gold also noted the presence of organic soils and silt-rich glacial lake deposits at the sites of the proposed facilities. These soils would be especially prone to erosion during construction, when surface vegetation is stripped. Erosion and sedimentation were not quantitatively modelled, on the assumption that these effects would be mitigated through BMP captured in the erosion and sediment control plan (ESCP); MDMER and provincial permit requirements would limit sediment discharge; and effects would occur only during construction.

SURFACE WATER QUALITY MITIGATIONS

SURFACE WATER QUALITY MITIGATIONS PROPOSED IN THE APPLICATION

The Application included the following mitigation measures for surface water quality, some of which were later changed as noted in Surface Water Quality Mitigations Proposed During Application Review, below:

- Treatment of potentially high-concentration waste streams before discharge to the TSF, including destruction of residual cyanide in process plant discharge by SO_2/air treatment, and a lime treatment plant for LGO and temporary ore stockpile runoff;
- Isolation of contact water to the site;
- Segregation and sub-aqueous disposal of potentially acid-generating waste rock, and sub-aqueous disposal of tailings;
- At Post-Closure, use of constructed wetlands in the reclaimed TSF ponds to clean supernatant water, and in the former ECD and water reservoir (this proposed mitigation was removed during Application Review; see Section 10.3.2: Water Treatment); and
- At Closure, covering PAG materials in the TSF with non acid-generating materials to limit contamination of the TSF water cover.

[21] Flooding of the soil would result in the methylation of stored mercury by bacteria. Methyl-mercury, a toxic organic compound, would then be taken up by aquatic biota, accumulating up the food chain.

New Gold also proposed mitigations for air quality, which are relevant to reducing effects to surface water quality from dust deposition (see Section 5: Air Quality).

New Gold proposes to monitor effects and implement additional contingency measures should the effects exceed predictions. Contingency measures (outlined in the MWWMP [Section 12, subsection 12.2.1.18.4.17] and the MWWMP [Section 12, subsection 12.2.1.18.4.18]), some of which were later changed as noted in Surface Water Quality Mitigations Proposed During Application Review, below, include:

- In Post-Closure, continue to recycle TSF dam runoff and seepage to the TSF, and/or treat in an additional downstream wetland (downstream wetlands were removed from the project design during Application Review);
- If ML from the waste rock dumps were higher than anticipated:
    - A thick overburden cover could be placed on one or both of the waste rock dumps to reduce oxygen and water infiltration; and
    - Drainage from the dumps could be treated in wetlands; treated by active chemical treatment; or discharged at depth into the anoxic zone of the Pit Lake at Closure;
- If more acid-generating waste rock were generated than anticipated, the TSF dam could be raised, and the site water balance adjusted to ensure the material is flooded;
- Water management contingency plans would include discharge of the supernatant at depth into the anoxic zone of the pit lake; biological treatment (addition of nutrients), or chemical treatment (for example, lime) at plant Closure; and
- If selenium or mercury bioaccumulation were to become problems, additional treatment could be undertaken:
    - In-pit or in-TSF pond treatment for sequestering of selenium and/or mercury in the solid (precipitated) phase; and
    - Recycling of water to the pit and addition of nutrients if necessary.

New Gold rated the built-in and contingency mitigation measures for likely success, rating success as high if the mitigation has been proven effective at other mine sites, and moderate if there is a question regarding the likely degree of success. The mitigation measures that were rated as moderate rather than high were those that attempt to resolve problems with contaminant concentration in the Pit Lake, TSF water, and receiving waters, such as discharge of the supernatant at depth into the anoxic zone of the Pit Lake; biological and chemical treatments; treatment for sequestering of selenium and/ or mercury in the solid phase; and recycling of water to the pit.

SURFACE WATER QUALITY MITIGATIONS PROPOSED DURING APPLICATION REVIEW

A number of the proposed mitigations and contingency measures changed during the course of Application Review. Additional mitigations for Surface Water Quality include:

- Allow for surface water discharge from the FWR in addition to the low-level outlet (Construction);
- Treat pit water for dissolved metals using a MRWTP before discharge to Davidson Creek during Operations;

- Collect pit lake seepage in an open pit seepage collection system and convey it by pipeline to the TSF;
- Implement an ion exchange and Nanofiltration (Sulf-IX-NF) WTP to treat TSF Site D supernatant pond water during Late Closure (Years 38 through 42), and seepage and non-contact groundwater captured in the ECD in Post-Closure;
- Pump ECD and TSF water to the pit in closure to create the pit lake. Pumping would speed filling of the pit, which would reduce the time of exposure of pit walls which could generate acidic drainage; and
- Construct the TSF spillway earlier, in year 10, in order to better capture TSF seepage.

In addition, the removal of the East Waste Rock Dump from the project design was intended to reduce impacts to downstream surface water quality.

The following potential contingency measures were also identified:

- In the event that the WTP effluent quality does not meet permitted levels, effluent can be rerouted to either the MRWTP or to the Sulf-IX-NF WTP for additional treatment if additional capacity remains;
- In-pit treatment (for example, nutrient or carbon amendment) applied either to TSF supernatant discharges to the pit during Closure, or to the pit directly in Closure and/or Post-Closure;
- Treatment of TSF supernatant and/or pit water using the SO_2/Air system in the process plant;
- Backfill the LGO in the pit if the LGO stockpile is not processed by the end of mill operations
- Construction of a permeable reactive barrier to treat seepage from TSF D;
- Pumping and disposal of TSF D seepage at depth in the open pit (with or without nutrient addition);
- Collection of West Dump toe seepage, treatment at the MRWTP, and/or discharge at depth in the pit lake; and
- Addition of a sulphide precipitation train to the MRWTP.

Changes to mitigations for Surface Water Quality are also discussed in Section 10.3 below.

SEDIMENT QUALITY

Potential project effects to sediment quality were assessed only qualitatively in the Application and supplementary materials submitted during Application Review, due to the lack of correlation between metal levels in water samples and metal levels in sediment. The potential effects identified in the Application are:

- Erosion and sedimentation from land clearing activities during construction of the mine site and associated linear developments;
- Potential increase in metal concentrations in seepage water that could cause metals to accumulate in stream sediments during Operations and Closure;
- Traffic on the access road that could result in dust export to streams that are crossed by the road during Operations and Closure; and

- Once the TSF begins to discharge during Post-Closure, suspended sediments may be discharged to Davidson Creek, affecting sediment quality in the creek.

In materials submitted during Application Review, New Gold considered two ways the predicted changes in water quality in Davidson Creek and Creek 661 could affect sediment quality: deposition of TSS that contain particulate-bound metals, and direct sorption of metals from seepage or surface water to sediment. With respect to TSS, New Gold noted that TSS in water discharged from the TSF to Davidson Creek would be limited to comply with the MDMER, and that there would be no direct discharge to surface water in Creek 661. With respect to the direct sorption of metals in surface water to sediment, New Gold highlighted that such deposition is slow in fast-moving creeks (as compared to slow-moving waters, such as wetlands), and that the potential for transfer of metals to sediments from water decreases with distance from project sources, because the concentrations of metals in water from project sources also decreases.

New Gold stated that the smaller Blackwater footprint resulting from the elimination of the East Dump and SCP #5 would decrease expected erosion and sedimentation in the Creek 661 watershed, and therefore reduce effects to sediment quality relative to the effects predicted in the Application.

New Gold stated that for those metals for which there were baseline exceedances for sediment quality, WQG exceedances are not expected as a result of Blackwater. Conversely, for those metals for which WQG exceedances are predicted, there were no baseline sediment quality exceedances. New Gold concluded that although sediment quality changes relative to background may occur, they would not result in sediment metal concentrations higher than the BC or CCME sediment quality guidelines. New Gold stated the effects would occur only in the areas of Davidson Creek or Creek 661 closest to the mine site, and only intermittently, as sediment quality would vary with the intermittent changes in surface water quality. The changes from baseline conditions are continuous, and sediment quality changes would likely be continuous as well.

SEDIMENT QUALITY MITIGATIONS

The mitigations for sediment quality proposed in the Application are:

- SCPs would be built prior to major clearing activities in all areas where sediment could enter water bodies;
- Construction of linear developments (airstrip and access road, transmission line, water supply pipeline) would use BMP to limit sediment export;
- During Operations, all contact water would be routed to the TSF, which would be operated with no surface discharge;
- During Operations and Closure, the majority of TSF seepage would be captured and pumped back to the TSF; and
- During Operations, dust controls would be used to minimize traffic dust contributions to sediments in streams.

The Application also mentioned that additional mitigations would be undertaken in response to monitoring, triggered by increasing trends in sediment metals concentrations over baseline concentrations.

Based on the combination of mitigations above, the fact that any sediment that is exported would be of similar chemistry to the baseline sediments in area streams, and the fact that TSF seepage is not expected to contain suspended sediment given the filtering effect of tailings and subsurface stands and gravels, New Gold concluded that the only potential residual effect on sediment quality would be accumulation of metal in the sediments downstream of the TSF resulting from increased metal concentrations in the TSF seepage and discharge.

New Gold identified that use of the Kluskus FSR road for forestry activities could contribute to cumulative effects on sediment quality but concluded that road dust control through road watering or other measures, conducted in cooperation with other road users, would prevent any cumulative impacts to sediment quality.

No new mitigations additional to those developed for surface water quality were developed for sediment quality during Application Review.

10.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

As a result of Working Group discussions, New Gold made a number of substantive changes to the project design and predictions for surface water and groundwater VCs. The following sections outline the key issues raised, and related changes made to the project design, including additional mitigations.

The EAO received review comments on the water sections of the Application from EMPR, ENV, FLRNORD, UFN, LDN, and CSFNs. The EAO also coordinated several technical discussions with the Working Group on water VCs and New Gold's supporting information. Below, the EAO has summarized the key EA issues that required resolution as part of the Application Review phase. The Issues Tracking Tables include all water-related comments submitted by the Working Group, including those that relate to subsequent permitting.

Based on a review of the Application and with feedback from the Working Group, the following key issues related to New Gold's assessment of water VCs were identified:

- Watershed and water quality modelling;
- Water treatment;
- Seepage quantity;
- Volume of water stored in the TSF; and
- Cumulative effects.

10.3.1 WATERSHED AND WATER QUALITY MODELLING

During Application Review, Working Group members raised concerns regarding New Gold's water quantity and quality modelling and the proposed water management system, including questions about inputs, assumptions, and model structure, all of which may have led to incorrect predictions of effects to water flows and quality. For example, questions were raised regarding:

- Input datasets;
- Consideration of climate change in modelling;
- Geochemical source terms;[22]
- Waste rock segregation terms/assumptions;
- Flow pathways, including seepage; and
- Missing contaminant loadings.

During the course of making changes and improvements to the modelling, New Gold also made a number of changes to the water management regime and water-related mitigations for the project. Although these changes were not added all at once, with new changes made in each iteration of the watershed and water quality modelling, for simplicity they are summarized below:

- The addition of northern and southern diversions to divert non-contact water around the site, to be built during the Construction phase and kept active through Post-Closure. This change reduced the need to supplement flows in Davidson Creek, reduced withdrawals from Tatelkuz Lake, and reduced the amount of water stored in the TSF;
- The elimination of the East Dump, in order to reduce potential contaminant loading to Creek 661. Waste materials would be added to the West Dump instead, from which seepage would not report directly to downstream receptors;
- Improved seepage capture, including:
    - Collection of Pit Lake seepage in the open pit seepage collection system, to be conveyed by pipeline to the TSF;
    - Earlier construction of the TSF spillway (in Year 10); which would increase capture of seepage from the TSF;
- Construction and operation of two WTPs, employing three types of technology:
    (1) A WTP using a conventional lime-based MRWTP, used to treat:
        - During Operations (years 5-14): Water from the open pit, before discharging to Davidson Creek. This would reduce water stored in TSF; reduce water withdrawals from Tatelkuz Lake and associated flow reduction in Chedakuz Creek; and support instream flow needs in Davidson Creek;
        - During Closure (years 31-37): TSF D supernatant, on a recycle loop back to the TSF;
        - Nanofiltration (NF) brine during late Closure and Post-Closure (see below);

[22] Geochemical source terms are key values input to the water quality model to reflect the expected geochemical characteristics of the mine waste rock, tailings, LGO, and overburden.

(2) An ion exchange and nanofiltration (IX-NF) WTP to treat TSF supernatant during Late Closure (Years 38 through 42), and to treat water withdrawn from the pit lake, TSF supernatant, and water captured at the ECD in Post-Closure. Treatment by products would include a NF brine that would be treated in the MRWTP, then deposited at depth in the Pit lake.

- Mitigations to reduce water withdrawals in Tatelkuz Lake, such as
  - Flooding the open pit with TSF supernatant water without supplementing with Tatelkuz Lake water via the FWSS; and
  - Sourcing water for the mill from the TSF rather than the FWSS; and
- Multiple changes to pumping rates and timing of how water is moved between project components. These changes include redirecting water from TSF D to TSF C to reduce water storage in TSF D (see Section 10.3.4: Volume of Water Stored in TSF).

WATERSHED MODEL UPDATES

As a result of comments received from Working Group members during Application Review, New Gold updated its watershed modelling, producing a new life-of-mine watershed modelling report (Knight Piesold 2016). The changes included:

- Integrating the mine site water balance model and watershed model into one modelling platform;
- Extending the model to include a simplified monthly water balance for Tatelkuz Lake, including estimates of inflows and outflows to the lake and streamflow along locations on Chedakuz Creek; and
- Capturing project design changes relating to infrastructure, footprint, water treatment, and water management optimization.

Knight Piésold Ltd. further updated the watershed model and surface water flow predictions in February 2017,[23] and again in July 2017.[24] Both of these model updates are discussed further below under water quality model updates.

ENV noted that the watershed model was considerably improved, but that the winter flow estimates in the synthetic streamflow records may be overestimated, as they were 31 percent higher than the measured winter flows in the available streamflow records for Davidson Creek. Winter low flows are a limiting factor for in-stream species. ENV recommended that prior to submission of a permit application for the project, additional winter flow measurements should be collected and used to validate the synthetic winter streamflow values used for future watershed modelling.

The EAO notes that an AEMP may be required in subsequent permitting under EMA, should New Gold receive a Certificate. However, given that there is some chance that ENV would not require such a plan, and the importance of these water related outcomes to the EAO's assessment, the EAO is proposing

[23] Knight Piesold Ltd. 2017a. Blackwater Gold Project – Updated Watershed Modelling in Support of Water Quality Assessment, included as Appendix D to the memorandum entitled Blackwater Gold Project: Water Treatment Responses for Comments 1266, 1270, 1271, 1272, and 1273, dated February 15, 2017 (https://projects.eao.gov.bc.ca/api/document/590117adb26af20019dbf0d9/fetch).

[24] Knight Piesold Ltd. 2017b. Revised Watershed Model in Support of Water Quality Assessment, included as Appendix A to the memorandum entitled Blackwater Gold Project: Additional Water Quality Model Sensitivity Scenario, dated July 20, 2017 (https://projects.eao.gov.bc.ca/api/document/5c89547b4c3fd40024c377d5/fetch).

Condition 30: Aquatic Effects Monitoring Plan. This condition would require monitoring of the aquatic environment and the use of adaptive management to address potential effects on the aquatic environment resulting from mining related activities.

WATER QUALITY MODEL UPDATES

As a result of Working Group comments regarding the surface water quality modelling presented in the Application, New Gold updated the surface water quality modelling, revised geochemical source terms, and included new mitigation measures. This was an iterative process during Application Review, with New Gold further revising the modelling based on subsequent Working Group Comments. Revisions to water quality modelling were provided in August 2016, February 2017 (ERM 2017a),[25] and July 2017.

The updated surface water quality model integrated several model components into a GoldSim model, which included:

- An updated water balance capturing design changes introduced in the Evaluation of Alternative Tailings Technologies (December 2015) and not included in the Application;
- Re-evaluated geochemical source terms applied to flow pathways;
- Additional groundwater seepage pathways previously determined by groundwater modelling;
- Active water treatment (discussed further below);
- Water management changes; and
- A more detailed portrayal of TSF C seepage flows.

Overall, Working Group members felt that the updated modelling was a large improvement on the water quality modelling presented in the Application, providing a more accurate prediction of potential effects to water quality and quantity. EMPR stated that modelling assumptions were conservative. LDN-UFN noted that, "(1) there are a number of uncertainties with respect to predicted water chemistries and only minimal evaluation of the effect of uncertainties on anticipated water quality through sensitivity analyses and (2) there is very little assimilative capacity in the immediate receiving water bodies and therefore conditions that differ in any substantive amount in discharge or seepage could have a marked effect on receiving waters."

In addition to concerns regarding water quality modelling, LDN-UFN and CSFNs identified several key mitigations that were important to supporting the water quality outcomes modelled: use of an oxygen-preventing barrier to prevent ML and acid rock drainage (ML/ARD); management of ML/ARD from LGO stored on land during operation; backfilling all LGO not milled by the end of Operations into the pit lake or TSF; seepage collection requirements and pumpback; east seepage collection for the pit (when the pit water level rises); operational water treatment for the pit dewatering during years 5-14; disposal of Sulf-IX-NF brine at depth in the pit, with assumed maintenance of pit stratification; layer of material placed over waste rock in TSF D which would prevent a seepage pathway from TSF C to TSF pond D; and management of cyanide.

[25] ERM. 2017a. Blackwater Gold Project: Water Treatment Responses for Comments 1266, 1270, 1271, 1272, and 1273, dated February 15, 2017 (https://projects.eao.gov.bc.ca/api/document/590117adb26af20019dbf0d9/fetch)

In response to these concerns, the EAO is proposing several conditions to support water quality outcomes predicted in the EA:

- Condition 26: Water Quality Management which would require that the EAC Holder meet WQGs or Science Based Environmental Benchmarks (SBEBs). The SBEBS would be developed in consultation with Indigenous groups and ENV. Any proposed SBEB would need to be accepted by ENV through subsequent permitting in order for New Gold to implement the SBEB;
- Condition 30: Aquatic Effects Monitoring Plan;
- Condition 32: Cyanide Management Plan; and
- Condition 33: Mine Waste and Water Management Plan to capture a number of the key mitigations proposed by New Gold to address water quality during Operations.

LDN-UFN noted that not all of the mitigations that they considered to be key to the effects assessment predictions were captured in EAO's proposed conditions, and that these remain outstanding from LDN-UFN's perspective. These remaining mitigations are listed in the section entitled Additional Concerns in Section 10.3.6 below. The EAO is satisfied that the mitigations captured in conditions are the key mitigations that can be appropriately captured at the EA level and considers the detailed requirements best addressed in the *Mines Act* and EMA permitting processes.

10.3.2 WATER TREATMENT

In the Application, New Gold proposed including wetlands in the saturated areas of TSF as a reclamation measure during Post-Closure and identified as a contingency measure the construction of semi-passive treatment wetlands in the SCPs, ECD, and water reservoir downstream of TSF.

The updated water quality modelling (discussed above) showed that some form of water treatment was needed as a primary mitigation. However, EMPR, ENV, LDN-UFN, and CSFNs identified that there was insufficient information provided in the Application to support the viability of semi-passive treatment using wetlands. No site-specific data, very limited analogue data, and limited peer-reviewed data were provided. EMPR, ENV, and the EAO rejected the use of proposed treatment wetlands as a primary mitigation in the EA and requested that New Gold provide additional mitigation measures. New Gold provided information proposing active water treatment as a primary mitigation. The Working Group then raised further questions to better understand how the proposed technologies had performed in applications similar to Blackwater. New Gold provided further responses.

NEED FOR LONG-TERM WATER TREATMENT

The parameters of concern for treatment of TSF water were dissolved metals, ammonia, and sulphate. New Gold proposed active water treatment that combines conventional metals removal, sulphate-ion exchange (Sulf-IX), and NF technologies to treat mine-affected water before discharge to Davidson Creek in Post-Closure. The modelling for water quality with active water treatment indicated water treatment would still be needed as primary mitigation at year 332, and no end-date was predicted. UFN-LDN stated that the need for long-term complex water treatment poses a risk due to the difficulty of maintaining water treatment over the long-term in a remote location. New Gold stated that it did not think treatment

would be needed indefinitely, highlighting the important limitations in modelling water quality centuries into the future; for example, natural processes that may affect contaminant loadings over time cannot be accurately projected. For the purposes of the EA, water treatment is considered to continue indefinitely, potentially in perpetuity. New Gold did not provide estimates of water quality effects without treatment, or in the event of a treatment plant failure resulting in the direct discharge of contact water to the receiving environment, stating that in the absence of water treatment, there would be significant adverse effects to aquatic life.

UNCERTAINTY FOR EFFECTIVENESS OF PROPOSED WATER TREATMENT TECHNOLOGIES

Working Group members advised the EAO that the proposed water treatment technologies are associated with different levels of uncertainty. The MRWTP would use a process that has been successfully implemented at several mining operations within BC, indicating a high likelihood that New Gold will be able to achieve the proposed effluent water quality for the MRWTP.

EMPR, LDN-UFN and CSFN reviewers noted that the sulphate removal technology (Sulf-IX) is a less proven technology. The Sulf-IX water treatment system is supported by analogue data for a pilot plant in another jurisdiction but has not been demonstrated to perform consistently under the conditions, or over the timeframe, expected for the Blackwater project. EMPR concluded that although this technology should be able to be proven technically feasible for implementation at Blackwater, given the information provided, there remains "some technical uncertainty" with the ability of the proposed Sulf-IX system to consistently achieve the effluent water quality objectives stated in the EA Application, and thus sulphate levels could be higher than those predicted.

The NF treatment system, which would operate in a treatment plant in-line with the Sulf-IX system, is the least proven technology proposed for use at Blackwater. ENV and EMPR raised questions about the assumed removal efficiency rates for the NF treatment system, set at 99 percent for dissolved metals removal in the Blackwater water quality modeling. New Gold provided evidence that these rates are achievable, and developed a sensitivity analysis showing the potential impacts on water quality should the removal rates for a number of parameters be lower than 99 percent (the removal rates for cadmium and zinc did not change as 99 percent removal was considered conservative for these parameters, and the removal rates for sulphate and ammonia did not change as modelled removal rates for these parameters were less than 99 percent). EMPR was satisfied that the sensitivity analysis demonstrated that even if the efficiency is substantially lower than the efficiencies applied in the base case model, resulting water quality predictions would not change notably. Because there are no site-specific or analogue performance results to confirm the effectiveness of this treatment system for the Blackwater project, EMPR concluded that "significant uncertainty" remains with the ability of the proposed NF system to consistently achieve the effluent water quality objectives stated in the Application. However, EMPR also noted that the NF treatment provides less overall contaminant removal and is therefore less critical for achieving acceptable water quality, than the other two treatment systems.

EMPR provided a view that adequate information had been provided to demonstrate the conceptual effectiveness of the proposed water treatment systems to achieve the predicted Closure and Post-Closure effluent water quality, but that site-specific pilot information would be required for the Sulf-IX and NF

treatment methods prior to the submission of a *Mines Act* Permit Application.

The EAO's "Guideline for the Selection of Valued Components and Assessment of Potential Effects" identifies that more detailed risk analysis describing likelihood and consequence may be warranted if there is high uncertainty associated with a mitigation, and the significance of the residual effect could change as a result of a mitigation failure. In the event of an extended treatment failure, the effects of Blackwater on water quality could be significant. However, potential water treatment failures vary in scope, likelihood, and consequence.

Water treatment effectiveness depends on a complex water management system. A failure in some element of the water management system, for example pumping systems, is very likely to occur, given the indefinite timeframe for treatment. Such failures would generally be expected to be short-term and easily remedied, and unlikely to significantly affect downstream water quality.

The treatment method with the highest level of uncertainty is the NF system, which would be built in line with the Sulf-IX treatment. This treatment system can be inhibited by membrane fouling or other failures in the water treatment. Corrective actions may help resolve these treatment issues. New Gold noted that the treatment system is modular, so that more treatment modules can be added if treatment effectiveness proves to be insufficient. The EAO is unable to predict either the likelihood of NF treatment failures, which would depend on the nature and duration of the issue. With respect to consequence of a failure:

- In Post-Closure, there is, at most, 21 days of water storage available on the site if water cannot be treated and released into the receiving environment. A problem that cannot be remedied within 21 days would be expected to require either the application of additional contingency measures, or the release of contaminated water to Davidson Creek.
- However, the NF treatment system is not responsible for the bulk of contaminant removal, which would occur in the metals removal treatment plant and the Sulf-IX component of the Sulf-IX-NF treatment plant.

There may be other types of treatment failures that cannot be predicted at this time. It is also possible that for unforeseen reasons, such as bankruptcy, New Gold will fail to maintain the WTPs until water is of sufficient quality for release without treatment, particularly given the unlimited timeframe for treatment. Prior to construction of the mine, EMPR would require a financial security to cover all costs of mine construction, operations, and remediation for 100 years into the future. This security amount is recalculated by EMPR every five years, and adjusted accordingly, always for 100 years into the future.

EMPR identified that given the uncertainty associated with the Sulf-IX-NF WTP, site-specific piloting work for the system would be required with New Gold's initial *Mines Act* permit application. EMPR also noted that because TSF discharge is not expected until Post-Closure, there will be time for monitoring of water quality predictions, and to make adjustments to water management and treatment systems if it appears that contaminant loading is different from what was predicted in the EA or at permitting.

In addition to concerns related to the effectiveness of the treatment technology, LDN-UFN and CSFNs raised concerns regarding the disposal of water treatment waste products, and particularly the potential for loadings from brine from the Sulf-IX NF plant disposed at depth in the pit lake to enter the TSF and the downstream environment. New Gold provided information supporting its view that this would not occur, because the pit lake would remain stratified and depositing brine at depth would support maintaining this stratification. LDN-UFN and CSFNs also identified a number of key mitigations for water quality that were critical to the water quality predictions made during Application Review that they felt would not be required at permitting unless they were included in an EAC condition, given that the mitigations would not be needed until after Operations. These included accelerating filling of the pit with water in Closure to reduce ML/ARD, mitigation to prevent seepage from TSF C to the TSF D pond, and depositing brine at depth in the pit lake to support pit lake stratification.

The EAO recognizes that additional information on the treatment technologies will be brought forward during permitting. The EAO understands that over time, the understanding of both the quality of water to be discharged and the technologies available to address it, will evolve. In order to ensure that effective technology is identified and in place prior to it being needed at Closure, the EAO is proposing a condition requiring development of a Closure and Post-Closure Water Quality Management Plan (Condition 34), which must be updated at least every five years from the start of Operations, and would include:

- An identification of the treatment technology proposed and whether it differs from the Application, with a description of any new information available on the technology that could affect the conclusions in the EA on the effectiveness of the treatment;
- Identification of additional mitigation measures should there be a lower level of confidence in the effectiveness of treatment than was identified in materials provided during Application Review;
- If new technology is proposed for Closure or Post-Closure, demonstration that the treatment technology is technically feasible, and can achieve downstream water quality required by the EAO's proposed Condition 26: Water Quality Management;
- A description of how any water treatment by-products will be managed in closure and post-closure; and
- Consideration of additional mitigation measures that were proposed along with water treatment to achieve adequate water quality for discharge into the environment.

10.3.3 SEEPAGE

Because extensive surficial sand and gravel materials underlie the TSF, engineered mitigation methods are proposed to limit and collect seepage from the TSF. TSF embankments would be designed to limit potential seepage. In order to recover seepage, an ECD and groundwater interception trenches would be excavated through the surficial sand and gravel terraces about one km downstream of the TSF D Main Dam, reporting to the ECD pond. Recovered ECD water would be pumped to TSF D.

As discussed above under 'water quality modelling', Working Group reviewers raised concerns related to seepage quantity and quality estimates. A number of these issues were resolved in the updated water quality model, but ENV and LDN-UFN maintained that seepage quantity could be substantially

underestimated. FLNRORD, EMPR, ENV and ECCC Working Group members were satisfied that final seepage estimates were reasonable for the EA stage. Both FLNRORD and LDN-UFN noted that in order to limit TSF D dam seepage to the amount predicted in the EA, significant quality control will be required in Construction, which is very difficult to achieve for a mining dam which is constructed over several decades. New Gold committed to develop construction quality assurance and quality control guidelines in detailed design. The quality control guidelines would include the procedure for acceptance of surface conditions prior to additional fill placement, which would provide the necessary controls to achieve intended design function of the TSF, dam core, and liners.

ENV also noted that the modelling assumptions regarding the effectiveness of seepage interception measures are uncertain and may be optimistic. If total seepage is greater than expected, seepage recovery is less effective than predicted, and/or seepage quality is substantively worse than New Gold's predictions, there would be an increased adverse effect on receiving waters.

The EAO is of the understanding that permitting requirements would address uncertainties regarding the magnitude of seepage quantity and quality, by including an adaptive management plan requiring (1) the continuous monitoring of the effectiveness of TSF D dam seepage interception system, to inform design changes in these systems and in the dam, which may be required during construction; (2) a periodic update of the groundwater model to ensure that the simulated seepage is consistent with observed groundwater quality; and (3) a more extensive sensitivity analysis of the model predictions, to address the existing uncertainties on the effectiveness of the dam design and seepage interception structures.

10.3.4 VOLUME OF WATER STORED IN TSF

Throughout Application Review, ENV, ECCC, EMPR, LDN, UFN, and CSFNs raised concerns about the volume of water that would be stored in the TSF, with accumulation of up to 25 million m^3 of water in TSF Site D, and an additional 8 million m^3 in TSF Site C. Indigenous groups noted that climate variability might necessitate discharge from the TSF, and that the potential accumulation of such large pond volumes, which are well in excess of what is required to operate the mill, runs counter to the recommendations of the Mt Polley Expert Report to apply the best achievable technology (BAT) principle of "eliminate surface water from the (tailings) impoundment." LDN-UFN and CSFNs stated their view that, "storing excess water in the TSF leaves downstream interests vulnerable to risks due to dam failure or uncontrolled release from the TSF due to excess build-up of water behind the tailings dams." The EAO notes that a tailings dam failure would have severe downstream consequences; see Section 16, Accidents and Malfunctions. The LDN-UFN and CSFNs recommended that surplus water should be treated and released off-site during Operations.

In the August 2016 submission, New Gold proposed the capture, diversion and treatment in a conventional MRWTP of surface and groundwater inflows to the Open Pit during March to September of Years 5 to 14. This reduces the storage of surplus water in the TSF, as the prior plan was that the water inflows to the Open Pit would be pumped to the TSF. The treated water would be discharged to the FWR, for discharge into Davidson Creek. New Gold also proposed to recycle water on-site, by using water from the TSF to support mill needs. Combined with the freshwater diversion ditches included in the revised water balance,

the volume of water stored in the TSF would be reduced, to a maximum of 12 million m^3 in TSF D (10 million m^3 in Post-Closure), and 18 million m^3 in TSF C. LDN-UFN continued to raise concerns about the risk associated with the buildup of water in TSF D and TSF C, and stated that a discharge strategy should be developed for later phases of mine operations.

In order to address Indigenous groups' concerns regarding the volume of water stored in the TSF, the EAO is proposing several conditions:

- Condition 11: Care and Maintenance Plan, which would be implemented during temporary mine closures, and which, among other things, would describe measures to monitor, manage, and avoid buildup of water surplus to that required under Condition 33: Mine Waste and Water Management Plan;
- Condition 19: Environmental Monitoring Committee, the Terms of Reference for which must include how New Gold would address water balance modelling to facilitate understanding of New Gold's management of water surplus to mine operation needs; and
- Condition 33: Mine Waste and Water Management Plan includes how New Gold would limit the year over year accumulation of water stored in the TSF that exceeds the amount necessary to address water needed for the operation of the mill and to provide an oxygen-preventing barrier to prevent adverse effects from acid-generation or ML from waste rock, tailings and other mine by-products.

While LDN-UFN expressed ongoing concerns that the conditions would not be sufficient to appropriately limit the accumulation of water in the TSF, the EAO is of the opinion that the proposed conditions are sufficient at the EA stage, noting that this issue is addressed in detail during permitting.

10.3.5 CUMULATIVE EFFECTS

LDN-UFN Working Group members raised a number of concerns regarding the assessment of cumulative effects. With respect to water VCs, key issues were:

- "Creeping baseline": existing activities (mineral exploration, agriculture, recreation, forestry and TLU) were included within the current baseline conditions, which were taken to represent an acceptable benchmark upon which to compare current and future effects, irrespective of the degree of impact that has already occurred. Key examples were provided related to the effects of logging and ranching within the RSA on TSS, nutrients, and coliform contamination;
- Failure to adequately incorporate Indigenous perspectives in the cumulative effects assessment;
- A linear, sequential approach to cumulative effects assessment that failed to consider stressors from multiple sources that do not operate in the same manner along the same pathways. For example, coliforms were not a residual effect from Blackwater, and were not carried forward to the cumulative effects assessment. However, they could, in combination with COPCs from the Project, act synergistically with parameters such as nutrients to affect important water quality parameters such as dissolved oxygen; and
- The lack of alignment with current Provincial cumulative effects assessment methodologies.

New Gold committed to participate in any regional cumulative effects initiatives as they relate to the Blackwater project, and work with LDN and UFN regarding monitoring and mitigation planning with respect to cumulative effects.

In response to these concerns, the EAO is proposing a Wildlife Management Plan and a Caribou Mitigation and Monitoring Plan, both of which include requirements for New Gold to participate in regional initiatives if invited by provincial agencies.

10.3.6 ISSUE OF EA OR PERMITTING REQUIREMENTS

UFN-LDN raised a number of issues that were not resolved to their satisfaction during Application Review. The EAO is of the view that these issues were addressed at the appropriate level for the EA in the proposed EAC conditions and recognizes that there are a number of concerns that will be further addressed through the permitting phase. The EAO also notes that EMPR, ENV and FLNRORD have confirmed in writing that the Province intends to continue to take a collaborative approach with CSFN, LDN and UFN throughout initial permitting and over the life of Blackwater, which would provide an opportunity for collaboration in these areas. These remaining issues are described in the following sections.

KEY MITIGATIONS FOR WATER QUALITY

As noted previously, LDN-UFN and CSFNs identified a number of key mitigations for water quality that they wanted specified in the conditions or CPD as they felt would not be required in permitting unless they were included in an EAC condition. A number of these were included in the certificate conditions. Others were not included because the EAO is of the view that they were instead addressed by outcome-based conditions (such as requirements to meet WQGs or SBEBs) or were issues best left to the detailed information and discussion that would occur through permitting. The key mitigations identified by LDN-UFN that were not included in EAC conditions are:

- Specific seepage collection requirements and pumpback;
- Requiring east seepage collection for the pit (when the pit water level rises);
- Requiring specific operational water treatment for the pit dewatering during years 5-14; and
- Specific requirement to dispose of Sulf-IX-NF brine at depth in the pit and require that pit lake water be stratified to keep poorer quality water at the bottom of the pit.

LGO STOCKPILE

UFN-LDN outlined a concern that the proposed 60 Mt LGO stockpile creates a large, unnecessary risk, because it is a very large volume of rock that is expected to acidify quickly (within one year), and which may require long-term water treatment. UFN-LDN is of the view that the Blackwater mine could be re-designed without a LGO pile. The EAO's conditions address preventing ARD from the stockpile, but further discussions on whether the size and existence of the proposed LGO stockpile is reasonable is a matter that will be further in permitting.

TSF WATER TREATMENT AND DISCHARGE IN OPERATIONS

LDN-UFN expressed strong concern that water treatment and discharge will be required from the TSF during mine Operations in order to limit water accumulation, and that is not currently proposed for Blackwater. While LDN-UFN acknowledged that the proposed Condition 33: Mine Waste and Water Management Plan and Condition 11: Care and Maintenance Plan addresses elements of this issue, they remained concerned that there is no requirement for a "trigger" in an EA condition for when a TSF discharge strategy needs to be developed, including detail on what must be contained in that strategy.

The EAO is of the view that the specific timing and related details are best left to permitting and the EA conditions appropriately ensure that New Gold will be paying due attention to this issue and would be able to respond in a timely manner.

TAILINGS ALTERNATIVES ASSESSMENT

LDN-UFN and CSFNs raised concerns about the quality of the TAA, an assessment required by the EAO in order to address recommendations of the Report on Mount Polley Tailings Storage Facility Breach (Expert Report, 2015). LDN-UFN and CSFNs concluded that overall the TAA "appears biased in favor of the original design for tailings and waste rock management, a conventional water-retaining dam. This bias may simply over-emphasize the original Candidate option, or it may obscure a better tailings technology for the proposed Blackwater Mine…". The LDN-UFN and CSFNs further commented that they were not able to conclude that the it was "a fair assessment of Candidates based on direction provided in the EAO (2015) directive, nor that the ultimate Candidate selected is an appropriate BAT for the Mine."

New Gold provided additional information on the TAA methods, and EMPR and ECCC Working Group reviewers were satisfied that the TAA was conducted appropriately. However, LDN-UFN continued to request that an independent assessment. Because LDN's, UFNs and CSFNs' main concerns related to the choice of a tailings management system that allows for the storage of excess water on-site, the EAO concluded that these concerns could best be addressed with the proposed certificate conditions described in Section 10.3.4: Volume of Water Stored in the TSF, and subsequent permitting processes, which includes a requirement for another TAA.

ADDITIONAL CONCERNS

LDN-UFN asked for EA conditions requiring the collection of detailed data that is provided through *Mines Act* and EMA permitting and during the five-year mine plan updates required under the *Mines Act*. The LDN-UFN were concerned about having access to that data over the life of the mine, citing their past experience.

LDN-UFN also requested that EA conditions include a reclamation and closure plan that would be updated every five years be included as a Certificate condition. A reclamation and closure plan being updated every five years is a specific requirement under the mine permitting process and includes substantial technical detail. LDN-UFN concern is their level of engagement in the plan reviews in permitting. The EAO instead proposed Condition 25: End Land Use Plan to be developed in consultation with Indigenous groups, which would describe the end point for reclamation, and leave the technical detail on how to

achieve those to the detailed Reclamation and Closure requirements under the *Mines Act*.

In general, the EAO saw little value in duplicating information required for permitting in these areas. The EAO is also aware of the commitment from EMPR, ENV and FLNRORD to ongoing collaboration for future provincial authorizations and over the life of Blackwater. Further, the EAO's proposed condition for an Environmental Monitoring Committee would ensure ongoing dialogue over the life of the mine.

10.4 CHARACTERIZATION OF RESIDUAL EFFECTS

10.4.1 GROUNDWATER QUANTITY

After consideration of proposed mitigations measures and mitigation by design captured in the proposed CPD, the EAO concludes that Blackwater would have the following residual effects on groundwater quantity:

- Water table drawdown during Operations and Closure (due to active pit dewatering);
- Increase to groundwater flows in the headwaters of Creek 705 (resulting from the Site C West Dam) during all project phases;
- Decrease in recharge during the spring and increase in recharge during the winter below the West Dump (Operations through Post-Closure);
- Decreased groundwater flows in the headwater sub-catchments of Creek 661 due to inflows to the open pit (Operations through Post-Closure);
- Decreased groundwater flows in the upper Davidson Creek valley, with a decreased proportion of groundwater contribution to total streamflows throughout the Davidson Creek valley (Operations through Post-Closure).

The EAO's characterization of the expected residual effects of Blackwater on groundwater flows is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 27: Summary of Residual Effects for Groundwater Flows

CRITERION	ASSESSMENT RATING	RATIONALE
Context	Neutral	There have been few groundwater users in the area to date, and there is no information available to the EAO on trends in groundwater quantity in the project area.
Magnitude	Negligible to high	Changes on the mine site would be **low** in magnitude during Operations, and **negligible** during other project phases. Changes to groundwater flows to the Blackwater River would be **negligible**. Changes to Creek 705 would be constant during all project phases, but magnitude varies depending on the month of the year and measurement location from **negligible to high**;

CRITERION	ASSESSMENT RATING	RATIONALE
		changes would be largest in lower flow periods and in the Creek 705 headwaters, and smallest during freshet further downstream from the Creek 705 headwaters. Changes to Creek 661 would range from **negligible to high** depending on location and project phase, with moderate to high magnitude changes during project operations and closure at the two upstream tributaries to Creek 661. The change in groundwater discharge would be negligible during all months and project phases further downstream in Creek 661, near the confluence of Chedakuz Creek. Davidson Creek would experience **negligible to high** magnitude changes in groundwater discharge, varying by project phase and month. The largest changes would occur in the upper two thirds of the watershed, due to changes to groundwater flows resulting from project infrastructure. For much of the year (July through March), during Operations through Post-Closure, surface flows in the remaining portions of Davidson Creek would change from primarily originating from groundwater to being sourced mostly from surface flows.
Extent	Regional	Measurable changes in groundwater discharge are predicted within the RSA in Davidson Creek, Creek 661 and Creek 705 watershed. No changes to groundwater discharge are predicted outside of the RSA.
Duration	Permanent	The changes to groundwater flows would begin in Construction and extend through Post-Closure.
Reversibility	Irreversible	Once mine infrastructure is built, the changes in groundwater flows could not be reversed.
Frequency	Continuous	Changes in groundwater flows would occur continuously, although the magnitude of change would vary in time and by location.
Likelihood	Because the changes in groundwater flows are a direct result of the construction of project infrastructure, the likelihood of the effects occurring is high.	
Confidence	Confidence in the groundwater quantity residual effects characterization is moderate, based on the modelling techniques used to support the assessment, and given the uncertainty related to estimates of unrecoverable seepage.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

The EAO has not provided a significance determination for changes to groundwater flows, because significance is best determined in the context of environmental receptors such as fish and other aquatic life, and because assumptions regarding changes to groundwater flows were inputs to predictions of effects to surface flows and surface water quality.

10.4.2 GROUNDWATER QUALITY

The information on groundwater seepage quality informed the assessment of potential impacts to surface water quality in Section 10.4.4. Therefore, a separate residual effects assessment for groundwater quality is not warranted.

10.4.3 SURFACE WATER FLOW

After considering the proposed mitigation measures, mitigation by design captured in the proposed CPD, and certificate conditions requiring monitoring and adaptive management of aquatic effects, the EAO concludes that Blackwater would result in the following residual effects on mean monthly surface water flows, compared to baseline conditions:

- Changes (both increases and decreases) in flows to the Davidson Creek watershed;
- Increases in flows in the Creek 705 watershed;
- Decreases in flows in the Creek 661 watershed;
- Changes (both increases and decreases) in flows in the Chedakuz Creek watershed; and
- Decrease in Tatelkuz lake levels.

The EAO's characterization of the expected residual effects of Blackwater on surface water flow is described below in Table 28.

The residual effects for surface water flow are carried forward to the analysis of impacts to Fish and Fish Habitat VCs.

Table 28: Residual Effects Characterization for Surface Water Flow

CRITERION	ASSESSMENT RATING	RATIONALE
Context	Creek 705 watershed: moderate Creek 661, Davidson Creek, Tatelkuz Lake tributaries, and Chedakuz Creek local watersheds: low	Context ratings are based on available ECA data, which indicate a moderate ECA in the Creek 705 watershed, and a high ECA in the other watersheds in the LSA.
Magnitude	Negligible to high	The magnitude of change varies with location within the watershed, project phase, and month. In general, the magnitude of change is highest in the upper watersheds, and attenuates as catchment area increases further down the watershed. Creek 705: changes are the same for all project phases. The changes in the upper part of the watershed include high magnitude increases during peak flows, which is expected to cause a change in the stream channel in the upper watershed. At the bottom of the watershed, changes range from negligible to moderate magnitude, with the largest percentage increases

CRITERION	ASSESSMENT RATING	RATIONALE
		occurring during the lower flow months. Creek 661: larger changes are expected in the upper half of the watershed, with the most notable changes (-54 percent) occurring in one of the tributary streams during May and June (the highest flow months) of Post-Closure. These changes would be expected to substantively alter conditions in the stream. At the bottom of the watershed, the highest magnitude changes are moderate flow decreases in June during Post-Closure. Davidson Creek: the construction of the mine and associated infrastructure would alter more than half the watershed area, and eliminate several tributaries in the upper Davidson Creek watershed. Changes would persist in Post-Closure all the way down the watershed, with a high magnitude flow decrease in June, and a negligible magnitude increase in the highest flow month (May), at the bottom of the watershed. Chedakuz Creek: Predicted changes are highest during the 24 years of Closure, ranging up to moderate magnitude flow decreases in June (a higher flow month). Tatelkuz Lake: the changes to mean and dry condition lake level would be smaller than 5 percent and are rated negligible with respect to the surface water flow VC. However, these changes may cause adverse effects to fish, and are carried forward to Section 11: Fish and Fish Habitat of this Report. Lake 16 and connector channel: the addition of the connector channel and enlargement of Lake 16 are high magnitude changes.
Extent	Local to regional	Changes to flow are expected to extend into lower Chedakuz Creek downstream of the LSA.
Duration	Permanent	Effects in all Creeks are permanent, because they extend into Post-Closure. However, in Chedakuz Creek, the permanent effects that are low in magnitude occur during only one month, with negligible magnitude effects in remaining months. Estimated changes to Tatelkuz Lake level were not provided for Post-Closure, but they would be less than the negligible effects predicted during Operations and Closure, since the main source of impacts, the FWSS, would have been decommissioned.
Reversibility	Irreversible	Once the project is built, the changes to catchment areas and hydrological regime are irreversible.
Frequency	Continuous	Changes to mean monthly flows occur during most months and most Blackwater phases, for most locations.
Likelihood	Due to the physical nature of the changes to the Davidson Creek watershed, the likelihood of the predicted changes occurring is rated as high. There are no circumstances under which such changes would not occur if the project proceeds as proposed.	
Confidence	The EAO's confidence in the watershed modelling predictions is moderate, based on a number of sources of uncertainty in model inputs, which include, additional to the input data	

CRITERION	ASSESSMENT RATING	RATIONALE
	and modelling uncertainties described by New Gold: • The quantity of seepage from the TSF • Winter low flows • Predictions of Tatelkuz Lake level. Therefore, the EAO has a moderate level of confidence in the residual effects characterizations for the surface water flow VC.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

The EAO has not provided a significance determination for changes to surface flows, because significance is best determined in the context of environmental receptors such as fish and other aquatic life. Implications of surface flow changes to fish are discussed in Section 11: Fish and Fish Habitat.

10.4.4 SURFACE WATER QUALITY

After considering the proposed mitigation measures, mitigation by design captured in the proposed CPD, and proposed certificate conditions, the EAO has determined that residual effects to surface water quality of a greater than ten percent change from the 95th percentile of seasonal baseline values for a number of parameters (see Table 27 and Table 28 above) are expected throughout the life of Blackwater, including in Post-Closure, in Davidson Creek, Creek 661, and Chedakuz Creek.

Of these parameters, the only parameters with exceedances to WQGs that are predicted to result from the project are:

- In Davidson Creek, nitrate, total antimony, and total zinc exceedances; and
- In Creek 661, exceedances in total chromium, dissolved aluminum, and total zinc.

The EAO's characterization of the expected residual effects of Blackwater on surface water quality is described below in Table 29. The residual effects for surface water quality are carried forward to the analysis of impacts to Fish and Fish Habitat and human health VCs. A significance determination is provided for surface water quality considering WQGs.

Table 29: Residual Effects Characterization for Surface Water Quality

CRITERION	ASSESSMENT RATING	RATIONALE
Context	Unknown	Given the limited information available to the EAO on any natural or human-caused trends in water quality in the Blackwater area, context is rated as unknown.
Magnitude	Negligible to High	28 parameters are expected to exceed baseline variability by more than 10 percent during one or more project phases in water bodies in the LSA as a result of Blackwater. (moderate magnitude) Exceedances of BC WQGs that also exceed baseline variability (high magnitude) are predicted, based on the expected case, for: • Davidson Creek (nitrate, Operations; total antimony and

CRITERION	ASSESSMENT RATING	RATIONALE
		total zinc, Post-Closure) • Creek 661 (total zinc, Operations through Post-Closure; dissolved aluminum, closure and Post-Closure; chromium, Operations and Closure). While any exceedance of WQGs is rated as high magnitude, these exceedances are generally relatively small, with the exception of the exceedances to the antimony drinking water guideline.
Extent	Local to regional	With the exception of dissolved aluminum, for which background conditions exceed BC WQGs, the WQG exceedances were predicted to be restricted to the LSA. However, water quality was predicted to exceed baseline concentrations at the most downstream water quality modelling node in Chedakuz Creek for a number of parameters into Post-Closure. Chedakuz Creek flows into the Nechako reservoir at the edge of the RSA, at which point there would be substantial dilution of any parameters remaining above baseline levels. Therefore, the geographic extent of water quality effects ranges from local to regional, with negligible to moderate residual effects extending through the RSA, and high magnitude effects limited to the LSA.
Duration	Permanent	New Gold's predictions did not provide an end-point to water quality changes, which are predicted to last into Post-Closure for at least 290 years.
Reversibility	Irreversible	Once rock surfaces have been exposed through mining activities, contaminant loadings cannot be reversed.
Frequency	Continuous to intermittent	Lower magnitude changes are continuous. Exceedances to WQGs are intermittent.
Likelihood	Changes to water quality are expected which would not be fully mitigated, thus the likelihood of residual effects is high. Although some elements of the water quality modelling are conservative, others are optimistic, and the overall predictions are considered reasonable at the EA stage.	
Significance Determination	Blackwater is predicted to alter the surface water chemistry of receiving watercourses, including exceedances of some WQGs. Water quality changes range in magnitude from negligible to high. Although there are exceedances (high magnitude), these are small relative to WQG concentrations, intermittent, apply to only a few contaminants, and are generally limited in geographic extent to the LSA. Effects are permanent and irreversible. In consideration of applicable provincial (EMA and *Mines Act*) and federal (*Fisheries Act* and MDMER) legislative requirements, conditions proposed by the EAO, and other key mitigation measures, the EAO concludes that Blackwater is not likely to result in significant adverse residual effects on Surface Water Quality.	
Confidence	Uncertainties in water quality modelling mean that effects to Surface Water Quality could be greater than predicted, particularly given the relatively low volume, and therefore limited assimilative capacity, of the affected creeks. To the extent that assumptions are conservative, it is also possible that some effects may be less than predicted. In addition, the primary mitigation makes use of two treatment technologies that have not yet been used in similar	

CRITERION	ASSESSMENT RATING	RATIONALE
	applications in BC and may be required in perpetuity. There is also uncertainty around the potential effects on aquatic life as a result of the predicted changes to surface water quality, specifically in relation to the potential combined effect of increased concentrations of numerous parameters. The EAO has low to moderate confidence in the water quality predictions of the EA.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

10.4.5 SEDIMENT QUALITY

After considering proposed mitigation measures, and the EAO's proposed Condition 30: Aquatic Effects Monitoring Plan and Condition 13: Construction Environmental Management Plan which would require (1) an AEMP and (2) the creation of an ESCP (as part of construction and operations EMPs), the following residual effects are expected:

- Accumulation of metal in the sediments downstream of the TSF (in the Davidson Creek watershed and lower Chedakuz Creek) and in Creek 661, resulting from increased metal concentrations in open pit and TSF seepage, and suspended sediment in TSF discharge.

Table 30: Residual Effects Characterization for Sediment Quality

CRITERION	ASSESSMENT RATING	RATIONALE
Context	Unknown	Sediment quality in the study area has likely been affected by logging activities and past mineral exploration. However, there are no data on trends to sediment quality in the project area, and no information to inform the characterization of resilience or sensitivity for a non-biological VC.
Magnitude	Moderate	Sediment quality is expected to change from baseline conditions but remain within sediment quality guidelines for those parameters that do not have baseline sediment quality guideline exceedances.
Extent	Local	Measurable changes are expected to be restricted to the LSA.
Duration	Permanent	Linked to effects to surface water quality and seepage quality.
Reversibility	Irreversible	Once rock surfaces have been exposed through mining activities, contaminant loadings cannot be reversed.
Frequency	Continuous	Although WQG exceedances are intermittent, the changes from baseline conditions are continuous, and sediment quality changes would likely be continuous as well.
Likelihood	Changes to water quality are expected to drive changes to sediment quality, meaning there is a high likelihood of residual effects to sediment quality.	

CRITERION	ASSESSMENT RATING	RATIONALE
Confidence	In addition to the uncertainties related to contaminant levels in TSF seepage and discharge, which are discussed under Section 10.3.3 (Seepage) above, there is uncertainty in the relationship between surface water quality and sediment quality. As a result, the confidence in the residual effects assessment is low.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

The EAO has not provided a significance determination for changes to sediment quality, because significance is best determined in the context of environmental receptors such as fish and other aquatic life.

10.5 CUMULATIVE EFFECTS ASSESSMENT

10.5.1 GROUNDWATER

New Gold provided a qualitative assessment of cumulative effects for groundwater, stating that it is unlikely that there will be any groundwater-related cumulative effects from exploration activities that pre-date construction of Blackwater. Exploration activities may have temporarily affected groundwater quantity and quality on a very limited and local scale from exploratory drilling, pumping test, or exploration water supply needs. New Gold stated that there are no additional overlapping sources of cumulative effects within the groundwater RSA contributing to cumulative effects to these VCs, and that no cumulative effects to groundwater quality or quantity are expected.

The potential effects of changes to groundwater quality are captured in the residual effects and cumulative effects assessments for surface water quality.

Existing and reasonably foreseeable activities that may contribute to effects to groundwater quantity within the groundwater RSA are forestry and ongoing mineral exploration. The effects of these activities on groundwater flows are uncertain. Logging may have a large impact on groundwater quantity, depending on extent, topography, precipitation pattern, etc. Due to a lack of information on the current condition of groundwater flows relative to groundwater flows prior to forestry impacts, the EAO is unable to conclude on the expected magnitude of cumulative effects to groundwater quantity.

10.5.2 SURFACE WATER FLOW

New Gold assessed cumulative effects of surface water flow changes on the Aquatics RSA based on estimated change in the weighted runoff coefficient[26] for the RSA. New Gold acknowledged that the assumptions used to develop the weighted runoff coefficients were subjective and did not provide details of the supporting analysis. New Gold concluded that the contribution of Blackwater to anticipated cumulative changes to the weighted runoff coefficient would be 2.5 percent in the Upper Eutsuk Lake component of the Aquatics RSA (which includes Creek 705 watershed), and 1.7 percent in the Lower

[26] A runoff coefficient relates the amount of surface water runoff to the amount of precipitation. The coefficient varies with permeability and gradient.

Nechako component of the Aquatics RSA (which includes Chedakuz Creek, Creek 661, Turtle Creek, and Davidson Creek Watersheds, and Tatelkuz lake). New Gold concluded that since both of these changes are less than five percent, they are not considered to be measurable, and are therefore negligible.

The EAO notes that there are permanent changes to surface flows that would result from Blackwater, and that there is a high degree of existing impact to the current condition of one indicator of hydrological impact, ECA, within the RSA. However, in the absence of more detailed publicly-available data, the EAO is unable to conclude on the potential for cumulative impacts from surface flows.

10.5.3 SURFACE WATER QUALITY

New Gold indicated that there is a potential for the effects of forestry, agriculture/ranching, and mineral exploration to act cumulatively with the effects of Blackwater on surface water quality. However, New Gold concluded that there would be no residual effects from these activities that are not already accounted for in the baseline for water quality, and that therefore there would be no residual cumulative effects to surface water quality.

Existing and reasonably foreseeable sources of impact to non-sediment water quality parameters within the RSA are the ranch on Davidson Creek and forestry, both of which could result in changes in nutrient concentrations. BC WQGs for these parameters were not exceeded under baseline conditions at any of the monitoring sites close to the ranch. Water quality predictions for the downstream portion of Davidson Creek reported small exceedances for nitrate during a single month of the Operations phase.

Based on the above information, the EAO concludes that Blackwater, combined with impacts from existing projects and activities, is not expected to have a significant cumulative effect on surface water quality.

10.5.4 SEDIMENT QUALITY

New Gold identified that use of the FSR road for forestry activities could contribute to cumulative effects on sediment quality but concluded that road dust control through road watering or other measures, conducted in cooperation with other road users, would prevent any cumulative impacts to sediment quality.

In consideration of the above analysis for surface water quality, the EAO concludes that Blackwater, combined with impacts from existing projects and activities, is not expected to have a notable cumulative effect on sediment quality.

10.6 CONCLUSIONS

Considering the above analysis and having regard to the EAO's proposed conditions, including Condition 11: Care and Maintenance Plan, Condition 13: Construction Environmental Management, Condition 19: Environmental Monitoring Committee, Condition 25: End Land Use Plan, Condition 26: Water Quality Management, Condition 30: Aquatic Effects Monitoring Plan, Condition 32: Cyanide Management Plan, Condition 33: Mine Waste and Water Management Plan, Condition 34: Closure and Post Closure Water Quality Management Plan, identified in the CPD and TOC (which would become legally binding in the event that an EAC is issued), the EAO is of the view that Blackwater would not have significant adverse effects on surface water quality.

11 FISH AND FISH HABITAT

11.1 BACKGROUND

This chapter assesses effects of Blackwater on two VCs: Fish and Fish Habitat. The Blackwater area encompasses several fish-bearing and non-fish-bearing streams, rivers, and lakes and these VCs have the potential to be affected during all Blackwater phases. Fish have an important role in the function of natural ecosystems; consumption of organisms by fish influences the stability, resilience and food web dynamics of aquatic ecosystems. Fish are also important food to other organisms in both aquatic and terrestrial ecosystems. Fish are important culturally and traditionally to Indigenous groups and are an important contributor to commercial tourism and recreation.

Rainbow trout and kokanee were selected as indicators for the Fish VC, and five indicators were selected for the Fish Habitat VC:

- Surface water flow;
- Surface water quality;
- Sediment quality;
- Ecological health; and
- Riparian habitat.

Information from Groundwater Flow, Groundwater Quality, Surface Water Flow, Surface Water Quality, and Sediment Quality VCs (Section 10 of this Report) was fed into the assessment of Fish and Fish Habitat VCs. The results of this assessment also informed the assessments on Human Health (Section 15 of this Report) and Part C (Section 18 of this Report).

11.1.1 REGULATORY CONTEXT

The Application considered the following federal and provincial legislation, regulations, and guidelines:

- The federal *Fisheries Act*, administered by DFO, is the main statute related to the conservation and protection of fish and fish habitat. Section 35(1) of the *Fisheries Act* states that “no person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery.” Section 35 of the *Fisheries Act* prohibits serious harm to fish which is defined in the Act as “the death of fish or any permanent alteration to, or destruction of, fish habitat”. Proponents are responsible for avoiding and mitigating serious harm to fish that are part of, or support, commercial, recreational or Aboriginal fisheries. When proponents are unable to completely avoid or mitigate serious harm to fish, their projects will normally require authorization under Subsection 35(2) of the *Fisheries Act* for the project to proceed without contravening the *Fisheries Act*;
- Requirements for the management and protection of aquatic life and fish and fish habitat for a mine include the MDMER administered by ECCC, and the provincial *Mines Act* and EMA;

- The provincial WSA, Water Sustainability Regulation and Groundwater Protection Regulation apply to the use and protection of water resources;
- The federal Canadian Council of Ministers of the Environment (CCME) WQG, Sediment Quality and Tissue Residue guidelines, and the BC WQG cover protection of freshwater aquatic life and wildlife consumers of aquatic biota. Guidelines are not regulatory instruments but can be defined as targets or triggers for action if not met and can be used as the basis for setting regulatory limits for parameters in an EMA effluent discharge permit. Generally, the BC WQG are used where BC and CCME WQG differ, as the BC WQG more closely represent the conditions in BC waters;
- The federal SARA prohibits killing, harming, capturing, or harassing species listed (in Schedule 1 of the SARA) as endangered, threatened or extirpated and provides protection for habitat that supports these species. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses and identifies species at risk;
- The BC Conservation Data Centre assigns species at risk to one of three lists: red-, blue-, and yellow-lists. These lists help to identify species that can be considered for designation as Endangered or Threatened either provincially under the BC *Wildlife Act*, or nationally by the COSEWIC;
- The provincial *Riparian Areas Protection Act*, and associated Riparian Areas Regulation that protects features, functions and conditions of riparian areas to maintain stream health and fish productivity; and
- The BC *Forest and Range Practices Act* provides guidance on discretionary and mandatory Riparian Management Areas around fish bearing streams, lakes, and wetlands, provides guidance on the rate at which wood can be removed from a watershed, and provides regulations on road building.

Were Blackwater to be issued a Certificate, New Gold would require a permit authorizing the discharge of effluent from Blackwater under the EMA. This Effluent Discharge Permit could also include a requirement for an Aquatic Effects Monitoring Program. A Fish Collection Permit would be required for any fish salvage activities or harvests of fish for monitoring, under the provincial *Wildlife Act*. New Gold would require a *Fisheries Act* Section 35(2) authorization from DFO for residual habitat losses, and issuance of that authorization would require a fisheries offsetting plan. New Gold would also require an amendment to Schedule 2 of the MDMER to designate waterbodies as a tailings impoundment area.

11.1.2 SPATIAL AND TEMPORAL ASSESSMENT BOUNDARIES

Two primary spatial boundaries were used for the Fish and Fish Habitat assessments (Figure 10).

- LSA - includes the watersheds potentially affected by the mine site (Davidson Creek, Turtle Creek, Creek 661, and Creek 705 watersheds; Tatelkuz Lake, and Chedakuz Creek between Creek 661 and Tatelkuz Lake, and between Tatelkuz Lake and Turtle Creek), and linear components (that is, the FWSS, airstrip, transmission line (including re-route options), and the mine access road). The LSA for linear components includes a 100 m wide buffer on either side of the centre line (that is, 200 m total width); and

- RSA - contains the LSA (including linear components), the remainder of the Chedakuz Creek watershed not included in the LSA, and the Upper Fawnie Creek watershed, including Top Lake, Laidman Lake, Williamson Lake, and Mathews Creek.

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Description and Location of this Report.

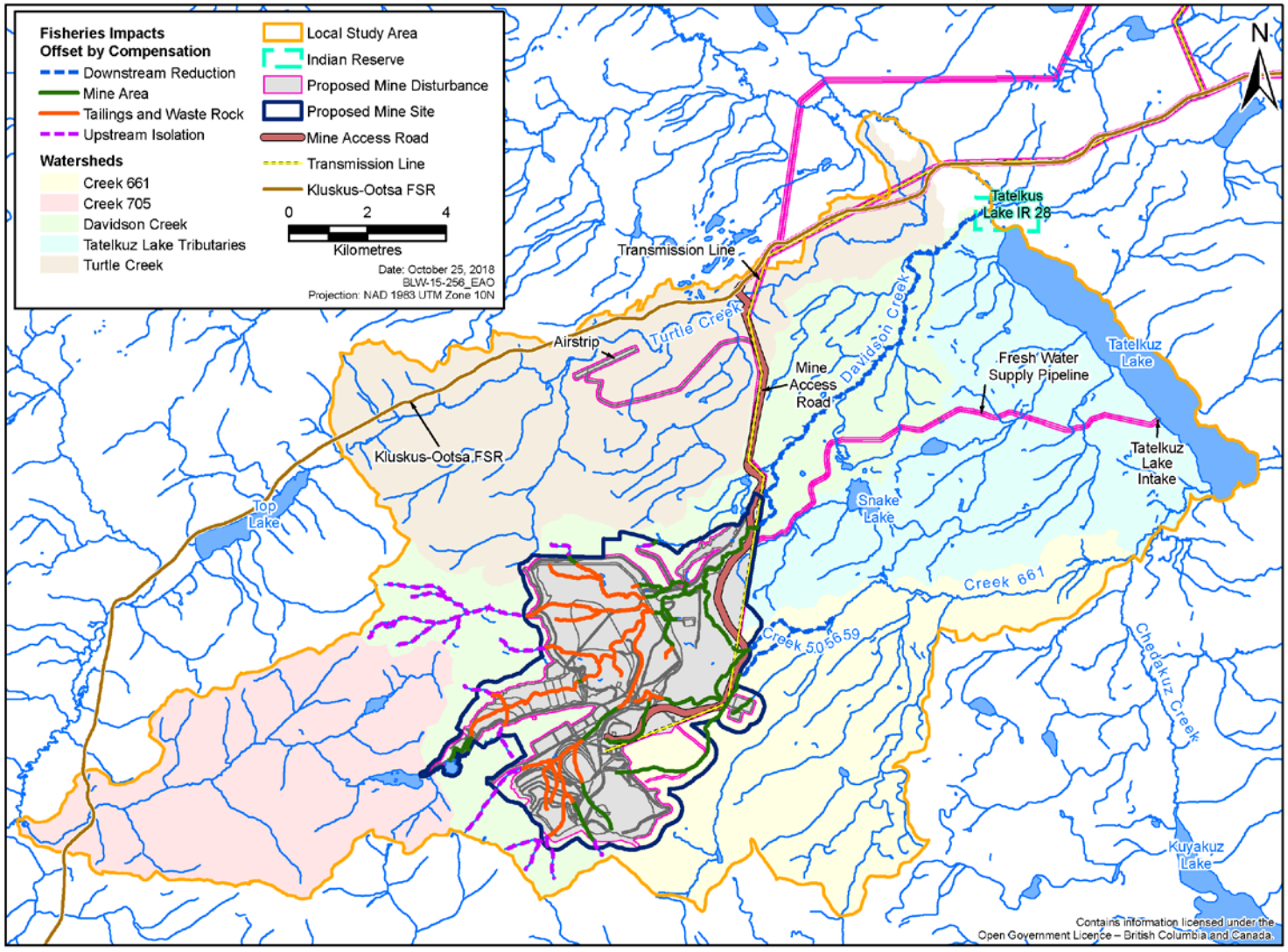

Figure 10: Regional Watersheds and Watercourses

11.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IN THE APPLICATION

This section provides an overview of potential effects and proposed mitigations identified in the Application and supplemental documentation provided during Application Review. Blackwater consists of a number of different components that could affect fish and fish habitat during Construction through Post-Closure, including direct habitat loss, upstream and downstream habitat alteration, water withdrawal and discharge of treated water. The effects of mitigation and offsetting measures to fish and fish habitat in Davidson Creek and Creek 705 watershed were also considered.

11.2.1 BASELINE INFORMATION

The area near Blackwater contains stream systems typical of the central BC interior, with steep, low temperature, low nutrient sub-alpine headwater tributaries (and some small headwater lakes) draining to lower-gradient, warmer, higher-nutrient reaches with higher quality fish habitat, which in turn drain into valley-bottom streams that form the inlets and/or outlets of large valley-bottom lakes, such as Tatelkuz Lake. The Blackwater footprint encompasses the headwaters and upper half of Davidson Creek, a creek originating in the sub-alpine areas north of Mount Davidson and flowing into lower Chedakuz Creek. Lower Chedakuz Creek drains into the Nechako Reservoir, which is ultimately connected via the Nechako River to the Fraser River. The mine site also captures upper portions of the Creek 661 watershed. Creek 661 discharges into middle Chedakuz Creek, which flows into Tatelkuz Lake, which then drains via lower Chedakuz Creek into the Nechako Reservoir. Most of the project components would be built within the Davidson Creek and Creek 661 watersheds, with the airstrip and limited portions of the mine access road to be located within the Turtle Creek watershed. The transmission line would cross a number of other watersheds, and up to 124 drainages.

Twelve fish species were captured or observed in streams and lakes within the Mine Site LSA during baseline studies: kokanee, rainbow trout, mountain whitefish, northern pikeminnow, longnose sucker, largescale sucker, burbot, brassy minnow, lake chub, slimy sculpin, longnose dace, and white sucker. Kokanee and rainbow trout were the most numerous fish species captured in the LSA and RSA. The BC Conservation Data Centre classifies both brassy minnow and Rocky Mountain capshell (for which only a single sample was captured) as sensitive or vulnerable (blue-listed).

Kokanee use the streams of the Blackwater area only for spawning, when adult kokanee emigrate from their residence lakes in mid- to late-summer to spawn in tributary streams in late summer and fall. When the fry emerge after ice break-up, they immediately migrate to their residence lakes, after which no kokanee are present in Blackwater area creeks until the following summer and fall. Except during kokanee spawning periods, rainbow trout are the most common species in Blackwater area streams. Adult rainbow trout emigrate from their residence lakes in early June, spawn in Blackwater area streams, and return to the lakes before the end of June. After rainbow trout fry emerge from the gravel after incubation, they spend at least one year rearing in Blackwater area streams before moving downstream to mature in Chedakuz Creek or Tatelkuz and Kuyakuz lakes.

Fish species identified in watercourses crossed by the transmission line corridor and FSRs also include white sturgeon, sockeye salmon, coho, chinook, lake trout, kokanee, rainbow trout, burbot, and bull trout. The white sturgeon population is present in the Nechako River, approximately 4.5 km from the transmission line crossing, and is provincially red-listed.

11.2.2 POTENTIAL PROJECT EFFECTS

New Gold identified the mine site and mine access road, the diversion of Lake 01682LNRS (Lake 16) to Lake 01538UEUT (Lake 15), the airstrip and airstrip access road, FWSS, transmission line, and FSRs as the Blackwater components that could affect the Fish and Fish Habitat VCs. New Gold identified the following potential effects associated on Fish and Fish Habitat, as described in the Application and Consolidated Fish and Fish Habitat Effects Assessment memorandum provided during Application Review:

- Mortality or injury;
- Change in health, growth, reproduction, and behaviour; and
- Habitat loss and isolation.

MORTALITY OR INJURY

Blackwater construction and decommissioning activities such as clearing, grading, excavation, blasting, in-stream construction, fording by heavy machinery and dewatering. Stranding of fish in unsuitable habitat, fish salvage activities, and direct contact with equipment or machinery could result in mortality or injury of fish and mortality of fish eggs. During Operations, direct mortality could result from entrainment (small fish passing through an intake screen) and impingement (larger fish trapped against an intake screen) in water and wastewater treatment infrastructure.

New Gold predicted that construction of mine site infrastructure would result in permanent loss of fish in the upper reaches of Davidson Creek and Creek 661. New Gold stated that no listed fish species or ecosystems would be lost, fish would be salvaged according to the Fish Salvage Plan, and serious harm to fish would be offset by the Fisheries Mitigation and Offsetting Plan (FMOP). New Gold would use fish screens, as required by DFO, for intake pipes at the Tatelkuz Lake water intake and design the FWR outlet pipes to reduce direct mortality during Operations. New Gold did not predict residual effects on fish associated with vibrations and shockwaves from detonation of explosives with the employment of mitigation measures, monitoring and adaptive management, including adhering to DFO's *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*.

CHANGES IN HEALTH, GROWTH, REPRODUCTION, AND BEHAVIOUR

Changes in water quality and mercury mobilization, nutrients, temperature, streamflow, exchange of pathogens and genetic mixing between watersheds, and disruptions to fish homing are predicted to affect fish health, growth, reproduction, and behaviour.

Mean baseline metals concentrations are generally one to several orders of magnitude below their respective guidelines in the Blackwater area, with some exceptions (total aluminum, dissolved aluminum,

total cadmium, total copper, total iron, and total zinc) resulting from naturally elevated concentrations. Changes in water quality are predicted to occur from: seepage from the TSF, tailings storage water discharge, alterations of flow, sedimentation/erosion, potential spills, and clearing of riparian vegetation during all Blackwater phases. Changes to water quality can affect fish growth and survival by reducing oxygen levels, increasing temperatures, and increasing fish tissue metals concentrations which can impair respiration (particularly important for embryos), alter migration patterns (including spawning), change food availability and feeding efficiency, and alter predator detection. These changes could thereby result in changes to fish densities and overall population structure.

New Gold predicted the following exceedances of the BC WQGs for the protection of aquatic life:

- Davidson Creek: nitrate (Operations), total zinc and total antimony (Closure and Post-Closure); and
- Creek 661: dissolved aluminum, total chromium and total zinc (Operations through Post-Closure).

New Gold stated that although exceedances of the long-term BC WQG for these parameters are anticipated, the predicted concentrations are lower than the short-term (acute) guidelines identified for each parameter. Mercury concentrations are also predicted to increase during Operations as a result of mercury being mobilized from soils flooded during the enlargement of Lake 16, and in Creek 705 because outflows from Lake 16 would be re-directed to drain to Creek 705. New Gold concluded that mercury and methyl-mercury concentrations would not increase to a level that could significantly affect rainbow trout growth, survival or reproduction.

Blackwater-related changes to nutrient concentrations could also affect the aquatic resources (primary producers and benthic invertebrates) that contribute to fish prey. Changes in nutrient concentrations are predicted in Davidson Creek, Creek 661, and Chedakuz Creek (downstream of Davidson Creek) during all Blackwater phases due to seepage of water from the TSF. Nitrogen and phosphorus are required nutrients for the growth and productivity of primary producers, and Blackwater is predicted to contribute nutrients to downstream watercourses at greater concentrations than would exist under baseline conditions. This change in nutrients could result in a change in the quantity and composition of primary producers. However, New Gold concluded that nutrient concentrations changes would be within normal ranges of variability.

Augmenting streamflow in Davidson Creek by adding water from Tatelkuz Lake is predicted to change water temperatures in Davidson Creek, which could affect kokanee embryo development and the growth of juvenile rainbow trout during Construction through Post-Closure. However, New Gold assessed that the predicted change in temperature is within the natural variation of the creek and is unlikely to result in a detectable change on fish.

The construction of the TSF and surface water and seepage management infrastructure would alter streamflows in Davidson Creek, Creek 661, Creek 705, and lower Chedakuz Creek. Changes in water quantity could affect the extent and quality of fish habitat, which can in turn affect growth, survival, reproduction, and behavior patterns (for example, migration). It could also cause indirect effects, such as altering primary production or benthic invertebrate production as fish food sources. New Gold concluded that effects on fish downstream of the mine site due to changes in flow are highly probable, but the

magnitude of the effect would vary depending on watershed. Blackwater would affect fish and fish habitat in Davidson Creek and Creek 661, but effects are not expected for lower Chedakuz Creek. Changes to flows in the Creek 705 watershed are mediated by Lake 15 downstream of the diversion location. Given the capacity of Lake 15, by diverting these increased flows into Lake 15 the effects of peak flows on Creek 705 would be dampened. Potential channel effects in Creek 705, immediately downstream of Lake 15, may include channel widening and erosion in some areas with soft banks. New Gold predicted that an increase in flows in Creek 705 would increase the amount of fish habitat, all other factors being equal.

New Gold considered that the diversion of Lake 16 to Lake 15 may result in an exchange of pathogens or introduce non-resident biota into Lake 15. In addition, the mixing of genes among the two populations of rainbow trout may reduce the genetic uniqueness of each population. New Gold found that: 1) there is no evidence of barriers to migration between the rainbow trout populations in the two lakes; 2) the two populations of rainbow trout do not appear to be unique based on genetic testing; and 3) topography suggests connectivity between the two lakes may be possible during very high runoff events. New Gold concluded that any adverse effects such as pathogen introduction or loss of genetic diversity are unlikely.

Adding water from Tatelkuz Lake to augment flows to Davidson Creek may alter the olfactory environment and thereby disrupt the ability of salmonid fish populations to recognize and home to natal spawning areas in Davidson Creek. The effect may occur from Construction through Closure. The degree of olfactory change would vary in space (as the Tatelkuz Lake water is diluted with groundwater and surface flows downstream of the TSF), and over time (depending on the amount of flow augmentation needed at different times of year). New Gold estimated that the proportion of water originating from Tatelkuz Lake would be greatest during the June rainbow trout migration and spawning period and at moderate levels during the July-August kokanee spawning period. Water chemistry of the migration route to Davidson Creek would not be altered by Blackwater. New Gold concluded that concentrations of native Davidson Creek water would be high enough at its confluence that Davidson Creek should remain recognizable to spawners, although they may avoid upper reaches of Davidson Creek as the concentration of Tatelkuz Lake water increases. Spawning fish that cannot locate their natal spawning grounds in Davidson Creek may stray to adjacent creeks such as Turtle Creek (in which kokanee and rainbow trout are naturally present) or lower Chedakuz Creek (in which kokanee and rainbow trout are naturally present). Fish from these populations may also stray to Davidson Creek. Rainbow trout and kokanee are naturally adaptive to changes in environment, and New Gold expects that fish hatched in the flow-augmented Davidson Creek would imprint on this water chemistry and be capable of homing back to it. Therefore, while fish spawning may be disrupted, it is not expected to cease. However, it is possible, given the olfactory changes, that the number of fish spawning in Davidson Creek may temporarily fall below the threshold required to maintain population levels.

FISH HABITAT LOSS AND ISOLATION

New Gold predicts fish habitat loss and isolation as a result of the mine footprint and mine components, changes in streamflows, and water withdrawal from Tatelkuz Lake. New Gold's revised assessment during Application Review predicted approximately 125 ha of riparian habitat to be destroyed or altered and 30 ha of instream or lake habitat to be affected. New Gold proposes to compensate for the loss of fish habitat on the mine site through the salvage of fish and the offsetting measures presented in the FMOP, including

offsetting 24 ha of riparian habitat and 36 ha of instream/ lake habitat. New Gold acknowledged that this would result in a net loss of 101 ha of riparian habitat.

Development of infrastructure on the mine site during Construction, and riparian habitat clearing associated with linear components, would result in loss of fish habitat in the upper reaches of the Davidson Creek and in a number of headwater streams to Creek 661. Loss of fish habitat is predicted to affect the spawning, juvenile rearing, adult foraging, and over wintering of resident fish, including rainbow trout.

There also would be isolation of habitat within the upstream portion of Davidson Creek, its tributaries and Lake 16. Isolation of fish habitat is predicted to affect productive capacity in the affected streams due to the removal of overwintering habitat, rainbow trout movement and migration routes, and water, nutrient, and benthic macroinvertebrate drift to lower stream reaches.

The diversion channel between Lake 16 and Lake 15 would prevent isolation of the rainbow trout population in Lake 16 and allow rainbow trout to move to Lake 15 and utilize spawning habitat in that system. There is some uncertainty as to whether a weir or outlet control structure would be needed to maintain the required flow direction between Lake 16 and Lake 15, and if so, how this would affect fish movement. New Gold stated that additional studies to support design of the Lake 16 enlargement and connector channel, including a detailed land survey, would be completed through detailed design during permitting.

Blackwater may alter the flow of watercourses downstream of the mine site from stream diversions as well as alter stream depths and velocities. This could affect instream habitat conditions, such as altering the seasonal timing of flows (suitable flows are needed for each fish species and life stage present) and altering the physical habitat structure in streams (distribution of substrates, including fine sediments, distribution woody debris, and riparian habitat). Changes in streamflow could affect kokanee using Davidson Creek, Creek 661, and Chedakuz Creek for spawning and incubation, and rainbow trout using Davidson Creek, Creek 661, Creek 705, and Chedakuz Creek for spawning and fry and juvenile rearing. To mitigate for the changes in fish habitat availability from flow alterations, New Gold has incorporated a FWSS which would pump water from Tatelkuz Lake, to a FWR which discharges directly to Davidson Creek. New Gold concluded that the reduction of streamflows in lower Chedakuz Creek and in Davidson Creek would be mitigated by these inputs. This would also be mitigated by diverting clean catchment water around the mine site to Davidson Creek below the TSF and by treating and discharging mine contact water to Davidson Creek below the TSF during some project years, provided input volumes were sufficient to maintain Instream Flow Needs (IFN) modelled for Davidson Creek and lower Chedakuz Creek. With this mitigation in place, New Gold predicted the following changes in fish habitat due to streamflow alteration:

- **Davidson Creek**: less than 10 percent habitat reduction during Construction and Operations. Greater than 10 percent habitat loss may occur during Post-Closure due to reduced winter minimum flows;
- **Lower Chedakuz Creek**: less than 10 percent habitat loss during all Blackwater phases;
- **Creek 661**: less than 10 percent habitat loss is expected during all Blackwater phases in the portion of Creek 661 downstream of Creek 505659, with the exception of 13 percent habitat loss during

early Operations. Upstream of Creek 505659 would be more significantly affected as all fish habitat downstream of this creek would be lost. However, 100 percent of the habitat would be offset for compensation; and

- **Creek 705**: Habitat availability may increase up to 10 percent during all phases.

Littoral habitat loss is predicted to occur from the change in water surface elevation in Tatelkuz Lake from water withdrawal used for flow augmentation in Davidson Creek. Tatelkuz Lake levels may be altered as a result of water withdrawal. The impoundment of the upper Davidson Creek watershed, diversion of Creek 661 tributaries and Lake 16 during the development of mine site infrastructure, and water withdrawal from Tatelkuz Lake are predicted to result in alterations that could impact the availability of fish habitat in Davidson Creek, Creek 661, Creek 705, and lower Chedakuz Creek. In addition, withdrawal of water to augment the flow of Davidson Creek could also cause fish or fish egg stranding, and mortality of fish embryos in the littoral zone of Tatelkuz Lake. However, New Gold stated that the reduction in littoral habitat is anticipated to be less than one percent during an average year and less than 2.5 percent during a 1:50 dry year, and thus within the range of natural variation. Project changes to increase recycling of mine site water for use in the mill would further ameliorate impacts to Tatelkuz Lake.

Construction methods proposed for some of the stream crossings required for linear Blackwater infrastructure could cause barriers to fish passage along streams.

11.2.3 MITIGATION MEASURES PROPOSED IN THE APPLICATION

In order to avoid impacts to sensitive fish habitat, New Gold proposes the following “mitigation by design”:

- Cluster mine site facilities as closely together as possible;
- Locate the TSF and all mine site facilities in the headwaters of Davidson Creek and Creek 661 to limit the number of watersheds potentially affected;
- Avoid sensitive kokanee spawning habitat;
- Avoid the Blackwater River watershed, a designated Heritage River with special importance to Indigenous groups; and
- Make use of existing access roads and watercourse crossings for site access, and of existing roads and RoW for the transmission line.

Additional mitigations for key Blackwater effects to fish and fish habitat are summarized below.

MORTALITY OR INJURY

- Avoid or minimize instream works to the extent possible;
- Stage construction to minimize the habitat isolated at any one time;
- Implement a Fish Salvage Plan, including salvage of fish from work and blasting areas, and return to their creeks downstream of the work areas;
- Adhere to in-stream construction reduced risk timing window for rainbow trout (July 15 to April 15) in streams for which salvage has not already occurred;

- Implement an Aquatic Resources Management Plan, including identifying reduced risk timing windows;
- Implement an ESCP, including erosion control measures (for example, ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, SCPs, erosion control mats and use of flocculants);
- Follow DFO's Guidelines for the Use of Explosives in or near Canadian Fisheries Waters;
- Use fish screens, as required by DFO, for intake pipes at the Tatelkuz Lake water intake and design the FWR outlet pipes to reduce direct mortality during Operations;
- Limit the volume of water that would be withdrawn from the FWSS should adverse effects on the littoral zone of Tatelkuz Lake be anticipated (for example, the result of an expected dry year) or become apparent as a result of monitoring; and
- Enforce a no fishing policy for all mine personnel and contractors while travelling on company business or while staying in mine site accommodations provided by New Gold.

FISH HABITAT LOSS AND ISOLATION

- Implement a FMOP, which describes measures to create, enhance, and rehabilitate fish habitat, including riparian habitat along affected streams and lakes. Where no mitigation is possible, construct replacement habitat in Davidson Creek and other watersheds;
- Divert Lake 16 and reach 12 of Davidson Creek through a newly constructed stream channel to Lake 15 of the Creek 705 watershed to provide downstream connectivity. Construct the Lake 16 diversion in stages to ensure that no fish are stranded during Construction;
- Construct a dam adjacent to the TSF Site C saddle dam, which would also increase the size of Lake 16, and strengthen the gradient of a hydraulic barrier preventing seepage from TSF Site C towards Lake 16;
- Undertake any necessary instream works during the reduced risk timing window for rainbow trout (July 15 to April 15) to avoid interruptions to spawning migrations in streams for which salvage has not already occurred;
- Implement an Aquatic Resources Management Plan, including identifying reduced risk timing windows, and measures related to site re-vegetation and bridge and riparian area maintenance;
- Use open-bottom culverts or clear-span bridges for new crossings of fish-bearing streams;
- Install an open-bottom structure to replace a currently improperly installed closed-bottom culvert located in the fish-bearing stream along the airstrip access road, thereby removing the existing barrier to fish passage;
- Maximize water recycle on-site to minimize water withdrawal from Tatelkuz Lake and reduce the effects of flow reduction in lower Chedakuz Creek;
- Apply sediment control measures to mitigate effects to macro-invertebrate production;
- Pump water from Tatelkuz Lake into Davidson Creek during late Construction, Operations, and Closure, via a FWSS to maintain Davidson Creek flow; and
- Divert non-contact water upstream of the TSF and open pit, and release into Davidson Creek downstream of the ECD.

CHANGES IN HEALTH, GROWTH, REPRODUCTION, AND BEHAVIOUR

- Optimize the intake depth for Tatelkuz Lake water transferred to Davidson Creek to capture water temperatures that are the most similar to baseline temperatures in Davidson Creek;
- Implement a temperature and flow control system (TFCS) on the FWSS to discharge waters to Davidson Creek that are most similar to baseline temperatures;
- Install a reservoir bypass line to allow for direct discharge of water withdrawn from Tatelkuz Lake to Davidson Creek;
- Implement a seepage management system (ECD and seepage collection system) to capture seepage from the TSF and prevent discharge and to downstream waters;
- Strip all vegetation and topsoil up to the high-water line in areas to be flooded when Lake 16 is enlarged to reduce the mobilization of mercury;
- Construct and operate WTPs to treat mine seepage and contact water prior to discharge;
- Implement an ESCP to minimize erosion of soils and sedimentation;
- Implement a Construction Environmental Management Plan (CEMP) to avoid fuel and fluid spills to watercourses and provide measures for clean up;
- Implement a Hazardous Materials Management Plan;
- Implement an AEMP, outlining a structure and scope of the monitoring program for fish and aquatic habitat in watercourses within, immediately adjacent and downstream of Blackwater; and
- Implement an AEMP, including monitoring kokanee and rainbow trout populations to evaluate the effects to homing in Davidson Creek, monitoring sediment quality in Lake 16, and initiating management options, such as adult or egg transfers and the use of artificial homing agents, in the event of observed adverse effects to fish.

11.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

During Application Review, several issues raised led to the development of further information related to fish VCs, which included several memos, a complete update to water quantity and water quality modelling, and an updated FMOP. The key issues below were identified based on a review of the Application with feedback from the Working Group. Several major changes in the design of Blackwater were proposed during Application Review to reduce impacts to surface water quantity and quality, and thereby to fish and fish habitat. These changes to water VCs are detailed in Section 10 of this Report.

EFFECTS TO OTHER FISH SPECIES

LDN, UFN, and CSFNs raised concerns about the use of only kokanee and rainbow trout as indicator species and that other fish species, particularly those used by Indigenous groups, need to be considered.

New Gold stated that kokanee and rainbow trout were selected because they are the two most common fish species in the LSA and RSA, are both targeted by recreation and Aboriginal fisheries, and use a range of habitats types. New Gold noted that their life histories, habitat preferences, and diets are sufficiently different and that potential effects of Blackwater on fish and fish habitat in

streams and lakes would affect one or both species. New Gold also developed a memo during Application Review discussing the potential effects of the mine site development on mountain whitefish, burbot, northern pike minnow, and suckers. New Gold concluded that if the mitigation measures proposed by New Gold to address effects to fish and fish habitat (refer to Section 11.2.3 above) are applied, those measures would also be protective to these species.

The EAO notes that subsequent permitting could require an AEMP, but whether that is required would not be known until the permitting stage. Given the importance of the proposed mitigation measures to address potential effects on kokanee, rainbow trout, as well as other fish species present in the Blackwater area, the EAO proposes Condition 30: Aquatic Effects Management Plan that would require New Gold to develop and implement an AEMP which would include monitoring downstream effects on fish, measures during Operations, Closure and Post-Closure, and employing adaptive management as needed.

FISH HABITAT BASELINE

LDN and UFN voiced concern regarding the sufficiency of the baseline data used for fish and fish habitat assessment to capture the variability within habitats. Questions were also raised as to the adequacy of sampling for benthic invertebrates to describe impacts.

New Gold stated that the sampling locations and collection methods followed ENV guidance, and that the locations sampled represented the areas where Blackwater had the potential to have adverse effects. New Gold concluded that the AEMP would be developed with the Working Group, include analysis and methodologies to detect Blackwater-related effects in the aquatic environment, and be updated as necessary to ensure that data collection and analysis is adequate.

The EAO is of the view that the baseline data was sufficient for the purpose of an EA effects assessment. The EAO proposes Condition 30: Aquatic Effects Monitoring Plan which would require New Gold to collect additional baseline to inform the required monitoring for the health of the aquatic environment. The Plan would be developed in consultation with provincial agencies and Indigenous groups.

TATELKUZ LAKE AND DAVIDSON CREEK

DFO expressed concerns about the potential drawdown of water in Tatelkuz Lake to augment the flow in Davidson Creek, including whether the predicted maximum lake level drawdown of 11 centimetres (cm) fully represented the potential impacts under dry conditions. DFO also questioned whether water from Tatelkuz Lake would provide flushing flows (peak flows that flush sediment and debris, and clean river gravel), as well as supplemental water needs for the TSF during dry years, while still providing gravel recruitment (deposition of gravel in the river) during normal flow years. FLNRORD also noted concerns about impacts from sediment deposition and return of gravel supply.

In response, New Gold stated that a predicted 11 cm drawdown was for one in 50 year dry conditions. New Gold did not propose flushing flows in years drier than a one in 50 year return period. If a one in 50 year dry period occurs during the life of Blackwater, New Gold stated that the

FWSS would provide water at a rate consistent with the juvenile rainbow trout overwintering life cycle stage and then transition directly to the higher spring spawning flow. New Gold designed the augmented flow regime to provide sufficient flow to flush sediment and debris and clean gravel but would avoid flows high enough to wash gravel downstream and away from spawning areas.

DFO, FLNRORD, LDN, UFN, NWFN, SFN and StFN expressed concerns about the flow augmentation mitigation measure for Davidson Creek including: the alteration of flow regimes; water temperature; decreased water and sediment quality; genetic mixing of rainbow trout populations; and water composition changes which may alter homing and spawning success. DFO requested that New Gold more clearly describe mitigation measures and contingency plans to address uncertainties and recommended that the follow-up and monitoring plans be further developed.

In response, New Gold provided an updated water quality effects assessment to the Working Group and conducted additional modelling for water temperatures that incorporated updated water management plans. New Gold determined that the alteration of water temperature for rainbow trout and kokanee would be within the range of natural variability and is not likely to have significant effect on fish or fish habitat. New Gold noted that management design has flexibility to manage temperatures in Davidson Creek should monitoring indicate effects to fish productivity due to temperature changes.

Effects of Blackwater on water and sediment quality are discussed in the Groundwater, Surface Water and Sediment Quality chapter (Section 10 of this Report). With respect to impacts on fish from changes to water quality, New Gold responded that although there are elevated levels of dissolved aluminum, total chromium and total zinc, and nitrate relative to baseline in some water bodies, the effects on fish are not anticipated to result in biologically significant effects on aquatic health. The elevated levels would not be for a duration or at a level that would have acute toxicity to fish, the resident species are known to be resilient to stressors such as change in water quality, and there are no provincially, or federally listed fish species of conservation concern found in these creeks.

In response to concerns about genetic mixing, New Gold completed a genetic study of the rainbow trout present in Lakes 15 and 16 which are proposed to be connected. DFO agreed with New Gold that adverse effects from the diversion are unlikely and were satisfied with the genetic studies conducted by New Gold. New Gold assessed that despite being separate populations, the trout were close enough genetically that the reduction in biodiversity would be minor. New Gold has committed to conducting a parasite and pathogen inventory and comparison between Lake 15 and 16 prior to the diversion of the watersheds.

To address concerns regarding the alterations of the olfactory environment in Davidson Creek, New Gold stated that as salmonids like rainbow trout and kokanee are capable of adapting to new circumstances and changing behaviour. Fish are anticipated to adapt within a single generation so that any disruption would not affect the population. While fish spawning may be disrupted, it is not predicted to cease.

The EAO notes, that although the water chemistry is similar between Tatelkuz Lake and Davidson Creek, there is uncertainty as to whether fish homing would be affected by Blackwater. To maintain the olfactory environment in Davidson Creek, New Gold stated that it would rely on groundwater as a water source. However, New Gold also noted that groundwater would be significantly reduced in the creek. The EAO proposes Condition 30: Aquatic Effects Monitoring Plan which would require New Gold to monitor downstream effects on fish, fish habitat and effects from changes in surface water and sediment chemistry, as well as require adaptive management.

FISH HABITAT LOSS AND OFFSETTING

The EAO, DFO, FLNRORD and CSFNs identified concerns regarding fish habitat loss and offsetting, as riparian habitat loss was not accounted for in the initial FMOP. Only riparian areas related to wetlands (and not streams or lakes) were discussed in the fish and fish habitat portions of the Application. New Gold's assessment did not account for the adverse residual effects to aquatic VCs that could occur by clearing and riparian forest removal with respect to linear features. Concerns were also raised about New Gold's method of accounting for habitat gains, including considering the enlargement of Lake 16 to be fish habitat offsetting instead of a Blackwater component. DFO stated that the enlargement of Lake 16 is considered a design mitigation rather than an offsetting measure. However, DFO indicated that complexing the habitat (habitat creation) in Lake 16 could be considered as a habitat offsetting measure, as would the connecting diversion channel between Lake 16 and Lake 15.

New Gold updated the FMOP and calculated riparian habitat losses as 125 ha under or upstream of the mine, and 1.7 ha along the roads and transmission lines. The FMOP was also updated to address concerns around the method for accounting for habitat gains. New Gold updated its proposed offsetting to address habitat restoration/ enhancement, habitat creation and chemical/ biological manipulations (for example, fish stocking or invasive species management).

LDN and UFN expressed concerns about the adequacy of New Gold's assessment of the potential loss of fish habitat in Tatelkuz Lake, and in particular that the assessment failed to adequately consider shallow-sloped littoral zones and sand/ gravel peninsulas, with associated impacts to fish populations. LDN and UFN requested that New Gold complete follow-up studies on fish habitat units in the northwest and southeast shallow-sloped habitat in Tatelkuz Lake prior to commissioning the FWSS. LDN and UFN noted that conducting the studies prior to commissioning the FWSS would allow time to re-evaluate the degree of withdrawal from the Tatelkuz Lake if studies show that there could be higher magnitude effects on habitat than predicted in the Application.

In response, New Gold stated that fish and fish habitat studies of Tatelkuz Lake were conducted from 2011 to 2013, and that it considered the information provided in the Application to be sufficient for the assessment. New Gold noted that Tatelkuz Lake generally has a steep littoral zone, which represents 11 percent of the Tatelkuz Lake area, and indicated that gravel-dominated habitat would be reduced by less than 10 percent from baseline conditions during all seasons in an average year. New Gold also stated that the magnitude of reduction of the littoral habitat was predicted to be negligible, and that withdrawals from Tatelkuz Lake would be further reduced relative to what was considered in the assessment by increasing on-site water recycling and reuse (for example, sourcing

process water from site contact water sources), diverting non-contact water around the TSF to Davidson Creek and implementing an adaptive management strategy for IFN in Davidson Creek. New Gold would use seasonal and/or life stage specific IFN requirements to derive pumping volumes from Tatelkuz Lake to minimize withdrawals to what is necessary to meet the instream flow need in Davidson Creek. Prior to the commissioning of the FWSS, New Gold committed to 1) conduct studies on fish habitat units in the northwest and southeast shallow-sloped habitat of the Tatelkuz Lake; and 2) measure littoral zone fish habitat quantity and quality in Tatelkuz Lake at transects around the lake once per year in the low-flow period mid-summer. New Gold suggested that the survey may be conducted for an initial period of three years, and committed to consulting UFN and LDN, and other Indigenous groups on the draft AEMP, including the follow-up studies, and incorporating culturally-relevant biomagnification indicators.

CSFNs raised concerns around New Gold's removal of culverts as offsetting measures. They noted that the culverts would have to be removed by the forestry companies; therefore, New Gold's proposal did not represent an incremental improvement. As well, CSFNs noted the importance of habitat restoration to Ormond Creek.

New Gold responded that the culvert removals proposed in the initial FMOP related to orphan culverts for which forestry companies have no responsibility. However, the revised FMOP no longer proposes culvert removal. The culverts were field assessed and were determined not to be barriers to fish. The revised FMOP includes a commitment to conduct research that would inform potential habitat restoration of Ormond Creek, as part of a beaver and salmonid co-management project. New Gold confirmed its interest in collaborating with CSFNs on this project. Initial research is expected to be required to bring together traditional knowledge from the CSFNs, existing data on salmon escapement collected by DFO, and expertise in beaver and fish ecology. These information sources would be used to understand possible reasons for the decline in sockeye salmon in Ormond Creek and a determination of whether a viable habitat restoration project exists.

The EAO understands that the FMOP would be refined under the federal *Fisheries Act* process. The federal government has set out a requirement in its Decision Statement of April 15, 2019 that New Gold develop and implement fisheries offsetting plan(s) to the satisfaction of DFO and ECCC and in consultation with Indigenous groups and to offset effects to fish and fish habitat. The EAO proposes Condition 30: Aquatic Effects Monitoring Plan, which would require New Gold to monitor for effects to fish and also proposes Condition 31: Tatelkuz Lake Protection Plan, which would require New Gold to monitor and mitigate the effects of lake level drawdown on fish and fish habitat in the littoral zone, including habitat requirement to maintain and protect fish eggs.

11.4 CHARACTERIZATION OF RESIDUAL EFFECTS

In characterizing the residual effects of Blackwater, the EAO has considered the mitigations proposed by New Gold. The EAO has also considered in its analysis the proposed conditions and proposed requirements in the CPD, should decision-makers issue an EAC. The EAO notes that New Gold would be required to

undertake work in accordance with the federal *Fisheries Act,* and provincial WSA, EMA, *Mines Act* and all requirements related to federal and provincial permits or authorizations.

Based on information and input received during the EA process, the EAO concludes that Blackwater would result in the following residual adverse effects:

- Reduced fish habitat quantity and quality due habitat loss or isolation and streamflow alteration;
- Changes in health, growth, reproduction, and behaviour due to decreased surface water quality, change of nutrients, and effects from proposed mitigation/ offsetting (change in temperature, mercury mobilization, exchange of pathogens, and genetic mixing); and
- Mortality or injury to fish.

The EAO proposes the following certificate conditions to directly address issues with Fish and Fish Habitat:

- Condition 30: Aquatic Effects Monitoring Plan;
- Condition 31: Tatelkuz Lake Protection Plan.

The EAO also proposes the following other certificate conditions relevant to Fish and Fish Habitat:

- Condition 13: Construction Environmental Management Plan (including erosion and sediment control, material handling, spill prevention and response);
- Condition 19: Environmental Monitoring Committee;
- Condition 26: Water Quality Management;
- Condition 27: Water Quality Report;
- Condition 28: Chedakuz Creek and Tatelkuz Lake Surface Water Quality Monitoring Plan;
- Condition 29: Transmission Line Sedimentation Monitoring Plan;
- Condition 32: Cyanide Management Plan;
- Condition 33: Mine Waste and Water Management Plan; and
- Condition 36: Accidents and Malfunctions Administration and Communication Plan.

The EAO's characterization of the expected residual effects is summarized below (Table 31), as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 31: Summary of Residual Effects for Fish and Fish Habitat

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Low to High Resilience	The context for the Fish and Fish Habitat VCs was rated as low to high resilience to stress. The context was rated as low because two blue-listed species are present in the Blackwater area: the brassy minnow is present in Tatelkuz Lake and the Rocky Mountain Capshell was found in Lake 16. Most of fish found in the Blackwater area are rainbow trout and kokanee. Rainbow trout and kokanee are understood to be resilient to modest changes in flow, which occur under natural conditions. Rainbow trout would be expected to adapt to both the relocation sites and later, to the constructed offset habitat. Resilience of habitat quality in the Blackwater area is high given the currently available habitat of sufficient quality to support fish and generally low levels of metals concentrations (with some exceptions).
Magnitude	Change in fish habitat quality and quantity: Low to Moderate	A permanent loss of fish habitat is predicted in the upper reaches of Davidson Creek, and habitat isolation is expected in the upstream portions of Davidson Creek, and its tributaries and Lake 16. The diversion channel between Lake 16 and Lake 15 would prevent isolation of the rainbow trout population in Lake 16. Habitat loss would be required to be offset under the federal *Fisheries Act* and therefore the overall loss is assessed as low in magnitude. Reduction of littoral habitat in Tatelkuz Lake is predicted to be low (less than one percent during an average year and less than 2.5 percent during a 1:50 dry year) and within the range of natural variation. The magnitude of streamflow-related fish habitat effects in lower Chedakuz Creek, Creek 661 (downstream of Creek 505659) is anticipated to be low because streamflow changes would result in less than 5 percent reductions in rainbow trout and kokanee habitat. The magnitude of streamflow-related fish habitat effects on Davidson Creek is predicted to be moderate during Construction and Post-Closure because the winter minimum flows supporting fish habitat may change by more than 10 percent from baseline. Additionally, a reduction in kokanee spawning habitat availability may exceed 10 percent change from baseline during Post-Closure. All of the fish habitat present in Creek 505659 is assumed to be lost by the change in streamflow and would be offset as part of the Fish Habitat Offset Compensation Plan, as required under federal regulations, and New Gold would salvage and relocate fish
	Changes in health, growth, reproduction, and behaviour: Low to Moderate	Decreased **surface water quality** is predicted to have a moderate magnitude residual effect on fish. In Davidson Creek, two COPCs were identified: nitrate (during Operations) and total zinc (during Closure and Post-Closure). In Creek 661, three COPC were identified during Operations through Post-Closure: dissolved aluminum, total chromium and total zinc. All COPC concentrations are predicted to be higher than the BC WQG for aquatic life, but lower than the aquatic life toxicity thresholds identified for each parameter. Residual effects on rainbow trout due to increases **in mercury concentrations** in Lake 16 and Creek 705 from Lake 16 enlargement are predicted to be low in magnitude, as they are not predicted to reach concentrations that would affect the growth, survival or reproduction. The provincially blue-listed Rocky Mountain

CRITERIA	ASSESSMENT RATING	RATIONALE
		capshell is present in Lake 16 and could potentially be more sensitive to increases in mercury concentrations. Residual effects to fish associated with **change in nutrients** is predicted to be moderate as concentrations are predicted to be 50 percent greater than baseline concentrations but within the range of natural variability. Change in **water temperatures** in Davidson Creek is predicted to have low magnitude residual effects on fish and fish habitat. The changed temperature is anticipated to meet the life history requirements for fish and be within the ranges of natural temperature variation in Davidson Creek. Given the genetic similarities between the rainbow trout populations in the Davidson Creek and Creek 705 watersheds, the residual effect on fish due to an **exchange of pathogens and genetic mixing** are predicted to be low in magnitude, and that a minor reduction in biodiversity from expected hybridization of these populations may occur. Flow augmentation of Davidson Creek by water pumped from Tatelkuz Lake may disrupt **salmonid homing** to Davidson Creek. Residual effects on fish are predicted to be moderate in magnitude because fish spawning would be temporarily affected, and populations may decrease as a result.
	Mortality or injury to fish: Low	With the implementation of mitigation measures to prevent fish mortality or injury, the residual effects to fish are predicted to be low in magnitude and would not result in a measurable change in the population.
Extent	Change in fish habitat quality and quantity: Local	Fish habitat loss or isolation is predicted to be local in extent, located in the upper reaches of the Davidson Creek and its tributaries, and the headwaters of Creek 661, and Lake 16. Changes in streamflow would be limited to the LSA, in particular to Davidson Creek, Chedakuz Creek, Creek 661 (and Creek 505659) and Creek 705. Residual effects associated with loss of littoral habitat are restricted to Tatelkuz Lake.
	Changes in health, growth, reproduction, and behaviour: Local	The extent of residual effects on fish related to changes in health, growth, reproduction, and behaviour are predicted to be local in extent (restricted to the LSA), where Blackwater has direct interaction with watercourses.
	Mortality or injury to fish: Local	The residual effect is predicted to be local in extent, and limited to the upper Davidson Creek, the headwaters of Creek 661, and Tatelkuz Lake in the LSA, where Blackwater has direct interaction with watercourses.
Duration	Change in fish habitat quality and quantity: Permanent	Residual effects on fish as a result of habitat loss and isolation are predicted to be permanent. Instream habitat loss and isolation is expected to be permanent and would last through Post-Closure. Riparian habitat loss is expected to be long-term, returning to baseline conditions during Post-Closure. Littoral habitat reduction is predicted through to Closure (until components of the FWSS are decommissioned), and changes to streamflow are predicted during all Blackwater phases. Overall, the residual effects are not likely to recover to baseline.
	Changes in health, growth,	Residual effects on fish due to decreased surface water quality, change of nutrients, and effects from proposed mitigation/ offsetting (change in

CRITERIA	ASSESSMENT RATING	RATIONALE
	reproduction, and behaviour: Permanent	temperature, exchange of pathogens, and genetic mixing) are predicted to be permanent, and last into Post-Closure. Mercury mobilization is predicted to be long-term (approximately 30 years).
	Mortality or injury to fish: Permanent	Residual effects on fish due to mortality or injury are predicted to be permanent, and last through to Closure (until the components of the FWSS are decommissioned).
Frequency	Change in fish habitat quality and quantity: Continuous	The residual effects on fish habitat quality and quantity are expected to occur continuously through Post-Closure.
	Changes in health, growth, reproduction, and behaviour: Frequent to Continuous	Residual effects on fish health, growth, reproduction, and behaviour are primarily predicted to occur continuously, throughout all Blackwater phases. Residual effects due to reduced surface water quality are predicted to occur intermittently during Operations and Post-Closure, and disruption to fish homing is predicted to occur frequently during the adjustment period when the FWSS begins operating during Construction, when the FWSS ceases operation during Post-Closure, and finally when the WTP ceases during Post-Closure.
	Mortality or injury to fish: Continuous	Mortality or injury to fish is predicted to occur continuously through Closure (until the components of the FWSS are decommissioned).
Reversibility	Change in habitat quality and quantity: Irreversible	Instream habitat loss and isolation are considered irreversible. However, considering that fish habitat losses would be offset with habitat of similar function and attributes, the residual effect of habitat loss is considered partially reversible. Streamflow for Davidson Creek, Lower Chedakuz Creek, and Creek 661 (upstream of Creek 505659) are expected to return to baseline flow conditions during Post-Closure. However, there is some uncertainty regarding the return of gravel supply and overwinter flows to baseline conditions. Given the uncertainty and reversibility very far into the future, the residual effects due to changes in streamflow are considered to be irreversible. Residual effects on fish habitat are predicted to be irreversible for Creek 661 (downstream of Creek 505659), Creek 505659 and Creek 705 due to the TSF spillway, open pit, and the permanent diversion. Residual effects due to littoral habitat loss are reversible in the long-term during Post-Closure, because water withdrawals from Tatelkuz Lake would be discontinued at the end of Closure. Given how far into the future, the effects are considered irreversible.
	Changes in health, growth, reproduction, and behaviour: Irreversible	Effects to fish from decreased water quality, change in nutrients, increased temperature, and exchange of pathogens and genetic mixing are predicted to be irreversible. Complete reversibility of surface water quality to baseline conditions is unlikely, or very far into the future. As such, the residual effects are considered to be irreversible. Active water treatment would also be required by New Gold in perpetuity. Although mercury concentrations in Lake 16 are predicted to return to baseline conditions, it is in the very far future (approximately 30 years). Disruption of fish homing may be reversible in long-term because water inputs and the olfactory environment in Davidson Creek would be expected to remain relatively constant for the rainbow trout and kokanee populations spawning there.
	Mortality or injury to	Mortality or injury to fish is considered irreversible.

CRITERIA	ASSESSMENT RATING	RATIONALE
	fish: Irreversible	
Likelihood	Change in habitat quality and quantity: High	The habitat loss and isolation and changes in streamflow resulting from Blackwater are unavoidable, so the likelihood of this effect is high.
	Changes in health, growth, reproduction, and behaviour: High	There is a high likelihood of residual effects on fish health, growth, reproduction and behaviour due to decreased surface water quality, mercury mobilization, change in nutrients, streamflow alteration, water temperature, exchange of pathogens, and genetic mixing resulting from Blackwater that are unavoidable. Although the water chemistry is understood to be similar between Davidson Creek and Tatelkuz Lake, there is uncertainty as to whether fish homing would be affected by Blackwater. Residual effects are considered likely given the importance of olfactory cue to fish homing behaviour.
	Mortality or injury to fish: High	There is a high likelihood of a loss of fish in the upper reaches of Davidson Creek and Creek 661, and in Tatelkuz Lake despite New Gold's proposed avoidance and mitigation.
Significance Determination	The EAO considered the six factors, and gave weight to the magnitude, extent and reversibility of potential effects. In the EAO's characterization of residual effects, effects on Fish and Fish habitat are predicted to be low to moderate in magnitude and local in extent. All residual effects are predicted to be irreversible (or reversible in the very far future), with the exception of fish habitat loss that is partially reversible because losses would be offset with habitat of similar function and attributes. There are no predicted far-reaching effects on regional productivity or diversity of fish and fish habitat. In consideration of applicable provincial (EMA and *Mines Act*) and federal (*Fisheries Act* and MMER) legislative requirements, conditions identified in the TOC, and other key mitigation measures, the EAO concludes that Blackwater is not likely to result in significant adverse residual effects on Fish and Fish Habitat.	
Confidence	There is a moderate level of confidence in the likelihood and significance determinations based on the information, data provided in the Application and New Gold's analytical techniques used to support the assessment, as well as the re-evaluation provided during the Application Review. There is some uncertainty related to the effectiveness of New Gold's proposed mitigation and offsetting measures. To address the uncertainty of the potential residual effects and effectiveness of mitigation measures, the EAO proposes Condition 26: Water Quality Management to ensure all effluent meets appropriate water quality requirements. All discharges would also be required to meet EMA discharge permit conditions, if a permit were to be issued for Blackwater. The EAO also proposes Condition 29: Transmission Line Sedimentation Monitoring Plan and Condition 30: Aquatic Effects Monitoring Plan to monitor surface water and sediment quality and deposition, and downstream effects on fish, including the specific measures to monitor aquatic and fish communities. New Gold would require a *Fisheries Act* Authorization for the loss of fish habitat, including a fisheries offsetting plan to be completed the satisfaction of DFO and ECCC and in consultation with Indigenous groups. The EAO is satisfied that fish habitat losses would be adequately addressed as part of the *Fisheries Act* authorization process.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

11.5 CUMULATIVE EFFECTS ASSESSMENT

There are a number of past, present and reasonably foreseeable projects and activities in the RSA that have the potential to act cumulatively with Blackwater's residual effects on fish and fish habitat. Past, present and reasonably foreseeable future projects and activities that were considered in the cumulative effects assessment and considered under current baseline conditions.

The pipeline of the Pacific Gas Looping Project is expected to cross the Stellako River, which would also be crossed by the Blackwater transmission line. Exploration activities in the RSA have resulted in land disturbance, and New Gold is also continuing to explore deposits other than the Blackwater ore body both in and beyond the RSA. Logging activities in the RSA began in the 1980s and are presently active in the RSA and have an existing network of logging roads. There are numerous recreational activities in the RSA, including fishing. In the RSA, there are five guide outfitter operations that offer guided fishing trips and two commercial lodges (Tatelkuz Resort and Laidman Lake Ecolodge). Agriculture activities, in particular a ranch at the northern end of Tatelkuz Lake, are also occurring in the RSA. The construction, operations, decommissioning and restoration/ reclamation of the mine would occur over a period of 43 years or more, and water treatment has no proposed end date. During this period new forestry, mining exploration, and recreational activities could occur in some areas of the RSA.

The EAO is of the view that residual effects of Blackwater on fish and fish habitat would be restricted to the LSA, and unlikely to overlap any reasonably foreseeable future projects and activities beyond the LSA. Monitoring conducted as part of the AEMP is anticipated to detect unanticipated cumulative effects and address such effects through adaptive management.

The EAO concludes that significant cumulative effects to fish and fish habitat are not expected as a result of the effects of Blackwater interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

11.6 CONCLUSIONS

Considering the above analysis and having regard to the conditions, including Condition 11: Care and Maintenance Plan, Condition 13: Construction Environmental Management Plan; Condition 19: Environmental Monitoring Committee; Condition 26: Water Quality Management; Condition 27: Water Quality Report; Condition 28: Chedakuz Creek and Tatelkuz Lake Surface Water Quality Monitoring Plan; Condition 29: Transmission Line Sedimentation Monitoring Plan; Condition 30: Aquatic Effects Monitoring Plan; Condition 31: Tatelkuz Lake Protection Plan; Condition 32: Cyanide Management Plan; Condition 33: Mine Waste and Water Management Plan; and Condition 36: Accidents and Malfunctions Administration and Communication Plan identified in the CPD and TOC (which would become legally binding in the event that an EAC is issued), the EAO is of the view that Blackwater would not have significant adverse effects on the Fish and Fish Habitat VCs.

12 CULTURAL RESOURCES

12.1 BACKGROUND

Archaeological Sites, Historic Sites, and Palaeontological Resources were selected as VCs (the "cultural resources VCs") due to requirements regarding effects considered under the Act, the HCA and CEAA 2012. Blackwater would have the potential to directly and indirectly impact known and as-yet-unknown archaeological sites, sites with historical significance and paleontological sites. Blackwater activities that could impact cultural resources include movement, excavation or disturbance of soil during construction of linear components and mine site development.

12.1.1 REGULATORY CONTEXT

The following key federal and provincial legislation, policy, and regulatory guidelines apply to the cultural resources VCs:

- HCA (1996): Protects archaeological, historical, and/or palaeontological sites in BC. Archaeological remains are cultural materials or evidence associated with human activities that predate 1846 AD. These may include, but are not restricted to, a range of artifacts, culturally modified trees (CMTs), fire-altered rocks and features such as shelters, cache pits and rock art. Historical sites are those that originated since 1846;
- *Local Government Act* (1996): Provides protection and/or other conditions for sites listed on a heritage registry that may be established under the Act;
- Fossil Management Framework: Administered by the Heritage Branch of FLNRORD and provides guidance related to fossil management in BC;
- *Land Act*: Protects palaeontological resources and is administered by the Lands Branch of FLNRORD; and
- BC Archaeological Resource Management Handbook: Summarizes the archaeological impact assessment (AIA) and review process in BC.

EMPR (for the mine site) and FLNRORD (for project components located off the mine site and requiring approvals under the *Land Act*) also have requirements pertaining to archaeological resources. The Joint AIR for *Mines Act* and EMA Permits issued by EMPR and ENV require mine proponents to develop and implement an Archaeological Management and Impact Mitigation Plan, which would include employee training, chance-find procedures and protection of known archaeological sites. For a License of Occupation permit under the *Land Act*, a proponent is required to take all reasonable precautions to avoid disturbing any archaeological sites and notify the Province immediately of any archaeological finds. FLNRORD may also specify further requirements that New Gold would have to meet through management plans as part of a License of Occupation permit.

12.1.2 SPATIAL AND TEMPORAL BOUNDARIES

The LSA for cultural resources included six Blackwater facilities, plus a 500 m buffer around project facilities, encompassing a zone of potential direct project-specific effects. LSAs were defined for the following project components:

- Mine site;
- Transmission line (as realigned subsequent to the Application) and three re-route options;
- Mine site access road;
- Freshwater supply pipeline;
- Airstrip and access road; and
- Kluskus FSR realignment.

The RSA included an area of 33 km by 25 km around the Blackwater mine site footprint, and a 500 m buffer from the centerline in either direction of the transmission line, access road and freshwater supply pipeline footprints (one km total buffer).

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Description and Location of this Report.

12.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION AND SUPPLEMENTAL REPORTS

12.2.1 BASELINE INFORMATION

New Gold conducted the following studies for the Project, included in the original Application:

- An Archaeological Overview Assessment (AOA) was conducted in 2011 to identify areas of archaeological concern and to assess archaeological resource potential within proposed development areas.
- An AIA was conducted in fall 2012 and summer 2013 for the mine site footprint, mine access road, freshwater supply pipeline, transmission line, air strip and access road. This study found that the Blackwater development area has low to moderate potential for protected archaeological resources and historical heritage sites, and a moderate to high potential for cultural heritage resources (CHRs). CHRs include CMTs, trail blazes, traps, and traplines that postdate 1846 and are not protected under the HCA.
- A paleontological resources baseline study was conducted in June 2013. The study focused on the sedimentary rock component of the RSA and LSA and found that three of the project components (mine site, mine access road and freshwater supply pipeline) are overlain by glacial drift and do not contain any fossil sites.

An AOA is used to identify archaeological concerns and assess the archaeological resource potential within a proposed development area. An AIA is required where potential impacts to archaeological resources are identified in the AOA. An AIA includes an inventory and an impact identification and assessment.

Subsequently, New Gold conducted the following studies after making significant design changes to Blackwater:

- A supplemental report was prepared on transmission line access roads that had not been included in the original Application. The report was a desk-based exercise, which considered the 2011 AOA and 2012-2103 AIA to identify known cultural resources that could be affected by new access roads or upgrades to existing roads. It also included an assessment of residual effects on cultural resources. The report suggested a high likelihood that cultural resources – including as-yet identified or unknown archaeological, historical and palaeontological sites – might be encountered, disturbed or altered in whole or part, due to the construction of new access roads or upgrades to existing roads; and
- A memorandum was prepared to assess potential effects of the proposed new TLA (PNA), including three re-routes (Stellako, Mills Ranch and Big Bend), which were proposed to avoid and reduce potential effects on the environment and Aboriginal Interests. Approximately half of the 134 km PNA would be different from the alignment in the Application. The assessment considered existing baseline data sources (those noted above) and a search of the Remote Access to Archaeological Data in August 2017. New Gold concluded that the PNA and re-routes would have the same potential adverse effects, loss or alteration of known and as-yet identified cultural resources, as the TLA described in the Application.

Table 32 identifies cultural resources that have the potential to interact with Blackwater.

Table 32: Cultural Resource Sites Potentially Affected by Blackwater

Project Component	Archaeological Sites	Historic Heritage Sites and CHRs	Paleontological Sites
Mine Site	3	21	0
Mine Access Road	0	0	0
Airstrip and Access Road	0	0	0
FWSS	1	1	0
Proposed New Transmission Line Alignment (PNA)	6	10	3
Mills Ranch Re-route	1	2	0
Stellako Re-route	4	6	0
Big Bend Re-route	0	0	0
Kluskus FSR upgrades	0	0	0

According to the Application, interviews with LDN and StFN elders also indicated a number of sacred areas in the Blackwater area. Examples include Kuyakuz Mountain and the area east of Tatelkuz. UFN also identified historical burial areas and specified the cultural significance of Tzelbeguz Lake, a sacred fish gathering site outside the Blackwater project area. Please see Part C of this Report for further discussion of potential impacts on Aboriginal Interests.

12.2.2 POTENTIAL PROJECT EFFECTS

Cultural resources, including archaeological sites, historical heritage sites, CHRs and palaeontological sites, may be impacted by land-altering activities during Construction and Operation. The main activities potentially affecting cultural resources include:

- Construction:
  - Road realignment;
  - Alterations to previously undisturbed ground, and clearing; and
  - Excavating and/or grading for the mine footprint and development of mine infrastructure and components.
- Operation:
  - Soil and till salvage, handling and storage;
  - Reject pile disposal area; and
  - Operation of the concrete batch plant.

There is a possibility that land altering activities during mine Construction and Operation may impact unknown, yet to be identified or unrecorded archaeological sites, historical heritage sites, CHR or palaeontological sites. New Gold did not anticipate that cultural resources would be impacted during Closure or Post-Closure.

12.2.3 MITIGATION MEASURES

The Application and supplemental reports included the following mitigation measures:

- Avoid known archaeological and historic sites to the extent possible;
- Conduct an AIA of the final TLA in areas of moderate to high potential prior to commencing transmission line construction to help inform the final transmission line route;
- Conduct a desk-based paleontological study prior to commencing transmission line construction to help inform the final transmission line route;
- Identify "no work zones" within 0 – 50 m of known sites and flagging or temporarily fencing these areas;
- Identify "no work zones" within 50 – 150 m of project components and monitoring for indirect effects;
- If impacts are anticipated, or observed, then additional mitigation may be implemented which may include systematic data recovery;
- Monitor protected areas; and
- Implement an Archaeology and Heritage Resources Management Plan (AHRMP) (draft plan provided in Application Section 12, subsection 12.2.1.18.4.7), including a chance find procedure and process for reporting chance finds to Indigenous groups.

Mitigation measures would be expected to have high effectiveness for all cultural resource sites identified, because they are standard regulatory actions as outlined in the AIA Guidelines and have proven effective for mining projects as well as hydroelectric, forestry, and infrastructure developments.

12.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups and the Working Group. From these comments, the EAO distilled two central issues relating to cultural resources:

- Assessment methodology; and
- Specificity of mitigation strategies.

12.3.1 ASSESSMENT METHODOLOGY

During Application Review, CSFNs expressed concerns regarding the lack of a cumulative effects assessment for cultural resources, based on the requirements outlined in the AIR. CSFNs stated their view that cumulative effects on CSFNs cultural resources already exist and Blackwater's potential impact would likely exacerbate current impacts.

> New Gold responded that since the effects assessment in the Application concluded Blackwater would have negligible residual effects on archaeological sites, taking into account mitigation, a cumulative effects assessment was not required, in accordance with the methodology described in the Application.

StFN commented that the cultural resources effects assessment did not appear to include cultural sites defined by Indigenous groups.

> New Gold responded that an AIA of the final TLA footprint and a desk-based palaeontological study of the final TLA would be undertaken as part of *Land Act* permitting. New Gold would also develop and implement an AHRMP as part of its *Mines Act* permit application.
>
> New Gold committed to providing Indigenous groups with an opportunity to participate in the AIA and to review and comment on the AHRMP, including the chance find procedure. New Gold also committed to conduct site orientation and training of construction personnel on HCA requirements to promote staff awareness of the procedures for responding and reporting chance find archaeological sites.

The EAO notes that should Blackwater be granted an EAC, New Gold would face requirements in subsequent *Mines Act* and *Land Act* permitting related to cultural resources. To ensure all impacts to cultural resources would be addressed and to maintain consistency across project components, the EAO is proposing Condition 18: Cultural and Spiritual Resources Management Plan, which would require New Gold to prepare a Cultural and Spiritual Resources Management Plan in consultation with Indigenous groups. The Plan would require New Gold to work with Indigenous groups to identify areas of cultural or spiritual importance, to develop a chance find procedure to deal with cultural and archaeological finds, including how and where the found objects would be stored. The prepared Plan would then be reviewed by Indigenous groups, the EAO, FLNRORD, EMPR and ENV.

12.3.2 SPECIFICITY OF MITIGATION STRATEGIES

CSFN commented on the lack of specificity with regard to New Gold's mitigation strategies (for example, the proposed additional AIA field work).

> In response to this concern, New Gold committed to involving Indigenous groups in the AIA and providing an opportunity to review and comment on New Gold's draft AHRMP.

As noted above, there would be subsequent regulatory requirements pertaining to cultural resources. To ensure all impacts to cultural resources would be addressed and to maintain consistency across project components, the EAO is proposing Condition 18: Cultural and Spiritual Resources Management Plan, which New Gold would be required to develop in consultation with Indigenous groups, FLNRORD, ENV and EMPR.

12.4 CHARACTERIZATION OF RESIDUAL EFFECTS

After considering proposed mitigations, the EAO concludes that Blackwater would have the following residual effect on cultural resources:

- Loss or alteration of known, and as yet-unknown, archaeological, historic heritage and palaeontological sites.

The EAO's characterization of the expected residual effects of Blackwater on cultural resources is summarized in the table below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 33: Summary of Residual Effects for Cultural Resources

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Moderate resilience	Although heritage sites are protected under the HCA, there is potential for sites to be directly impacted by project components.
Magnitude	Low	Further information collection would assist with site identification and allow New Gold to reduce the number of sites that would be directly affected by Blackwater.
Extent	Local	Effects would be limited to a site or sites within the Blackwater footprint that would have direct ground disturbance.
Duration	Permanent	Any direct effects to or destruction of heritage sites by the development of Blackwater would be permanent.
Reversibility	Irreversible	Any disturbance or destruction of heritage sites would be irreversible.
Frequency	Once	Disturbance would occur once during Construction or Operation ground disturbance.
Likelihood	There is a is high likelihood that heritage sites would be adversely affected.	
Significance	**Not significant**: Blackwater-related effects on the cultural resources VCs are expected to be not significant (minor). While the effects for any specific site disturbed or destroyed would be permanent and irreversible, the information collection prior to construction, chance find procedures as well as protections under the HCA would substantially limit the number of sites affected.	

CRITERIA	ASSESSMENT RATING	RATIONALE
Confidence	**High**: Confidence in the overall effects assessment is high, given that provincially required mitigation programs would be conducted and would be based on input from Indigenous groups and regulatory agencies. As well, there is a high degree of confidence in the predictions as interactions between Blackwater and the cultural resources VCs are well understood and mitigations are expected to be highly effective.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

12.5 CUMULATIVE EFFECTS ASSESSMENT

Given the localized nature of the potential impacts on cultural resources, and in consideration of information made available in the Application and during Application Review, the EAO does not anticipate any significant cumulative effects to cultural resources VCs as a result of the effects of Blackwater interacting with effects of past, present and reasonably foreseeable projects and activities.

12.6 CONCLUSIONS

Considering the above analysis and having regard to the conditions identified in the CPD and TOC (which would become legally binding in the event that an EAC is issued), including EAO's proposed Condition 18: Cultural and Spiritual Resources Management Plan, the EAO is satisfied that the project would not have significant adverse effects on cultural resources VCs.

13 ECONOMIC EFFECTS

13.1 BACKGROUND

This chapter provides an assessment of the potential economic effects of Blackwater. Blackwater has the potential to positively or adversely affect economic conditions. During Construction, Operations, and Closure, Blackwater would procure labour, goods, and services, which New Gold stated will be largely from BC sources.

The information in this chapter is linked to the following Sections of this Report:

- Part A: Economic Benefits of Blackwater (Section 2.2.5 of this Report);
- Part B: Social Effects (Section 14 of this Report); and
- Part C (Section 18 of this Report).

Economic effects were assessed using VCs and associated indicators summarized in Table 34.

Table 34: Economic Valued Components and Indicators and/or Factors for Assessment

VALUED COMPONENTS	INDICATORS AND/OR FACTORS FOR ASSESSMENT
Provincial economy	• Provincial economy activity (GDP) • Provincial employment and labour income • Provincial government revenues
Regional and local employment and businesses	• Direct employment of local and regional residents • Blackwater 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

13.1.1 SPATIAL AND TEMPORAL BOUNDARIES

PROVINCIAL ECONOMY VC

A LSA and RSA were not defined for this VC. Instead, the spatial boundary used to assess Blackwater effects on the Provincial Economy VC was the boundary of the Province of BC.

REGIONAL AND LOCAL EMPLOYMENT AND BUSINESSES VC & REGIONAL AND LOCAL GOVERNMENT FINANCE VC

The economic effects assessment of Blackwater was based on a SERSA including:

- The LSA: Bulkley-Nechako Regional District (BNRD) Electoral Areas (RDEA) D and F; the Village of Fraser Lake; the District of Vanderhoof; and eleven populated Indian Reserves (see Figure 11); and
- The RSA: the Fraser-Fort George RDEA C; the Bulkley-Nechako RDEAs C and B; the City of Prince George; the Village of Burns Lake; the District of Fort St. James; and twelve populated Indian Reserves (see Figure 11)

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Scope and Location of this Report.

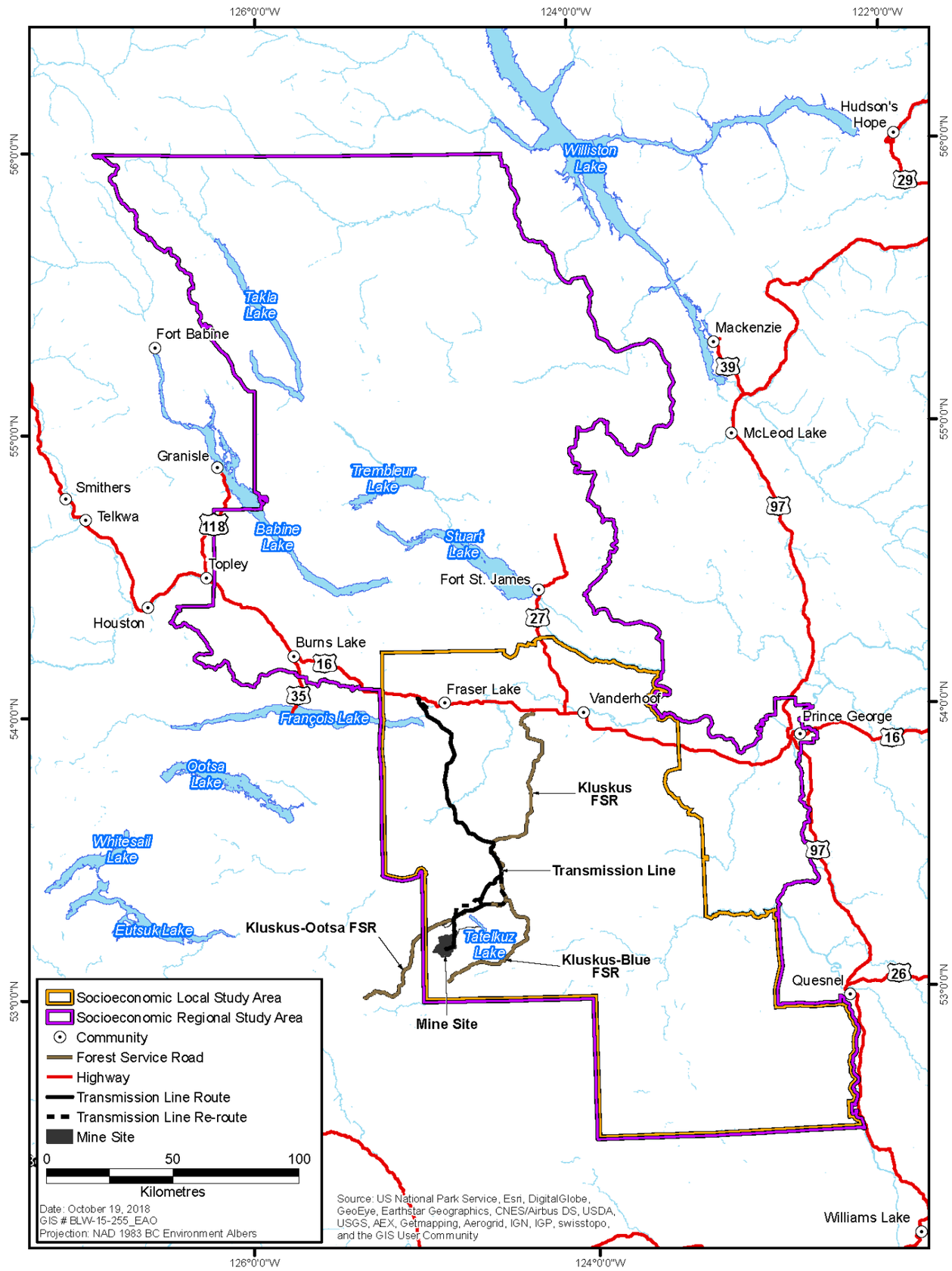

Figure 11: Economic Study Area

13.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IN THE APPLICATION

13.2.1 BASELINE INFORMATION

The baseline information reflects the time period in which the Application was developed and submitted for screening in 2014, and as such, information presented for the economic VCs primarily draws on data collected by New Gold in or prior to 2012. All dollar figures in this chapter are 2012 dollars.

BASELINE PROVINCIAL ECONOMY VC

The Application noted that the provincial economy and labour market experienced several years of strong growth between 2003 and 2008; however, the global economic downturn starting in 2008 seriously affected the BC economy during 2008 and 2009. Real GDP (net of inflation) increased by only 1.1 percent in 2008 and declined by 2.5 percent in 2009. During 2010 and 2011, the provincial GDP showed a considerable recovery, exceeding pre-recession rates of GDP growth.

The economic downturn impacted resource-based sectors and provincial employment. Total employment declined by 2.1 percent in 2009, increasing in 2011 and 2012. The provincial unemployment rate increased from 4.6 percent in 2008 to 7.7 percent in 2009, remained high in 2010 and 2011, and dropped to 6.7 percent in 2012. Similar trends were observed in provincial government revenues, which decreased by 3.5 percent in 2008 and by 1.9 percent in 2009. Revenues increased to pre-recession levels in 2010 and continued to grow in 2011 and 2012 by 2.8 percent and 0.5 percent, respectively.

BASELINE REGIONAL AND LOCAL EMPLOYMENT AND BUSINESSES VC

According to New Gold's Application, the regional labour force in 2011 was estimated at 52 355 people. The breakdown of the labour force was as follows:

- 89 percent of the labour force lived in the RSA (of these, 86 percent lived in Prince George); and
- 11 percent lived in the LSA (of these, 38 percent lived in Vanderhoof).

In 2011, 3,515 residents of the SERSA were experienced in the construction industry, with 95 percent (3335 residents) living in the RSA, and five percent (180 residents) living in the LSA.

As of December 2012, 918 construction businesses were reported in the SERSA. Of these companies, 87 percent (814) were in the RSA, and 104 were in the LSA. A majority of these companies were specialty trade contractors, with lesser proportions devoted to building construction and heavy and civil engineering construction companies.

BASELINE REGIONAL AND LOCAL GOVERNMENT FINANCE VC

Three regional governments including the CRD, the BNRD, and the Fraser-Fort George Regional District are likely to be affected by Blackwater. Each regional government is responsible for providing a range of

services to regional residents, including water supply, sewer, fire protection, parks and recreation, solid waste management, economic development, libraries, and emergency 911 services.

Regional districts obtain the majority of their funding from four sources. For the CRD and the BNRD, the majority of funding comes from electoral area and local government requisitions. Unlike local governments, regional districts do not levy and collect property taxes directly from residents. Instead, regional districts requisition a large portion of their annual budgets from the provincial government, and these requisitions are based on the approved five-year financial plans for each district.

New Gold relied on the BC Input/Output Model (BCIOM) as a primary means of assessing Blackwater effects on provincial GDP, total employment, household income, and government revenue. The BCIOM considered three types of economic effects: direct effects[27], indirect effects[28] and induced effects[29], with some inherent limitations, notably:

- It was based on 2008 data; therefore, it assumed that the technology of producing goods and services, input patterns, and relative prices of 2008 apply to Blackwater;
- Changes in the province's industrial structure and linkages since 2008 were not reflected in the modelling results;
- Blackwater expenditures and the associated economic effects were not calculated over the life of Blackwater and discounted back to current values;
- GDP impacts and federal/provincial revenues at the local level were not estimated, due to a lack of available data at the time the model was run; and
- Indirect output and indirect GDP were estimated for the BNRD only (impacts in supplier industries only).[28]

The BCIOM is not designed to predict how changes in employment or income would be distributed among different sectors of society, or between different regions of the province. The BCIOM helped with describing some effects, such as employment demand, but not others, such as pressure on housing, infrastructure, or services. Social effects associated with Blackwater are discussed in Section 14: Social Effects of this Report.

13.2.2 POTENTIAL EFFECTS

Blackwater would generate economic impacts through direct expenditures on goods and services, creation of employment opportunities and generation of tax revenues for federal, provincial and local governments. The Application characterized the effects of Blackwater on the Economic VCs during Construction and Operation as positive. Table 35 summarizes the total estimated values for Blackwater

[27] Direct effects are associated with employment, expenditures, and payments to governments directly by the proponent and industries directly supplying goods and services used by Blackwater.
[28] Indirect effects are associated with all industries in the supply chain that are ultimately supplying the goods and services used by the industries that would directly supply Blackwater. The BCIOM identifies two types of indirect effects: one measure shows the effects of direct purchases from supplier industries, and the other shows the effects on the supply chain for those supplier industries.
[29] Induced effects are effects arising from households re-spending additional income derived directly or indirectly from Blackwater.

related benefits to the BC economy, including contribution to GDP and household income. Table 36 summarizes estimated employment during Construction. Table 37 and Table 38 provide detailed estimates of annual Blackwater expenditures and employment during Operations[30].

New Gold estimated that approximately $1,294 million would be spent in BC during the Construction phase, and that Blackwater Construction would require approximately 2,436 PY of direct employment within BC. Within the LSA, construction of Blackwater was predicted to provide 225 PY of employment and generate $40 million through direct expenditures on goods and services.

Table 35: Summary of Estimated Economic Benefits During Construction

	LOCAL ($MILLION)	BC ($MILLION)
Direct Blackwater Construction Expenditures	$40 (LSA)	$1,294
GROSS OUTPUT		
Direct	Not Available (NA)[31]	NA
Indirect	$365 (BNRD)	$1,041
CONTRIBUTION TO GDP		
Direct	NA	$312
Indirect	$126.1 (BNRD)	$465
LABOUR INCOME		
Direct	$6.1 (LSA)	$296
Indirect	$11.5 (LSA)	$321
EFFECTS ON GOVERNMENT REVENUES		
Federal Taxes	NA	$86
Provincial Taxes	NA	$82
Municipal Taxes (including property taxes)	$13 (LSA)	NA

[30] Note: Data based on the BCIOM results from 2012, provided by New Gold.

[31] Notes on not available (NA) data provided by New Gold:

- At the time the BC IOM was prepared, BC IOM was not able to estimate GDP impacts or federal/provincial revenues at the local level.
- BC IOM has the capacity to estimate impacts at the provincial level, as well as for Regional Districts if determined at the time of modeling.
- Indirect output and indirect GDP were estimated for the BNRD (impacts in supplier industries only).
- BC Stats did not estimate direct output.
- Presented data is from BC IOM as well as from internal analysis/assumptions done by ERM/New Gold (local/LSA estimates)

Table 36: Estimated Employment During Construction

	LOCAL (LSA) (PY)	BC (PY)
Direct	50	2,436
Indirect	195	5,419
Induced	10	1,807
Total Employment	255	9,663

During Operations, New Gold estimated direct expenditures would be approximately $160.9 million per year within BC, while annual employment needs would be 396 PY of direct employment within BC. Within the LSA, Blackwater Operations would provide 86 PY of employment annually, and purchase $10 million in goods and services from businesses each year.

Table 37: Summary of Estimated Annual Economic Benefits during Operations

	LOCAL ($ Million 2012)	BC ($ Million 2012)
Estimated Direct Expenditures in Canada (excluding labour)	10 (LSA)	160.9
GROSS OUTPUT		
Direct	-	-
Indirect	11.4 (BNRD)	93
GDP		
Direct	-	258
Indirect	6.3 (BNRD)	59
LABOUR INCOME		
Direct	5.8 (LSA)	43
Indirect	1.3 (LSA)	23
GOVERNMENT REVENUES		
Federal Taxes	-	33
Provincial Taxes	-	21
Municipal Tax Revenues	4 (LSA)	-

Table 38: Estimated Annual Employment During Operations

	LOCAL (LSA) (PY)	BC (PY)
Direct	50	396
Indirect	22	534
Induced	14	200
Total Employment	**86**	**1,130**

New Gold did not expect Blackwater to cause regional labour shortages or wage inflation, due to large numbers of unemployed residents of the SERSA who could be trained for long-term work on Blackwater. New Gold expected to enhance local and regional benefits by identifying opportunities to increase direct employment from the SERSA and procure of goods and services from regional suppliers. New Gold also committed to identifying opportunities for local Indigenous employees and businesses, including working closely with Indigenous communities to provide training and establish conditions that support a multicultural workforce.

Total tax revenues over the life of Blackwater were estimated to amount to $1.2 billion. Of this, $656 million would accrue to the federal government, and $83 million would go to local governments. Total revenues for BC would be $511 million, which includes the $450 million in taxes shown in Table 39, plus approximately $61 million in royalties.

Table 39: Summary of Total Blackwater Effects on Government Revenues[32]

ECONOMIC INDICATOR		DIRECT ($ Million 2012)	OTHER/ INDIRECT ($ Million 2012)	INDUCED ($ Million 2012)	TOTAL ($ Million 2012)
Tax revenue	Blackwater Expenditure	860	-	-	1,197
	Supplier Industry Effects	174	96	73	
Allocation by level of Government	Federal	601	31	24	656
	Provincial	394	28	26	450
	Local	37	20	24	83

New Gold estimates that sufficient capacity exists in regional infrastructure and services to accommodate the incremental demands of Blackwater-related population increase. As such New Gold concludes that there would be no adverse effects on regional or local government finances during Construction and Operation.

The potential adverse effects identified in the Application for the Economic VCs were associated with the Blackwater Closure phase. Closure is anticipated to have a negative but not significant effect on the

[32] Government Revenues from Year -2 to Year 50+

provincial economy and government revenues. While Blackwater expenditures during closure would generate economic activity within BC, these effects would not offset the loss of operating employment and income, so there would be a net negative effect on the provincial economy.

Mine closure would provide some employment and business opportunities in the region; however, the net loss of jobs would be adverse. Closure activities would provide an average of 46.6 PY of employment for SERSA residents in each of the five years after operations, and 6.3 PY of employment per year during the Post-Closure period. The annual household income effects for SERSA residents would average $2.8 million per year immediately after Blackwater operations cease, and $0.4 million per year during post-closure. The long-term loss of 420 direct Operations jobs would likely result in increased unemployment and a loss of economic diversity, but the extent of these effects are difficult to predict. Through development and ongoing updates of a Mine Closure Plan (see Section 13.2.2: Mitigation Measures Proposed in the Application below and Application Section 6, subsection 12.2.2), the effects are expected to be manageable.

Blackwater closure would cost $101 million, with 20 percent occurring during Operations, 47 percent in the five years after Operations cease, and the remaining 33 percent over the following 27 years. At Blackwater closure, the payment of annual taxes would cease. The loss of tax revenues is considered adverse but not significant because the taxes payable to the BC Surveyor of Taxes would be about $2.3 million per year throughout Operations, representing 2.9 percent of total revenues for the three regional districts.

13.2.3 MITIGATION MEASURES

To mitigate potential effects associated with Closure, such as decreased regional and local employment and business opportunities, New Gold committed to developing a Mine Closure plan in consultation with the affected communities and government agencies (Application Section 6, subsection 12.2.2). The Mine Closure would include a strategy for buffering the effects of eventually losing 400 to 500 mining jobs. Regular updates to mine closure plans in consideration of sustainability and the concerns and interests of host communities are a specific component part of the New Gold's Health, Safety, Environmental, and Corporate Social Responsibility Policy. Elements of the plan include skills upgrading workers' skills to provide them with the capacity to find other jobs after mine closure, assisting in the development of new economic development opportunities, and working with other regional employers to find new jobs for mine employees.

Other commitments made by New Gold aimed at mitigating potential economic effects include:

- Continued operation of the Community Liaison Committee for the duration of Blackwater to identify and address any issues raised by local government and other committee participants, and develop mitigation recommendations related to service provision, housing, and health and social services that might result in costs to local and regional government; and
- Ongoing identification of opportunities to increase direct employment from the SERSA and procurement of goods and services from regional suppliers.

13.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATION IDENTIFIED DURING APPLICATION REVIEW

No issues were raised by the Working Group during Application review regarding New Gold's economic effects analysis.

General comments regarding impacts to local businesses resulting from labour supply pressures in the SERSA, and increased pressure on local infrastructure were expressed through comments submitted by the District of Vanderhoof and NHA. New Gold's views were that the beneficial economic impacts of Blackwater on local and regional businesses would help offset reduced demand following declines in the forestry industry and the Endako and Huckleberry mine closures. New Gold further stated it was committed to maximizing the use of local and regional suppliers and noted that Blackwater would provide opportunities for local and regional businesses (for example, restaurants, accommodations, recreational facilities, support services, service stations, etc.). Potential impacts to infrastructure and services in the SERSA as a result of Blackwater, as well as other socio-economic effects are discussed in Section 14: Social Effects of this Report.

To mitigate potential adverse impacts to economic VCs, the EAO is proposing Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan. The Plan would require New Gold to work with the local communities and Indigenous groups to reduce adverse social and economic effects of Blackwater Closure and/or Care and Maintenance periods. The Plan would also require New Gold to establish a Community Liaison Committee for the Construction, Operations and Closure phases of the Blackwater in order to provide a mechanism for communication and engagement between New Gold, local governments, Indigenous groups and local stakeholder groups.

Considering the above analysis and lack of issues raised by the Working Group, the EAO did not complete a residual effects analysis for economic VCs, and as no residual effects analysis was conducted, no cumulative effects analysis was completed.

13.4 CONCLUSIONS

The Construction and Operations phases of Blackwater are anticipated to have positive impacts on the Provincial Economy VC and the Regional and Local Employment and Businesses VC, except during Closure. There are no adverse impacts anticipated for the Regional and Local Government Finance VC during Construction and Operations phases, as there were no issues raised regarding the capacity of the existing regional infrastructure and services to accommodate the incremental demands of Blackwater-related population increases.

Mine closure would provide some employment and business opportunities in the region, but there would generally be a reduction in jobs during the Closure phase. The total reduction in jobs is expected to be less than one percent of the 2011 regional labour force, and the local economic effects are expected to be reduced through the implementation of a closure plan. In addition, at Blackwater closure, the payment of annual taxes would cease resulting in a loss of tax revenues of 2.3 million per year throughout during

Operations, representing 2.9 percent of total revenues for the three regional districts.

The EAO proposes conditions to require New Gold to implement mitigation measures to reduce the effects of mine closure on employees and local communities through Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan. This condition will focus on the identification and mitigation of impacts with the potential to result in costs to local and regional government, as well as impacts to the local economy, which would be legally binding, should Blackwater receive an EAC.

In consideration of New Gold's analysis, the mitigations identified in the Application, the EAO's proposed conditions, and review by the Working Group, the EAO is satisfied that Blackwater would not result in adverse residual effects on Economic VCs.

14 SOCIAL EFFECTS

14.1 BACKGROUND

Blackwater would be located in the CRD of Central BC. The mine site is located approximately 170 km by road southwest of Vanderhoof (population 1979[33]) and 267 km by road southwest of Prince George (population 86 622).[34] Other communities located in proximity to Blackwater include Fraser Lake (population 688;[35] located 188 km by road northwest of Blackwater), Burns Lake (population 1932;[36] located 220 km northwest of Blackwater) and 23 populated Indian Reserves (IRs) (closest IR to the mine site is Tatelkus Lake 28 at 15 km from the mine site), all of which are captured in the RSA for the Social VCs. Blackwater is located in a region with historic and current forestry and mining activities. It is also an area valued by residents and visitors for recreation, fishing and hunting activities and the area features many local businesses related to these pursuits.

During the Construction phase, which is estimated to last approximately two years, New Gold predicted a workforce peaking at approximately 1,500 workers. New Gold estimated that 80 percent of this workforce would fly in and out using an on-site airstrip and be transported from the airstrip to the mine site via a company-provided bus. The balance would commute from the Vanderhoof area by a company-provided bus. While on-rotation, Blackwater's workforce would reside in an on-site, 1,000-person work camp, regardless of whether they arrived by air or from Vanderhoof. New Gold's current 400-person exploration camp would be replaced by the construction camp, though there would be an overlap period when the exploration camp is used for building the construction camp.

During Blackwater's 17-year Operations phase, New Gold predicted an average annual total workforce of about 495 workers, the majority of which were predicted to be residents of the general region, with an estimated 48 percent residing in Prince George (located approximately 100 km by road from Vanderhoof), 20 percent residing in communities west of Vanderhoof, and 17 percent living in Vanderhoof itself. New Gold predicted that the remaining 15 percent of the workforce would fly in to Prince George in advance of their work shifts. New Gold would provide round trip bus transportation for its workforce from a muster point near Vanderhoof to the mine site, which is located approximately 170 km away by road. While on-rotation, the Operations workforce would reside on-site in a work camp located about 3 km from the mine site.

Activities associated with Blackwater could affect the social environment of this region through impacts to demographics, infrastructure, services, family and community well-being, current use of lands and

[33] Statistics Canada. 2017. *Vanderhoof [Population centre], British Columbia and British Columbia [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.
[34] Statistics Canada. 2017. *Prince George [Census agglomeration], British Columbia and British Columbia [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.
[35] Statistics Canada. 2017. *Fraser Lake, VL [Census subdivision], British Columbia and British Columbia [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.
[36] Statistics Canada. 2017. *Burns Lake [Population centre], British Columbia and British Columbia [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.

resources for traditional purposes, NTLRU, and visual aesthetics. Social effects were assessed using the VCs and indicators shown in Table 40.

Table 40: Social Valued Components and Indicators and/or Factors for Assessment

VALUED COMPONENTS	INDICATORS AND/OR FACTORS FOR ASSESSMENT
Demographics	• Population
Regional and Community Infrastructure	• Regional and municipal infrastructure (water supply, water/ sewage treatment, landfills, communications, 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 and socially disruptive behaviour, including drug and alcohol misuse • Family relationships
NTLRU	• Protected areas and parks • Recreation/ tourism use (for example, all-terrain vehicle use) • Mining, exploration, and mineral tenures • Forestry and timber resource use • Hunting/ trapping/ guide outfitting • Fishing and aquaculture • Agriculture and grazing • Range use • Land ownership and tenures • Recreational and commercial use of waterways • Groundwater resource use • Surface water resource use
Current Land and Resource Use for Traditional Purposes*	*Note: Current Land and Resource Use for Traditional Purposes is covered in depth in Part C of this Report and is not discussed in this chapter.
Visual Resources	• Visual record • Demonstrated aesthetic value

14.1.1 REGULATORY CONTEXT

Federal and provincial legislation, guidelines, and community plans related to the social VCs include:

- Provincial legislation includes: *Mineral Tenure Act; Agricultural Land Commission Act*; *Wildlife Act; Land Act*; *Range Act*; *Forest and Range Practice Act*, *Transportation of Dangerous Goods Act*; *Motor Vehicle Act*; *Passenger Transport Act*; and *Commercial Transport Act*;
- Federal legislation includes the *Transportation of Dangerous Goods Act*; and
- Provincial land and resource management plans, official community plans, and provincial guidance include: Vanderhoof Land and Resource Management Plan; Vanderhoof Official Community Plan;

Vanderhoof Rural Official Community Plan; Vanderhoof Access Management Plan; and the Northern Health Authority's (NHA) Health and Medical Service Plan Best Management Guide for Industrial Camps (2015).

14.1.2 SPATIAL AND TEMPORAL BOUNDARIES

In the Application, New Gold defined three study areas for the Social VCs (Demographics, Regional and Community Infrastructure, Regional and Local Services, and Family and Community Well-being), as depicted in Figure 12:

- LSA: The LSA consists primarily of BNRD RDEAs D and F, the Village of Fraser Lake, the District of Vanderhoof, and 11 populated Indian Reserves.
- RSA: The RSA comprises the LSA plus the Fraser-Fort George RDEA C, the Bulkley-Nechako RDEAs C and B, the City of Prince George, the Village of Burns Lake, the District of Fort St. James, and 12 populated Indian Reserves.
- SERSA: The Socioeconomic Regional Study Area includes both the LSA and RSA.

For the assessment of the NTLRU VC, the following LSA and RSA were defined:

- LSA: The LSA is comprised of the footprint of all Blackwater infrastructure (for example, the mine site, access road, transmission line, air strip, etc.) plus a 500 metre buffer.
- RSA: The RSA is based on Vanderhoof Land and Resources Management Plan and includes all subzones that overlap with the LSA or fall within RSAs identified for other VCs (for example, fish). To provide representative information, the eastern RSA boundary was moved towards the west in order to balance out the area on either side of the proposed transmission line and the Kluskus FSR.

For assessment of the Visual Resources VC, the LSAs and RSAs were delineated using viewshed analysis. The extent of the LSAs and RSAs differ depending upon the infrastructure type. Section 7.1.4.1.2.2 provides a comprehensive description of Visual Resources LSAs and RSAs.

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Scope and Location of this Report.

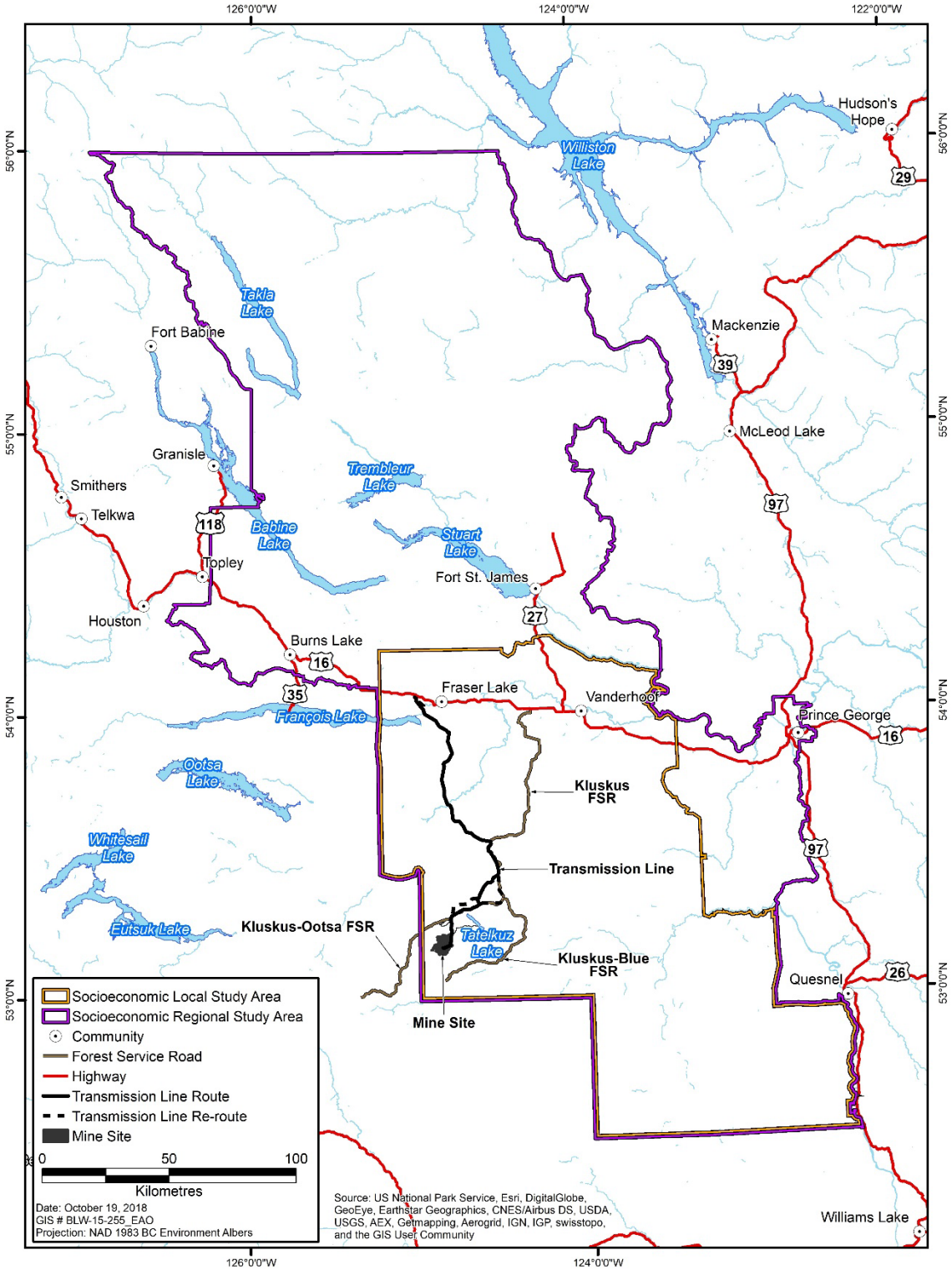

Figure 12: RSA and LSA for the Demographics VC, the Regional and Community Infrastructure VC, the Regional and Local Services VC, and the Family and Community Well-Being VC

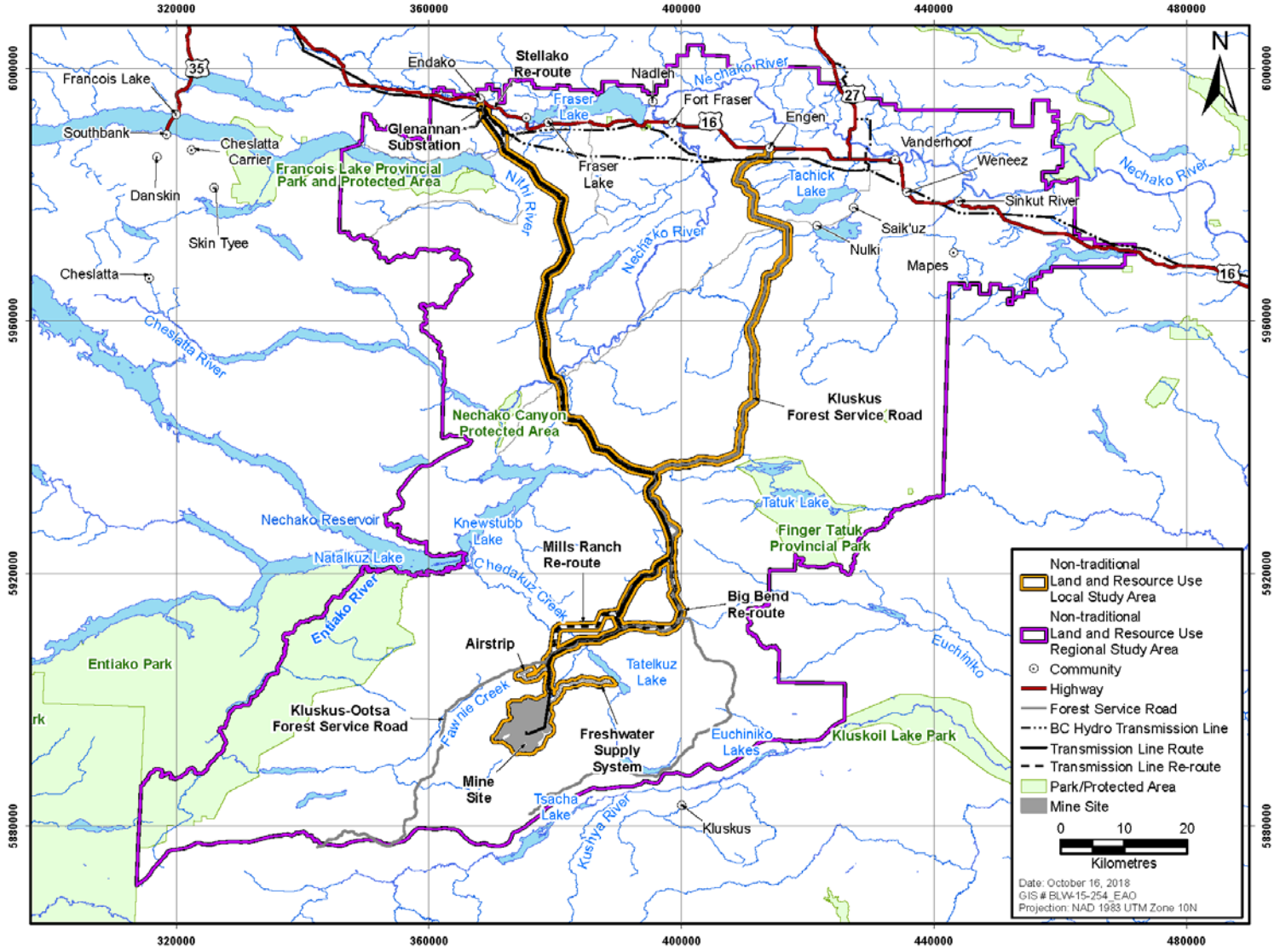

Figure 13: RSA and LSA for the Non-Traditional Land and Resource Use VC

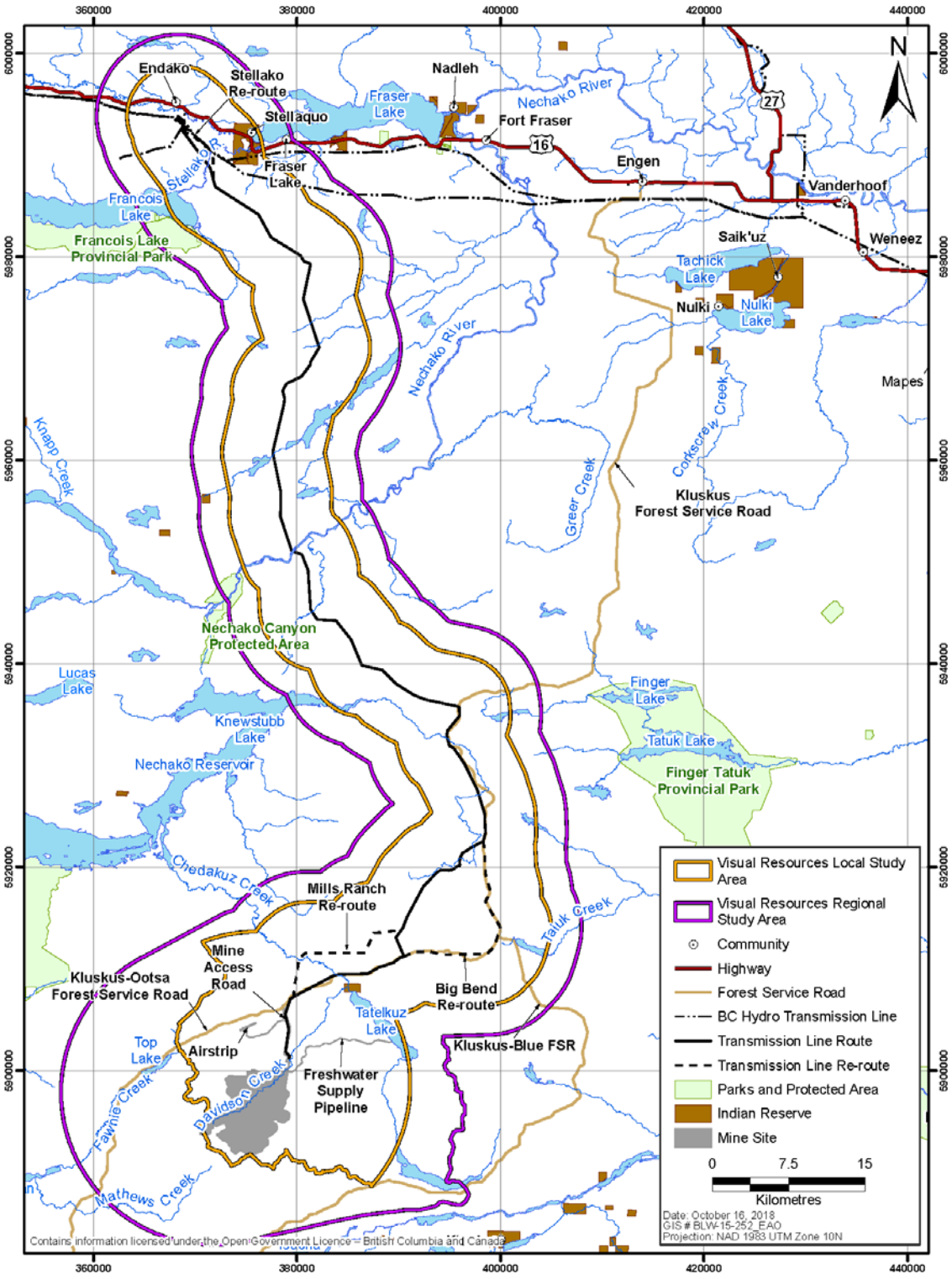

Figure 14: RSA and LSA for the Visual Resources VC

14.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN APPLICATION

Baseline information reflects the time period in which the Application was developed and submitted for screening, June 20, 2014; as such, information presented for the social VCs primarily draws on data collected in or prior to 2012.

14.2.1 DEMOGRAPHICS

Blackwater's potential effect on population demographics in surrounding LSA and RSA communities would largely be linked to the increased employment opportunities that Blackwater would introduce. The scale of the effect would be strongly linked to each particular Blackwater phase, and the degree to which New Gold would be successful in filling jobs locally.

In the Application, New Gold predicted that the majority of its Construction workforce, estimated to peak at 1500 workers, would be drawn from outside of the SERSA. During the two-year Construction phase, and while on-rotation, this predominantly transient workforce would live in a work camp located at the mine site. New Gold did not anticipate that the members of the Construction workforce hired from outside the SERSA would establish local residences for themselves and/or their families in the area. As such, New Gold did not anticipate any change to the demographics of LSA or RSA communities as a result of Blackwater's Construction phase.

In recruiting the Operations workforce (estimated at an annual average of 495 workers), New Gold's assessment assumed that 65 percent (approximately 322 people) of the Operations workforce would come from the SERSA, and the remaining 35 percent (approximately 173 people) would be from outside of the SERSA. In the Application, New Gold stated that it would encourage non-local employees to relocate to Vanderhoof and Fraser Lake, but recognized that among those who do relocate to the SERSA, it is more likely that workers would elect to move to Prince George with its wider range of services and facilities. The Application highlighted the inherent difficulty in estimating the number of workers who would choose to relocate at all and the number of family members who may accompany them but noted that providing on-site accommodation could serve to encourage members of the Operations workforce to maintain their primary residences outside of the SERSA and travel to the area as work schedules require.

Based on its assessment of the local labour market and experiences from similar projects, New Gold estimated that about 100 workers and 190 family members would be added to the local population during Blackwater's Operations phase. Of the 290 people, New Gold predicted that 80 percent (approximately 232 people) would relocate to Prince George, resulting in a population increase of 0.3 percent. The remaining 20 percent (approximately 58 people) were anticipated to relocate to Vanderhoof, resulting in a population increase of 1.3 percent.

The Application stated that potential demographic changes during Operations would be a benefit to local communities, based on the assumption that the estimated population growth would be within current capacities for local communities and align with local government policies on attracting new residents.

Additionally, the Application concluded that the potential departure of this minor increase in population upon Blackwater's closure would have a negligible effect.

14.2.2 REGIONAL AND COMMUNITY INFRASTRUCTURE

UTILITIES, HOUSING AND RECREATION

In considering how Blackwater could affect utilities, housing, and recreation infrastructure, the Application underscored that Blackwater would be self-contained, complete with waste, water and sewage management facilities, as well as on-site personnel camp. As such, the principal way in which Blackwater would be expected to affect regional and community infrastructure would be through direct, indirect and/or induced population growth in local communities, which would in turn result in increased demands on infrastructure.

As described in Section 14.2.1 above, the Application estimated that during Blackwater's Operations phase, up to 290 people would choose to relocate to the SERSA, with Prince George and Vanderhoof most likely to sustain the bulk of the population growth. The Application asserted that both Prince George and Vanderhoof have the capacity to accommodate this potential new demand for utilities, housing and recreation, and therefore the assessment concluded that Blackwater would not cause adverse residual effects to utilities, housing and recreation during Operations.

REGIONAL TRANSPORTATION

The transportation of equipment, supplies, mine products, and personnel to and from Blackwater would result in an increase in traffic along roads that connect Blackwater to the regional road transport network. During all phases of Blackwater's development, heavy trucks would be used to transport materials to the site via Highway 16, connecting to the FSRs and to the mine site along the mine access road.

New Gold anticipated that a large proportion of the Construction workforce would commute by air transport, ultimately arriving at Blackwater's airstrip and be transported to the site by company-provided bus. A lower proportion the Construction workforce would commute by company-provided bus from a muster point in, or near Vanderhoof. During Operations, New Gold predicted that all of its workforce would commute by company-provided bus from Vanderhoof.

During Construction, New Gold estimated that all Blackwater-related traffic would cause 7140 annual vehicle return trips per year on Highway 16 between Prince George and Engen, as well as along the FSRs and mine access road. During Operations, Blackwater traffic along these same roads would amount to an estimated total of 14,280 vehicles per year. This equates to an increase of 1.4 percent to 2.1 percent in traffic (above 2012 volumes) along the stretches of Highway 16 between Prince George and Engen, which the Application asserted is within the design capacity for Highway 16.

On the FSRs, vehicle trips related to Blackwater would represent a 97 percent increase in two-way traffic compared to 2013 traffic volumes, which translates to a total average of 9.5 vehicles per hour during both Construction and Operations. During peak Construction (January to April), the number of heavy trucks and fuel trucks could increase two-way traffic on the FSRs to a total of 12.3 vehicles per hour. Blackwater's FSR

use would be governed by New Gold's participation in the Kluskus Road Management Agreement, which imposes load weight and vehicle safety restrictions and provides requirements for ongoing road maintenance, repair, dust suppression, and snow removal.

After taking into account New Gold's proposed mitigation measures (described fully in Application Section 7.2.3.3.4), the Application concluded that the residual effects of Blackwater on ground transportation would be adverse but minor during Construction and Operations. During Blackwater's Closure phase, vehicle traffic and any attendant effects would be sharply reduced compared to Construction and Operations levels.

14.2.3 REGIONAL AND LOCAL SERVICES

Regional services include education, health services, social services, and protective services (including law enforcement, fire protection, and emergency services). The ability of these services to meet the demand placed on them is heavily influenced by the demographics of the population they serve. As such, the slight population growth caused by the expected influx of Blackwater's Operations workforce and accompanying family members, as described in Section 14.2.1 of this Report, would likely affect demand for services within the receiving communities, which the Application anticipated would principally include Prince George and Vanderhoof. Additionally, the predicted changes in traffic on Highway 16 and the FSRs connecting to the Blackwater site, as described in Section 1.2.1 of this Report, could also increase the demand for protective services and health services during all phases of Blackwater's development.

Application Section 7.2.4.3 provided a comprehensive discussion of Blackwater's potential effects to regional and local services, and concluded that the small increase in population as a result of Blackwater would have negligible effects on the Regional and Local Services VC. To support this conclusion, the Application stated that nearly all regional and local services within the SERSA have sufficient capacity to absorb the additional demands introduced by small population growth and traffic increases that Blackwater would stimulate. Further, the Application noted that New Gold's commitment to hire from within the SERSA to the extent practicable, house the Construction and Operations workforce on-site while they are on-rotation, and to develop a Health and Medical Services Plan would moderate growth in demand for and mitigate effects on regional and local services, thereby preventing residual adverse effects to most regional and local services.

The Application assessed, however, that Blackwater could impose an adverse residual effect on Royal Canadian Mounted Police (RCMP) services; particularly in light of the resource constraints that currently affect the RCMP detachments serving the SERSA population. The Application noted that both of the RCMP's two regional policing areas serving the SERSA reported high per officer caseloads and challenges in staff recruitment and retention. This capacity constraint is compounded by crime rates in the SERSA, which in 2010 were notably higher than provincial averages for serious property crimes and serious violent crimes. Further, RCMP officers interviewed for the Application expressed concerns that increased incomes associated with Blackwater employment could lead to increased levels of social problems such as drugs, alcohol and domestic disturbances or violence.

14.2.4 FAMILY AND COMMUNITY WELL-BEING

Application Section 7.2.5.2 provides an overview of the measures used to assess economic hardship and socio-economic well-being within the SERSA communities. These measures demonstrated that communities within the SERSA fare worse than a majority of communities within the province. Effects to family and community well-being, both positive and adverse, could arise from increased income from Blackwater-related employment, aspects of employment itself (for example, work schedules), and demographic changes within communities. New Gold stated, however, that the expected minimal demographic changes that Blackwater would cause within Prince George and Vanderhoof would result in negligible effects family and community well-being effects linked to demographic change.

New Gold suggested that Blackwater-related increases in income for local residents would generally result in positive outcomes, including a reduction in economic hardship in the SERSA, which in turn could have a positive effect on health and well-being. The Application also pointed out that individual decisions regarding whether, or how to spend the increased income could also lead to negative outcomes, including gambling or misuse of alcohol or drugs. Such negative outcomes would be expected to lead to broader adverse effects to family and community well-being.

The Application also considered the possibility of unequal distribution of increased incomes. Access to employment and the associated income is often more limited for vulnerable sub-populations, which may include Indigenous people, women, people with disabilities, and visible minorities. In an effort to mitigate this effect, New Gold indicated that it would implement a hiring strategy that would include sourcing and training under-represented groups.

Camp-based employment at Blackwater would require workers to be separated from their families for extended periods during Construction and Operations phases. The Application highlights that this separation could impose adverse effects to the well-being of workers as well as their families, including isolation, family fragmentation, and family violence. In an effort to help mitigate these potential effects, New Gold has committed to:

- Structure shifts to minimize time away from home; and
- Provide cell phone and internet service on site to facilitate communication within families.

Blackwater's Closure would result in loss of employment and income and could induce out-migration from the communities that support Blackwater's Operations workforce. However, New Gold's Application stated that the skill development and work experience gained from employment on Blackwater would increase former employees' competitiveness for future employment opportunities. Further, New Gold committed to developing, in consultation with the community, a Mine Closure Plan that would identify strategies to help minimize potential adverse effects of closing the mine.

14.2.5 NON-TRADITIONAL LAND AND RESOURCE USE

The Application considered the potential for Blackwater to result in effects on individuals and groups who use the lands and resources in the vicinity of Blackwater for non-traditional purposes. These individuals and groups include those who use the land for commercial, recreational, residential, and agricultural uses. A full list of NTLRU categories is listed in Table 40 of this Report.

Throughout the course of Application Review, New Gold made changes to the TLA to address concerns raised by Indigenous groups, the public and Working Group members. The effects of the new TLA on this VC are summarized in the Consolidated Non-traditional Land and Resource Use Effects Assessment Memo dated December 15, 2017 (CEM 2017).

The Application notes that all of Blackwater's phases have the potential to cause both temporary and long-term restrictions to tenured and non-tenured users of the land and resources in the vicinity of Blackwater. These land and resource users may also experience disturbance due to air emissions, dust, noise, or general inconvenience caused by Blackwater infrastructure and activities. The Application further assesses that Blackwater may result in additional effects that are more likely to affect specific categories of land and resource users. These effects are described below.

PROTECTED AREAS, PARKS, AND RECREATIONAL/TOURISM AREAS

The Application and subsequent assessment documentation state that Blackwater's footprint does not overlap with any recreation sites, nor does it intersect any provincial parks, although Finger Tatuk Provincial Park is located approximately three km east of the mine site access road.

The Laidman Lake Ecolodge property boundary overlaps with the mine site RSA, although it is located more than 40 km from the mine site itself. The Tatelkuz Lake Ranch Resort (also known as the Mills Ranch), is located in approximately two km from the mine access road, four km from the FWSS, and three km from the transmission line.

In response to Indigenous groups' and FLNRORD concerns, New Gold adjusted the routing of the transmission line to avoid intersecting with three recreation sites, including Cut-Off Creek Recreation Site, Cabin Creek Falls Recreation Site, and the Cabin Creek Falls Trail. Although no longer intersected by the transmission line, these sites, along with others (including, Cheslatta Trail, the Messue Wagon Trail, the Mary Jane Lake Recreation Site, the Brewster Lake Recreation Site) would be situated within 500 m of the transmission line. One of the transmission line's reroute options would intersect the Stellako River WMA, which is an area designated for conservation and management of fish and wildlife.

All the recreational sites in proximity to Blackwater infrastructure may experience disturbance due to noise, dust, and traffic during the infrastructure's Construction and eventual decommissioning, as well as potential visual disturbance from landscape alteration. The Application further notes the creation of new linear corridors could enhance recreational uses, while also increasing the potential for friction between non-motorized recreationists and all-terrain vehicle users along the transmission line corridor.

MINING EXPLORATION & MINERAL TENURES

Neither the mine site nor the airstrip overlaps with mineral tenures held by others. The transmission line overlaps with portions of 29 mineral tenures held by others. The holders of these tenures could experience temporary disruption in accessing their tenures during the Construction and/or infrastructure decommissioning, although New Gold has committed to implementing plans to avoid, consult and notify mineral tenure holders to reduce adverse effects.

FORESTRY AND TIMBER RESOURCE USE

The Application noted that Blackwater would cause long-term loss of some forestry harvestable land base. Although the mine site would be reclaimed after Blackwater's Closure, the transmission line, WTP, and access road would continue to be used for more than 42 years, thereby precluding the reforestation of areas in use for this infrastructure. The open pit and TSF would remain as permanent changes to the landscape and would also be removed from the harvestable land base.

TRAPLINES, GUIDE OUTFITTERS, AND FISHING

The Application assessed that Blackwater would cause disruption to the access and use of some traplines, guide outfitting areas and fishing areas during Construction, Operations, and Closure, with some impacts potentially extending Post-closure. Sensory disturbance and habitat alteration from Blackwater's infrastructure and/or activities might also impact furbearing and game animals during Construction and Operations, which could result in habitat fragmentation and reduced hunting and trapping success.

The CEM 2017 indicates that Blackwater's RSA overlaps with six guide outfitting tenures. Two of these guide outfitters hold tenures that overlap with the mine site and the mine access road, including Batnuni Lake Guide and Outfitters (license 601039), which has seven percent of its total area overlapping with the mine site, and Fawnie Mountain Outfitters/Moose Lake Lodge, which has 0.7 percent of its total area overlapping with the mine site. Four guide outfitting tenure holders overlap with the transmission line.

The Blackwater footprint overlaps with 17 registered traplines, with the majority traplines overlapping the transmission line. The largest potential impact relates to one trapper who holds a trapline of which nine percent of its area overlaps with the mine site.

The CEM notes that no known recreational fishing occurs in the footprint of the mine site, mine access roads, airstrip, or FWSS. The CEM further specifies that although the transmission line and its proposed reroutes would cross Chedakuz Creek, Nechako River, and Stellako River – all known fishing sites – Blackwater would not impede recreational fishing and would not cause sensory disturbance from noise or visual changes.

AGRICULTURE, GRAZING AND RANGE USE

Blackwater's mine site, airstrip, airstrip access road and FWSS would displace activities within portions of one range tenure. For the portion of the tenure that overlaps with the mine access road, some displacement could continue through Post-Closure for Blackwater infrastructure associated with continued water treatment.

The PNA and associated re-routes would temporarily impede access within portions of six range tenures and two *Land Act* agricultural interests during construction and decommissioning. The Application also noted the risk of disturbance or compaction of soils and potential spread of noxious weeds during construction of the PNA.

SURFACE AND GROUND WATER RESOURCE USE

New Gold notes that access to the two groundwater licenses that overlap with the transmission line route might be temporarily impeded during construction and decommissioning of the PNA and re-routes and during Kluskus FSR upgrades. The Blackwater footprint does not overlap with any surface water licenses.

The Application also noted potential disturbance to access and use of water resources that are used for navigational, recreational and other uses. Most notably, the FWSS would draw water from Tatelkuz Lake, which is used for navigation, recreation, country foods collection, and cultural purposes. Chedakuz Creek, which is connected to Tatelkuz Lake via a navigational network, would be additionally affected by transmission line at various locations. The mine site access road also crosses Turtle Creek and Davidson Creek. Turtle Creek connects to Chedakuz Creek and is therefore considered part of a navigational network. Davidson Creek has no known navigational public use. Construction and Decommissioning of the FWSS and access road may result in temporary access restrictions to and within the waterbodies.

The transmission line would cross the Nechako and Stellako Rivers, both of which are well known for navigational use. Additionally, the transmission line would cross Big Bend Creek and Tahultzu Creek, which the Application states are conservatively rated as being part of a navigational network. Potential effects of the crossings of these waterbodies, along with Chedakuz Creek, includes potential impediment to safe navigation and temporary access restrictions in locations where Blackwater's equipment may obstruct access to the shoreline. These effects would be limited to Blackwater's Construction and Decommissioning phases.

Taking into account the anticipated influence of the proposed mitigation measures (discussed in Section 14.2.7 below), New Gold characterized the residual effects to NTLRU as neutral and not significant.

14.2.6 VISUAL RESOURCES

To guide the assessment of visual quality effects, the Application used the Visual Landscape Inventory (VLI), developed through the BC *Forest Planning and Practices Regulation*. Additionally, the Application drew guidance from the Vanderhoof Land Resource Management Plan and the Vanderhoof Access Management Plan to identify landscape objectives and recreational sites of interest. These guidelines helped to establish viewpoints that would be particularly sensitive to alterations in the landscape.

Using Geographic Information Systems (GIS) software and 3D modeling software, New Gold assessed the potential visual effects of Blackwater components from the vantage points of sites that were identified in the VLI or above-noted Management Plans. Various assumptions were embedded in this assessment, which includes the design specification that the transmission line would be supported by wooden structures in most locations. Should the final design include steel towers, the impact on visual quality could

be quite different.

The assessment identified 13 sites as locations where Blackwater infrastructure may be within the line of sight of sensitive receptors. Application Section 7.2.8 details the sites, the rationale for their selection, and site-specific measures proposed to mitigate effects to visual quality. Through further evaluation, New Gold assessed that residual adverse effects may occur at five of the 13 sites, including Stellako River, Cheslatta Trail, Nechako River Valley, Brewster Lake, and Tatelkuz Lake.

As a result of proposed changes in the alignment of the transmission line (as described in Section 14.2.5 of this Report) and comments from the public and the Blackwater Working Group, New Gold completed additional field reconnaissance to assess potential visual effects at several new sites along the proposed new alignment. This process identified 17 sites which could experience negligible to moderate impacts to visual quality from Blackwater, including the five sites identified in the original study. New Gold proposed a number of measures (see Section 14.2.7 below) in both the Application Section 7.2.8.3 and the Consolidated Visual Resources Effects Assessment (December 17, 2017) that it would employ to avoid effects to visual quality and, where unavoidable, minimize the effects.

14.2.7 MITIGATION MEASURES

Many of New Gold's proposed mitigation measures address effects for more than one VC. The discussion below highlights the key mitigations for specific VCs, noting that they may also play a role in mitigating effects for other VCs.

New Gold committed to the following key mitigations that it assesses would ensure the effects on the **Demographics VC** are minor (see Application Section 7.2.2.3.3 for a comprehensive list of measures):

- Construct a camp with capacity to accommodate 1500 workers for Construction and 500 workers for Operations;
- Hire the majority of the Operations workforce from the SERSA;
- Provide an airstrip onsite to transport workers from outside the SERSA during Construction, and providing bussing to and from the mine site (the airstrip would not be used during Blackwater's Operations, Closure, and Post-Closure phases);
- Provide bus transportation to and from the mine site from a muster point at, or near Vanderhoof, and prohibiting the use of personal vehicles at the mine site.

Key mitigations for the **Regional and Community Infrastructure VC** (see Application Section 7.2.3.3.4 for a more comprehensive list of measures):

- Adhere to terms and conditions of the Kluskus Road Management Agreement; and
- Develop and implement the Blackwater Traffic and Access Management Plan, which includes provisions for road maintenance.

Key mitigations for the **Regional and Local Services VC** (see Application Section 7.2.4.3.3 for a more comprehensive list of measures):

- Develop a Health and Medical Services Plan (HMSP) informed by NHA's HMSP *Best Management Guide for Industrial Camps*;
- Provide healthcare personnel at the mine site to meet requirements of the Health and Safety and Reclamation Code for Mines in BC (Code) and of Work Safe BC;
- Establish emergency medical-evacuation arrangements;
- Work closely on an ongoing basis with NHA, local fire departments, RCMP, and BC Ambulance to ensure that the appropriate information on the changes in area transportation volumes, mine operations, and the change to the local population are considered;
- Provide full firefighting and mine rescue equipment and trained personnel to meet all onsite fire and rescue needs;
- Implement a policy prohibiting alcohol and recreational drug use on-site;
- Maintain a respectful and secure workplace, taking into account multi-cultural workforce considerations; and
- Work with the community to develop a Mine Closure Plan that identifies strategies and actions to help minimize the potential adverse effects of closing the mine.

Key mitigations for the **Family and Community Well-being VC** (see Application Section 7.2.5.3.3 for a more comprehensive list of measures):

- Provide access to money management training and counselling services for Blackwater employees;
- Work with local agencies to assist in monitoring and adaptive management of community well-being, as appropriate; and
- Develop a Health and Well-being Management Plan based on guidance from NHA.

Key mitigations for effects on **traplines and guide outfitters** (see Table 7.2.6-4 of the Application for a more comprehensive list of measures):

- Ongoing communication with registered trapline holders, guide outfitters, and lodge owners, as appropriate;
- Compensate registered trapline holders bearing proof of lost revenue in accordance with industry and provincial protocols;
- Avoid, where possible, prime denning and breeding habitat of marten, weasel, beaver, muskrat, and other furbearing species during Construction; and
- Implement the proposed Wildlife Management Plan and the Transportation and Access Management Plan.

Key mitigations for effects to **agricultural tenure holders** (see Table 7.2.6-4 of the Application for a more comprehensive list of measures):

- Conduct ongoing consultation with farmers and ranchers;
- Require Blackwater vehicles to use only the RoWs and designated access roads near Blackwater development areas to minimize compaction of agricultural soil; and
- Implement preventative protocols for cleaning of equipment of weeds, in accordance with government and industry standards, to manage the spread of invasive plant species.

Key mitigations for effects to **ranching, or livestock management** (see Table 7.2.6-4 of the Application for a more comprehensive list of measures):

- Facilitate movement of livestock and farm machinery across the RoW corridors, where applicable;
- Notify livestock owners of the construction schedule and activities to allow livestock to be moved to other pastures, where applicable; and
- Work with land and livestock owners to identify alternative watering locations or options in cases where livestock access to water supply is curtailed by mine operations activities or infrastructure.

Key mitigations for effects to **forestry tenures** (see Table 7.2.6-4 of the Application for a more comprehensive list of measures):

- Provide early notification of Blackwater activities to affected regional forestry stakeholders, including tenure holders; and
- Follow all FLNRORD guidelines and requirements for clearing, handling, and hauling beetle-infested wood.

Key mitigations for **aesthetics** (including noise and dust-related disturbance) and **access disruption** (see Table 7.2.6-4 of the Application for a more comprehensive list of measures):

- Provide advance notification and ongoing communication to relevant recreational stakeholders and rural residents who would be in close proximity to Blackwater activities;
- Use noise abatement and operations scheduling considerations at noise-sensitive locations to limit disruption to sensitive receptors, where appropriate;
- Erect appropriate signage on affected recreational and snowmobiling trails, warning users of temporary trail closures, if scheduling to avoid trail users is not feasible; and
- Control dust with a wetting agent at regular intervals and/or when required.

Key mitigation for effects to **recreational water use areas** (see Table 7.2.6-4 of the Application for a more comprehensive list of measures):

- Protect groundwater wells with temporary fencing during Construction;
- Inform water-based recreational stakeholders about construction activities in advance;
- Employ appropriate engineering designs and management practices to minimize effects on stream flow; and

- Implement the proposed Water Management Plan.

Key mitigation measures for the **Visual Resources VC** (see Application Section 7.2.8.3 for a more comprehensive list of measures):

- Communicate and integrate activities with resource managers currently managing the viewscape;
- Implement mitigation measures in the proposed Visual Resources Management Plan (Application Section 12.2.1.18.4.8);
- Develop site-specific measures and designs to screen views of structures and/or soften the visual effect of structures breaching natural ridgelines when viewed from identified vantage points, which may include:
    - Locate facilities outside of viewsheds with publicly accessible vantage points, where technically feasible;
    - Locate facilities near existing infrastructure to avoid additional surface disturbance;
    - Follow existing landscape contours to avoid interrupting natural landscape lines or edges;
    - Minimize contrast between areas impacted by Blackwater activities and facilities, and the surrounding natural environment; and
    - Apply BMP to minimize the effect of artificial light.

14.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATION IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups, and the Working Group. From these comments, the EAO has distilled the following two key issues that relate to potential residual adverse effects on the social VCs:

1. Baseline data accuracy and potential effects to the Regional and Local Services VC and the Family and Community Well-being VC; and
2. Effects to NTLRU, including access restrictions, effects to guide-outfitters and effects to recreational users and property owners.

14.3.1 BASELINE DATA ACCURACY AND POTENTIAL EFFECTS TO THE REGIONAL AND LOCAL SERVICES VC AND THE FAMILY AND COMMUNITY WELL-BEING VC

During Application Review, NHA indicated that the Application contained inaccurate background information and data regarding health services capacity and did not adequately characterize baseline socio-economic conditions and Blackwater's likely socio-economic and health effects. Specifically, NHA asked that the current fragility of the health system in the region be recognized and underscored the need for any impacts to health services and community health to be monitored and addressed with adaptive management, with particular focus on changes in crime (including domestic violence), impacts to vulnerable community members, impacts to mental health, substance use issues, and communicable disease. NHA also stated that the availability of affordable and accessible housing is more constrained in

the region than described in the Application, and that there is a need to monitor and manage affordable housing and traffic-related injuries effects as a result of Blackwater. The CSFNs also noted that the dated baseline information would contribute to a low confidence as to the assessment of effects.

New Gold responded that it would develop a Health and Medical Services Plan informed by NHA's HMSP and Communicable Disease *Best Management Guides*, and a Socio-economic Effects Management Plan, both in consultation with NHA and Indigenous groups. New Gold underscored that implementation of these AMPs would guide it in developing additional specific mitigation measures to monitor and address social impacts related to Blackwater. New Gold also committed to continuing its Community Liaison Committee, which has been in operation since Blackwater's early development stage. NHA expressed support for a condition to require the above-noted plans and committee and provided details on what it considered to be important aspects to include in these plans.

Taking into account the information provided by NHA, the EAO proposes Condition 40: Health and Medical Services Plan, which would require that New Gold develop and implement a Health and Medical Services Plan in consultation with Indigenous groups, NHA, and the communities of Vanderhoof and Fraser Lake. This Plan would include on-site health and medical protocol and services, disease and infection prevention and outbreak protocols, health promotion and worker wellness program and a process for coordination with NHA and BC Ambulance Service.

The EAO also proposes Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, which would require that New Gold develop and implement a CEMMP in consultation with Indigenous groups, Vanderhoof, Fraser Lake, and NHA. Condition 37 would require that New Gold identify a process for monitoring and adaptively managing adverse social effects caused by Blackwater, including effects to community services, population and demographics, crime and socially disruptive behaviour, community and family well-being, traffic safety, problematic drug and alcohol use, and healthy lifestyles, including managing personal finances and mental and physical health. Under proposed Condition 3, Adaptive Management, includes identification of baseline information, and collection of baseline information where existing baseline information is insufficient. Condition 37 would also require that New Gold establish and maintain a Community Liaison Committee, which would include a process for New Gold to receive and respond to community feedback regarding Blackwater.

14.3.2 EFFECTS TO NON-TRADITIONAL LAND AND RESOURCE USE

The EAO received a variety of comments expressing concern regarding how Blackwater infrastructure and activities could affect how various property owners, tenure holders, recreational users, and Indigenous groups are able to engage in activities in the vicinity of Blackwater.

ACCESS RESTRICTIONS FOR A VARIETY OF LAND AND RESOURCE USERS

To connect the mine site to the Kluskus-Ootsa FSR (which, in turn, connects to Highway 16), New Gold proposes to construct a new mine access road, measuring up to 15 km long. This access road would also tie

into the airstrip access road to transport fly-in/ fly-out workers to the mine site. The process of constructing this road could temporarily impede access to existing roads and trails used by Indigenous groups, tenure holders, and recreational users in the area. Similarly, the construction of the FWSS, which would be built mostly along an existing road, would have the potential to temporarily limit access to areas in the vicinity of Blackwater.

As required by the BC *Mines Act* and Code, and in accordance with New Gold's proposed Transportation and Access Management Plan, New Gold proposed to install a gatehouse to control access to the mine site. The EAO has specified in the CPD that the gate will be located at the mine site boundary, reducing the likelihood of a reduction in access to areas in the vicinity of Blackwater.

The EAO also received a comment from a member of the public regarding concern that road access to the alpine area of Mount Davidson would be cut off as a result of the mine site development, which is near to Mount Davidson, and would be closed to public access as a safety precaution through to the end of the Operations phase, at minimum. To the extent that recreationists accessed the Mount Davidson alpine by way of areas that would be inside the mine site boundary, that access would indeed be cut off. There was also a concern raised related to the light pollution from the mine that would be emitted beyond Blackwater's mine site boundary.

> New Gold acknowledged that access to the Mount Davidson alpine via the mine site would be restricted until Blackwater's Closure phase. New Gold has proposed that public access would be restored to much of Blackwater's mine site following the completion of reclamation. Addressing the commenter's concerns related to light pollution, New Gold referred to its proposed measures (included in Section 7.2.8.3.2.9.2) aimed at minimizing the effect of artificial light. The EAO's proposed condition 39: Final Transmission Line Routing Plan includes the mitigation measures proposed by New Gold for Visual Quality and Non-Traditional Land Use.
>
> The EAO understands that final decisions regarding if/when all or part of the mine site will again be open to the public following reclamation will be determined by EMPR during Blackwater's permitting phase.

EFFECTS TO GUIDE OUTFITTERS

Batnuni Lake Guide & Outfitters Ltd. (Batnuni) expressed strong opposition to Blackwater regarding its view on how New Gold's exploration activities have and would continue to affect its guide outfitter tenure area (Certificate #601039), which is adjacent to the Blackwater mine site area, should Blackwater be granted an EAC. Batnuni stated that prior to New Gold's exploration activities in the area, it had used its tenure area as a wilderness hunting experience that was unique in BC and highly sought-after. Batnuni alleges that activities associated with New Gold's exploration have already degraded the hunting experience that Batnuni can offer and have resulted in reduced harvest. Batnuni anticipated that the expansion of activities linked to Blackwater's Construction and Operations phases would have a broader deleterious effect on its business. Batnuni expressed that it would like the effects on its business to be fairly mitigated and compensated.

In response, New Gold stated that it has engaged in an extensive dialogue with Batnuni with respect to Blackwater, regarding exploration activities, the proposed mine and the transmission line realignment, and that New Gold continues to try to find ways to minimize its impacts on tenure-holders, including Batnuni. This has included adjusting the timing of its exploration activities and avoiding Batnuni's corral near Chedakuz Creek. New Gold also notes it has installed signs on the Davidson and Blue Roads in October 2014 to promote awareness and compliance with the Vanderhoof Land and Resource Management Plan by other road users. New Gold's position is that Batnuni has not presented information which would suggest that the parties' respective tenures are incompatible, or that New Gold's exploration activities have been the direct cause of any business losses that Batnuni may have suffered in recent years. New Gold has stated it is committed to continuing the dialogue with Batnuni to ensure both parties are able to exercise their tenure rights in a compatible manner. New Gold is of the view that discussion of financial compensation as a potential mitigation is not appropriate at this time.

The EAO engaged directly with New Gold and Batnuni to better understand the nature of the potential effects of Blackwater on Batnuni, and to facilitate a resolution to Batnuni's concerns. This included: an in-person meeting between the EAO, New Gold and Batnuni on November 6, 2017; the EAO requiring New Gold to undertake further assessment of the impacts of Blackwater to Batnuni's business; and the EAO seeking further comments and information from Batnuni. However, New Gold and Batnuni were not able to resolve their difference of views during the course of the EA.

New Gold agreed that Blackwater would affect the ability of Batnuni to offer a wilderness hunting experience in the portion of its guide outfitter tenure area which overlaps the mine site area. New Gold's views are that a discussion on compensation is premature given that neither an EAC nor subsequent permits have been issued and that it has not started construction. Batnuni disagrees with that view in that it feels it has been continuously impacted since New Gold started its exploration activities, as well as by the infrastructure and related activities that have been allowed under permits prior to the Section 10 Order being issued for the Blackwater EA. An example of that activity would be the permitting and construction of a 400-person exploration camp. As such, Batnuni feels that the effects on its business should be fairly mitigated and compensated.

> The EAO is of the view that there are potential effects to Batnuni, however, because of the strong difference of views as to the nature and extent of this effect, the EAO is not able to conclude on specific mitigation that would be appropriate. Therefore, the EAO proposes Condition 38: Tenure Holder Communication and Mitigation Plan and Report, which would require New Gold to retain a Qualified Person to develop a Tenure Holder Communication and Mitigation Plan. This Plan would include details related to how New Gold would consult with Batnuni Guide Outfitters regarding mitigation measures, share a construction schedule, identify mitigation measures, and produce a report on the results of consultation and mitigation measures that will be implemented.

EFFECTS TO RECREATIONAL USERS AND PROPERTY OWNERS

New Gold proposed three potential realignments of the transmission line. These realignments, referred to as the "Mills Ranch Re-route," the "Stellako Re-route" and the "Big Bend Re-route" were proposed to address concerned related to effects to the environment and to Aboriginal Interests raised by CSFNs. The

new alignments would also serve to resolve some of the issues raised by Working Group members. For example, FLNRORD noted that the "Stellako Re-route's" revised crossing location at the Stellako River would move the transmission line away from the popular Class II-designated fishing area to parallel an existing transmission line. Similarly, the revised alignment known as the "Mills Ranch Re-route" would resolve the impediment to private aircraft use at Tatelkuz Lake Ranch Resort.

Although the new alignments resolved some issues, the EAO received a variety of comments from members of the public, local businesses and organizations, FLNRORD, and the Ministry of Jobs, Tourism, and Training expressing concerns related to the potential impacts to the natural landscape, to scenic quality, to the rural lifestyle in the area, and to tourism resulting from the newly-proposed alignments. A specific concern was that the transmission line would diminish the wilderness experience for recreationists canoeing on the Nechako and Stellako Rivers and those driving the Kenney Dam Road.

Specifically, the majority of commenters proposed that the transmission line be re-routed to follow the existing linear disturbance along the Kluskus FSR.

> In response to this comment, New Gold explained that the transmission line route is selected by balancing a variety of factors, including: impacts to private land; environmental and social impacts; economics; amenability to reclamation; as well as technical considerations such as system integrity, reliability, and ability to service the line. Using this analysis, New Gold determined that although both the proposed option and the Kluskus FSR option would have similar installation costs, the Kluskus FSR option would impose a higher impact to private land and wetlands than the proposed option and was therefore not selected.
>
> New Gold addressed some commenters' concerns by proposing adjustments in the routing of three sections of its updated TLA.

FLNRORD cautioned that the Mills Ranch Re-route would affect a greater number of tenure holders, as well as putting the transmission line through the Chedakuz Lakes access management area, which the Vanderhoof Access Management Plan designates as requiring limited access and promoting a "very high opportunity to experience solitude, closeness to nature, self-reliance and challenge."

In other cases, the route adjustments would simply modify, rather than resolve issues. For example, both the original and the adjusted transmission line routing over the Stellako River would cross through the Stellako River WMA. Similarly, all the variations of the transmission line routes would place the transmission line in proximity to a number of recreation sites and trails and would risk placing Blackwater's infrastructure within view of a few private properties. Additionally, each proposed route would cross the Nechako and Stellako River at some point, thereby potentially impacting recreationists navigating the rivers.

The issues raised by the Working Group and the public indicated that regardless of the transmission line's routing, it would impose a variety of effects to existing tenures, permits, property owners and recreationists.

New Gold has indicated that it would work with staff from FLNRORD's Recreation Sites and Trails BC during the permitting stage to ensure that all potential impacts to affected recreational sites are avoided or adequately mitigated.

The EAO proposes Condition 39: Final Transmission Line Routing Plan (FTLRP), which would be subject to approval by the EAO, and would require the EAC holder to prepare a plan to consult with Indigenous groups, existing tenure holders, permit holders, property owners, recreationalists and other land users to determine potential effects that the transmission line would impose on these parts and their rights, and appropriate mitigations. The FTLRP would include a discussion of how effects to recreational sites, visual resources, traditional activities, and the Stellako River WMA were avoided and, where unavoidable, a discussion of mitigation measures employed to limit impacts.

14.4 CHARACTERIZATION OF RESIDUAL EFFECTS

Taking into account comments provided by the EA Working Group, Indigenous groups, and the public, together with consideration of New Gold's proposed mitigation measures, the EAO concluded that Blackwater would result in adverse residual effects on the following VCs.

14.4.1 REGIONAL AND LOCAL SERVICES

Table 41 provides the EAO's characterization of the following potential adverse residual effects to the Regional and Local Services VC, specifically RCMP and Health Services:

- Existing constraints to RCMP and Health Services would be exacerbated by the increased population growth in surrounding communities and impacts associated with the non-resident workforce; and
- Decreased road safety resulting from increased traffic (including heavy and light trucks and personal vehicles) on regional highways and FSRs in proximity to Blackwater.

The EAO's characterization of Blackwater's expected adverse residual effects to Regional and Local Services is summarized below in Table 41. This table reflects the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 41: Summary of Residual Effects for Regional and Local Services VC (RCMP and Health Services)

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Low Resilience	RCMP services are near or above capacity. An increase in population and traffic could result in higher demand for RCMP services. The region is also sensitive to changes in health services as these services are at, or over capacity. A minor increase in population, trauma care, and traffic-related accidents could have potential adverse effects on the health care system.
Magnitude	Low to Moderate	Although the anticipated increase in population is considered small in comparison to the existing population, the potential increase in traffic could lead to an increase in traffic accidents. This, in turn, could lead to increased demand on RCMP, ambulance, and medical services. Additionally, the influx of temporary workers into the region could lead to increased demand on these services. The EAO proposes Condition 40: Health and Medical Services Plan and Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, which would all serve as avenues for monitoring and mitigating the effects of population changes associated with Blackwater.
Extent	Local to Regional	Effects on RCMP and health services would likely be most prevalent in the communities of Vanderhoof and Prince George where much of the population growth related to Blackwater is anticipated to occur and where proximate health care facilities are situated.
Duration	Long-term	Population-related effects are anticipated to be most notable during the early stages of Operations, as that is when the increase in population is expected. It is anticipated that the RCMP and health services would be adjusted to meet demand associated with permanent population change, especially with input and feedback through a Community Liaison Committee. Effects related to road safety and health service demands associated with non-resident populations could be felt throughout Construction and Operations.
Reversibility	Reversible	Effects from Blackwater to RCMP and health services would be reversed upon Closure.
Frequency	Continuous	Effects on RCMP and health services are anticipated to be continuous through Construction and Operations.
Likelihood	Blackwater would introduce new residents to the communities in the vicinity of Blackwater, while also introducing additional traffic and increased health and safety risks due to Blackwater's construction and operation. Although these factors could place increased demand on health and RCMP services, New Gold has proposed management plans aimed at identifying, monitoring, and adaptively managing adverse social effects, including effects to Health and RCMP services. Considering this, the EAO assesses that the likelihood of residual adverse effects on RCMP and health services is moderate.	
Significance Determination	The EAO concludes that there is a moderate likelihood that Blackwater would impose a low to moderate magnitude of residual adverse effects to RCMP and health services in the area. The effects, should they occur, are expected to be continuous throughout Construction and Operations, and reversible upon Blackwater's Closure. Although some effects could extend to affect regional health and protection services, most effects would be focused on RCMP and health services in the communities nearest to Blackwater, which have low resilience to increased demand. Considering the above analysis and the conditions identified in the TOC (which would become legally binding as a condition of an EAC), the EAO is satisfied that Blackwater would not have significant adverse	

CRITERIA	ASSESSMENT RATING	RATIONALE
	residual effects on RCMP and health services.	
Confidence	The EAO's confidence in this assessment is moderate because there are a number of unknown variables that may influence the degree to which Blackwater would impose adverse residual effects to Regional and Local Services. These include: • The ability of the EAO's proposed Condition 40: Health and Medical Services Plan and Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan to successfully identify and adaptively manage effects that could lead to increased demand on health and RCMP services; and • Demand placed on RCMP and health services would depend, in part, on individual circumstances and choices of the workforce and their accompanying family members, as well of those of community members not associated with Blackwater and interactions with broader social and economic factors.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

14.4.2 FAMILY AND COMMUNITY WELL-BEING

Table 42 provides the EAO's characterization of the following potential adverse residual effects to the Family and Community Well-being VC:

- Direct contribution to potential social issues, or exacerbation of existing issues, which could include (although not being limited to) crime, problematic drug and alcohol use, impacts to vulnerable communities (including Indigenous groups, women and children), and impacts to families. These issues could stem from:
    - The concentration of up to 1,500 Construction personnel and, later, of up to 500 Operations personnel at an on-site work camp and their interaction with transit hubs and adjacent communities; and
    - The separation of Blackwater personnel from their families during work rotations.

The EAO's characterization of Blackwater's expected adverse residual effects to Family and Community Well-being is summarized below in Table 42. This table reflects the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 42: Summary of Residual Effects for Family and Community Well-Being VC

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Low to Moderate Resilience	The communities in the vicinity of Blackwater are vulnerable to changes in family and community well-being. Various indicators suggest that the socio-economic conditions related to family and community well-being in the local area are below the provincial average.
Magnitude	Low to Moderate	Effects to Family and Community Well-being is a broad category and encompasses a variety of populations as well as potential effects that individuals within those populations may experience. Potential effects would be expected to affect individuals differently, in terms of the specific effect(s) that they experience and the magnitude of

CRITERIA	ASSESSMENT RATING	RATIONALE
		the effect(s) on their lives. More vulnerable segments of the population would be expected to disproportionately experience adverse effects to their well-being. Because the anticipated increase in population is projected to be small relative to the existing population, effects linked directly to population change are expected to be low to negligible. Income- and employment-related effects could lead to positive effects (for example, higher household income) or, alternatively, to negative effects potentially including increased available income for problematic substance abuse and family dysfunction. Adverse effects that may be caused by Blackwater's work rotation scheduling and on-site accommodations could include effects already noted, as well as effects to transit hubs. The EAO's proposed Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan is anticipated to provide important mechanisms for addressing and mitigating social effects arising from Blackwater.
Extent	Local to Beyond Regional	Potential adverse residual effects would be concentrated within communities where Blackwater's workers and any accompanying family members reside and visit. Potential effects on families resulting from prolonged absences of Blackwater workers could extend to their home communities which may be outside the region.
Duration	Short-term to Permanent	Effects to Family and Community Well-being are expected to be felt during Construction, Operations and Closure, although the specific effects would be different during the three phases. Effects during Construction are more likely to include effects related to the fly-in/fly-out work schedules (for example, family separations, pressures on the spouse remaining in the home community). Effects during Operations are expected to peak in its early stages, as the community adjusts to accommodate an increased population and the workers adjust to increased income. Effects during Closure would relate to the potential loss of employment and associated family and community effects.
Reversibility	Reversible to Irreversible	Some potential adverse effects to family and community well-being, including family dysfunction, substance misuse, domestic abuse, and chronic conditions, are irreversible once the effect has taken place. Other adverse effects could generally be considered reversible through implementation of successful mitigation strategies. The EAO is proposing Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, which would include important tools to identify and adaptively manage (that is, mitigate or reverse) adverse effects to family and community well-being during Blackwater's Construction through Closure phases. Effects related to Blackwater's fly-in/fly-out work scheduling would reverse upon completion of the Construction phase. Effects related to living in Blackwater's work camp would be reversed upon Blackwater's Closure.
Frequency	Continuous	Effects on family and community well-being are anticipated to be continuous, although the specific issues are likely to vary throughout Construction, Operation, and Closure.
Likelihood	Blackwater would impose conditions that could cause effects to family and community well-being (for example, family separation, work and living conditions that may be stressful to both workers and family members who remain at home, changes to disposable income levels, etc.), resulting in a moderate likelihood of residual effects. The EAO's proposed Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, and Condition 40: Health and Medical Services Plan	

CRITERIA	ASSESSMENT RATING	RATIONALE
	would aim to proactively identify and adaptively manage effects. Considering this, the EAO assesses that the likelihood of residual adverse effects on family and community well-being is moderate.	
Significance Determination	The EAO assesses that there is a moderate likelihood that Blackwater would cause residual adverse social effects to family and community well-being that are low to moderate in magnitude. Although a majority of these effects would be local in nature, some effects could extend to the home communities of Blackwater's workforce. The EAO anticipates that residual effects to family and community well-being would be continuous, although the specific effects would likely shift and/or develop as Blackwater progresses from the Construction phase, through to Operations and finally the Closure phase. Nonetheless, the EAO anticipates that effects would reverse in the years following Blackwater's Closure. The EAO's proposed CLC and CEMMP would be required as a legally-binding condition of the EAC, would work to identify and adaptively-manage social effects that are identified. Considering the above analysis and the conditions identified in the TOC (which would become legally binding as a condition of an EAC), the EAO is satisfied that Blackwater would not have significant adverse residual effects on family and community well-being.	
Confidence	The EAO's confidence in this assessment is low because there are a number of unknown variables that may influence the degree to which Blackwater would impose adverse residual effects to Family and Community Well-being. These include: • Effects to family and community wellness are influenced by a broad array of broader social and economic factors; • Impacts to family and community wellness are influenced by an array of individual circumstances and choices on the part of Blackwater's workforce and their family members (whether accompanying or not), • community members in areas in which Blackwater's workforce establishes residences; and • Many specific measures aimed at monitoring and mitigating effects to family and community well-being have yet to be fully developed and will be determined through the process of adaptive management.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

14.4.3 NON-TRADITIONAL LAND AND RESOURCE USE

Table 43 provides the EAO's characterization of the following potential adverse residual effects to the NTLRU VC:

- Potential effects for tenured land holders (including mineral, forestry, trapping, guide outfitting and range tenure holders) and non-tenured land users (including those participating in recreation and tourism), due to:
  - Restricting access to the mine site for the duration of Construction through Post-closure; and
  - Disturbing use of land and resources due to air emissions, dust, noise, visual effects and/or general inconvenience from Construction through Post-closure.

The EAO's characterization of Blackwater's expected adverse residual effects to NTLRU is summarized below in Table 43. This table reflects the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 43: Summary of Residual Effects for Non-Traditional Land and Resource Use VC

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Moderate to High Resilience	Industrial activities such as mining, mineral exploration and forestry are not uncommon in the region. As such, the types of effects that may accompany Blackwater are within the regional norm. The area hosts a broad range of property owners, tenure holders and land users, some of whom are not likely to be sensitive to changes that could be introduced by Blackwater. Other land users and tenure holders, such as residents, recreationists, and holders of mineral or forestry tenures, may be more sensitive to Blackwater-related effects such as impeded access to land and resources, reduced resource availability, and general disturbance. Among the many guide outfitters in the area, one has expressed concerns about how Blackwater may impose an impact on their business by diminishing the wilderness value of the area covered by one of their territory certificates. This guide outfitter stated that Blackwater's exploration activities have already resulted in lower hunting harvest for their operations, suggesting that their ability to successfully exercise its tenure is acutely sensitive to existing conditions.
Magnitude	Low to Moderate	Blackwater would cause restrictions to tenured and non-tenured land users' access resources, but the majority of these restrictions would be temporary and limited to the Construction and Decommissioning phases. Access to approximately 3,800 ha of land would be restricted during Blackwater's operations, and a smaller portion of this area may continue to have restricted access during Blackwater's continued water treatment during Post Closure for which there is no end-date. Users of some areas located close to Blackwater's infrastructure may experience disturbance from air emissions, dust, or noise from Construction or Operations, and from associated traffic. Similarly, property owners and recreationists may find their experience negatively impacted by views of Blackwater's infrastructure. Wilderness guide outfitters with tenures located close to the mine site and access roads could be negatively affected as a result of increased traffic, air and noise emissions causing an impact on harvestable game, as well as the potential disturbance to the wilderness experience.
Extent	Local	Effects on NTLRU would be limited to the immediate vicinity of mine site, water supply, transmission line, air strip and access road, as well as areas that can only be accessed by way of the mine access road or the Messue Wagon Trail.
Duration	Long-term to Permanent	Residual effects on NTLRU would occur during Construction through Post-Closure. Construction and Operations effects (for example, access restrictions, noise, traffic and dust affecting guide outfitters and other recreationists) would be long-term. Some effects to NTLRU may extend through the Post-Closure phase because some infrastructure would remain in place to support water treatment for which there is no end-date.
Reversibility	Reversible	Disruption due to air emissions, dust, and noise associated with Blackwater's Operations would be reversed at Closure. Access restrictions resulting from the mine site being closed to the public would be largely reversed at Closure. Some effects, including access restrictions associated with the construction and eventual decommissioning of infrastructure associated with water treatment (that is, WTP,

CRITERIA	ASSESSMENT RATING	RATIONALE
		transmission line, and access road) would be reversed upon the completion of water treatment.
Frequency	Temporary to Continuous	Access restrictions associated with the construction and eventual demolition of the FWSS, transmission line, access roads and airstrip would be temporary in nature and only last for a portion of the Construction and Closure phases. Other effects on NTLRU such as disturbance associated with Operations activities are expected to be continuous.
Likelihood	Because of the variety of land users that are encompassed in the NTLRU category and the broad area that Blackwater infrastructure and activities span, there is a high probability that Blackwater and its various components and/or activities would impose effects on some of those exercising their tenured or non-tenured entitlements in the area.	
Significance Determination	Residual adverse effects to NTLRU are anticipated to be low to moderate in magnitude and local in extent. Although there is a high likelihood that some non-traditional land and resource users in the area would be affected in some way, some of those effects would be temporary in nature, while other effects may be continuous. Ultimately, the effects would be reversed upon completion of water treatment. Considering the above analysis and the conditions identified in the TOC (which would become legally binding as a condition of an EAC), the EAO is satisfied that Blackwater would not have significant adverse residual effects on NTLRU.	
Confidence	The EAO's confidence in this assessment is moderate because there are a number of unknown variables that may influence the degree to which Blackwater would impose effects to NTLRUs. These include: • Uncertainty related to what the final transmission line routing will be; and • Uncertainty related to whether some, or any, of the mine site would remain closed to access during the prolonged water treatment phase.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

14.4.4 VISUAL RESOURCES

Table 44 provides the EAO's characterization of the following potential adverse residual effects to the Visual Resources VC:

- Blackwater infrastructure and/or activities may be visible from various private properties, navigable waterways and recreational sites.

The EAO's characterization of Blackwater's expected adverse residual effects to Visual Resources is summarized below in Table 44. This table reflects the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 44: Summary of Residual Effects for Visual Resources VC

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Moderate to High Resilience	The landscape has been visually modified in the past by alterations and disturbances, especially from forestry and associated roads. There are some undisturbed areas with high recreational and visual quality values and these areas would have less resilience to visual effects. The moderate resilience rating takes into account the sensitive nature of some areas with the existing landscape modifications.
Magnitude	Low to Moderate	The proposed transmission line route would have negative effects on the visual quality of some high value recreation areas, particularly those near Tatelkuz Lake, the Stellako River and the Nechako River. However, the transmission line route is only highly visible from specific sites, and views may be restricted by vegetation cover, undulating terrain and distance. Artificial light from the mine site may be visible and New Gold has proposed mitigation measures for these effects. New Gold would be required to address effects to Visual Resources as part of the EAO's proposed Condition 13: Construction Environmental Management Plan. The EAO's proposed Condition 39: Final Transmission Line Routing Plan also would require New Gold to mitigate effects to Visual Quality.
Extent	Local	Effects on visual resources would be associated with LSAs.
Duration	Permanent	Effects are likely to be felt permanently because the transmission line and other infrastructure associated with water treatment would remain in place for more than 42 years, until they are no longer required to support water treatment.
Reversibility	Reversible	The effects would be reversible if the infrastructure associated with water treatment were to be removed.
Frequency	Continuous	Effects on visual resources would be continuous.
Likelihood	Because Blackwater and its various components span a broad area, there is high probability that Blackwater infrastructure and/or activities would likely be visible to property owners, tenure holders, and recreationists from certain vantage points. As such, the likelihood is high that Blackwater would result in some degree of adverse residual effects to Visual Resources.	
Significance Determination	Residual adverse effects to Visual Resources from Blackwater are anticipated to be low to moderate in magnitude but very local in extent (that is, limited to the individual points at which Blackwater's infrastructure is visible). While there is a high likelihood that there exist a number of locations from which Blackwater's infrastructure would be visible, the sensitivity of these locations to alterations in the landscape vary, with some sites particularly sensitive (for example, recreational sites) and others considerably less. Considering the residual adverse effects to Visual Resources would be moderate in magnitude the above analysis, the EAO is satisfied that Blackwater would not have significant adverse residual effects on visual resources.	
Confidence	The EAO's confidence in this assessment is moderate because there are a number of variables that would influence the degree to which Blackwater would impose effects to visual quality. These include: • Uncertainty related to which transmission line reroutes, if any, will be selected; and • The potential that steel towers would be used to support the transmission line (instead of wooden poles) and the effects to visual quality that these towers would impose.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

14.5 CUMULATIVE EFFECTS ASSESSMENT

There are a number of past, present, and reasonably foreseeable projects and activities in the RSA that have the potential to act cumulatively with Blackwater's residual effects, which include residual effects on:

- Regional and Community Infrastructure;
- Regional and Local Services;
- Family and Community Well-being;
- NTLRU; and
- Visual Resources.

In the Application, New Gold concluded that a collection of mining projects and pipeline projects – all in varying stages of development – could produce social effects that could act in combination with Blackwater's residual effects. These projects are listed in Table 4.3-11 in the Application. In response to Working Group comments, New Gold clarified that regional projects, including Mt. Milligan, Kemess Underground, Northern Gateway, and LNG pipeline projects could have cumulative socio-economic effects with Blackwater.

In the Application, New Gold concluded that no cumulative effects on the 'Community and Infrastructure' and 'Regional and Local Services' VCs would be expected because of good capacity in the SERSA and because of the minor changes in population as a result of Blackwater. The EAO believes there is some uncertainty in the availability of affordable housing and social services, including RCMP and health care capacity, and believes that it is possible for the additional population increases as a result of other projects to result in cumulative effects on these VCs in the region.

New Gold stated that it is impractical to conduct a cumulative effects assessment for the "Family and Community Well-being" VC. The EAO acknowledges the difficulties in assessing cumulative effects, owing in part to complexity of interactions among indicators and the limitations in availability of baseline data. In spite of the potential challenge in isolating specific causal influences, the EAO is of the view that the effects to Family and Community Well-being resulting from Blackwater could act cumulatively with effects of other projects. The EAO concludes that the magnitude of such effects is likely to be moderate. Further, the EAO acknowledges the large amount of uncertainty embedded in predicting well-being outcomes because the specific effects are influenced by a multitude of factors.

For NTLRU and Visual Resources VCs, the Application identified future activities, including the Nulki Hills Project, Fraser Lake Biomass Project, future mineral exploration and forestry activities as potential activities within the SERSA that could result in cumulative social effects with Blackwater. The EAO concludes that the magnitude of cumulative effects on tenure holders would be low because of the limited extent of these projects compared to existing areas in the region and the potential to address effects through mitigation and compensation. For non-tenure holders, the EAO considers cumulative effects to be moderate in magnitude because these additional projects would add to the total disturbance and traffic in the area and would diminish the wilderness value and visual quality associated with recreation and tourism.

To adaptively manage Blackwater's social effects, New Gold committed to participate in multi-stakeholder efforts through a Community Liaison Committee. Further, New Gold committed to an array of management plans, including a Health and Medical Services Plan, Socio-economic Effects Management Plan, and Visual Resources Management Plan. The EAO recognizes the importance that such plans have in mitigating social effects to minimize the likelihood that those effects to act cumulatively with the effects of other projects. Accordingly, the EAO proposes a number of conditions, as discussed in the sections above, to address these effects.

Specifically, the EAO proposes Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, which would require New Gold to identify processes to monitor and adaptively manage adverse social effects on a broad array of community indicators, as well as establish a Community Liaison Committee to establish a process to receive and respond to community feedback. Condition 40: Health and Medical Services Plan would require New Gold to implement a plan to address on-site health and medical protocol and services, disease and infection prevention and outbreak protocols, health promotion and worker wellness program and a process for coordination with NHA and BC Ambulance Service.

Accordingly, the EAO concludes that significant cumulative effects to Social VCs are not expected as a result of the effects of Blackwater interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

14.6 CONCLUSIONS

Taking into consideration the above analysis and having regard to the proposed conditions, including Condition 13: Construction Environmental Management Plan, Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan, Condition 38: Tenure Holder Communication and Mitigation Plan and Report, Condition 39: Final Transmission Line Routing Plan, and Condition 40: Health and Medical Services Plan, identified in the TOC (which would become legally binding as a condition of an EAC), the EAO is satisfied that Blackwater would not have significant adverse effects on social VCs, including Demographics, Regional and Community Infrastructure, Regional and Local Services, Family and Community Well-being, NTLRU, and Visual Resources.

15 HUMAN HEALTH EFFECTS

15.1 BACKGROUND

Human health VCs (Worker Safety and Health VC and Environmental Exposure VC) were selected for study as Blackwater activities could lead to changes in levels of contaminants in air, soil and water, which could affect human health. Contaminants in air may be inhaled, while those in soil and water may be ingested incidentally or as drinking water or absorbed through the skin. Contaminant exposure could also occur through the consumption of vegetation and animals as country foods. Adverse health effects could also occur through exposure to noise.

During the development of the AIR, it was determined that Blackwater activities could lead to changes in environmental exposures to COPCs and to worker safety and health; therefore, both Environmental Exposures and Worker Safety and Health were identified as VCs. Human health is also closely linked to social effects and social determinants of health; further information regarding the EAO's assessment of impacts to social effects may be found in Section 14: Social Effects of this Report.

When considering the Worker Safety and Health VC, the EAO notes that worker occupational health and safety is addressed by a suite of legislation, such as the Health Safety and Reclamation Code for Mines in BC[37] (2017) for mine workers, and the BC Occupational Health and Safety regulations for non-mine workers. New Gold's commitments to following applicable occupational health and safety legislation and guidelines would be captured in the proposed Blackwater Occupational Health and Safety Management Plan, which would be a MA permit application requirement. Accordingly, the EAO did not assess the Worker Safety and Health VC further in this report. However, Working Group members did provide comments on worker health for the camp-based workforce outside of work hours. These comments can be found in Section 15.3 below.

Information from the following VCs and VC groupings was considered as part of the assessment of the Environmental Exposure VC:

- Noise and Vibration;
- Air Quality;
- Surface Water Quality;
- Vegetation;
- Fish and Wildlife VCs;
- Soil Quality;
- NTLRU; and
- Current Use of Lands and Resources for Traditional Purposes.

[37] Ministry of Energy, Mines and Petroleum Resources. 2017. Health, Safety and Reclamation Code for Mines in British Columbia. Victoria, British Columbia.

15.1.1 REGULATORY CONTEXT

The regulatory responsibility for human health lies with the BC Ministry of Health, as well as ENV. For the Blackwater EA, the BC Ministry of Health was represented on the Working Group by the NHA and the BCCDC.

Key regulations and guidelines that New Gold considered in the health effects assessment include the following:

- Air Quality: BC AAQOs, federal National Ambient Air Quality Objectives (including CAAQs);
- Water Quality: Guidelines for Canadian Drinking Water Quality (published by HC), *BC Drinking Water Protection Act*, BC WQGs, US EPA Regional Screening Levels (chemical concentration exposure over a lifetime in a specific area); and
- Soil and Vegetation: CCME Canadian Soil Quality Guidelines; BC soil standards (Contaminated Sites Regulation).

15.1.2 SPATIAL AND TEMPORAL ASSESSMENT BOUNDARIES

New Gold used a Human Health Study Area to assess impacts to human health, which included an LSA and an RSA as shown in Figure 15 below. The LSA included BNRD RDEAs D and F, the Village of Fraser Lake, the District of Vanderhoof, and 10 Indian Reserves, as well as a three km-wide corridor centered along the footprint of the proposed access routes and transmission line.

The RSA for the human health assessment follows the same boundaries as the SERSA and includes: Fraser-Fort George RDEA C, the Bulkley-Nechako RDEAs C and B, the City of Prince George, the Village of Burns Lake, the District of Fort St. James, and 12 Indian reserves.

The temporal boundaries for the assessment are provided in Part A, Section 2.2.1 Project Scope and Location of this Report.

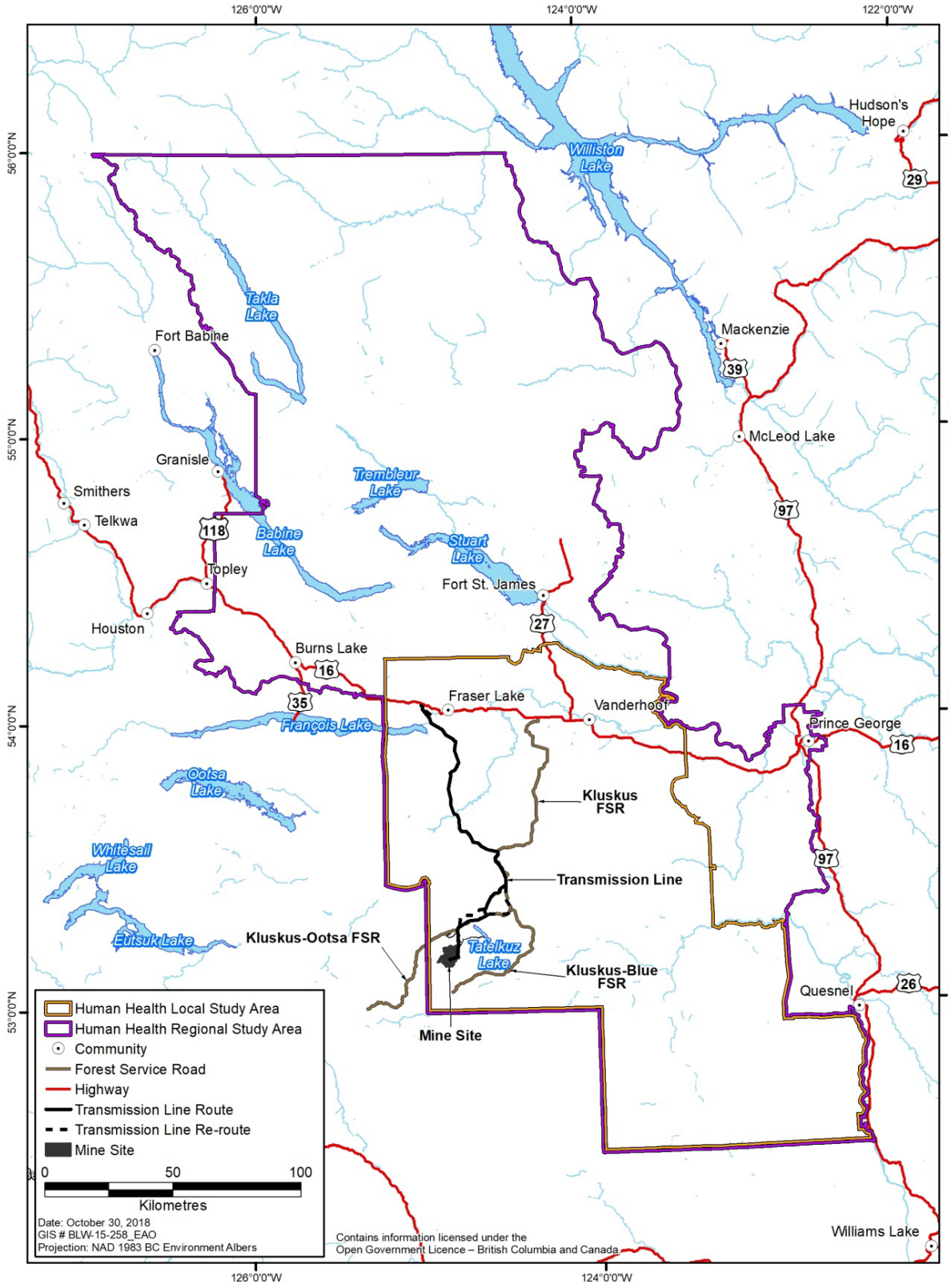

Figure 15: Human Health Study Areas

15.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED FROM APPLICATION

15.2.1 BASELINE INFORMATION

As described in Section 15.1 above, New Gold sourced baseline data for the human health analysis from the following VCs, and considered the predicted effects of Blackwater on those VCs:

- Noise and Vibration: predicted noise and vibration levels;
- Air Quality: predicted levels of air contaminants and predicted dispersion of these contaminants;
- Surface Water Quality: predicted levels of waterborne contaminants and dispersion of these contaminants;
- Soil Quality: predictions of changes to soil quality;
- Vegetation VCs and Fish and Wildlife VCs: analysis of species and ecosystems present and predicted impacts to those species and ecosystems; and
- Non-Traditional Land Use, and Current Use of Lands and Resources for Traditional purposes: information about the use of country foods and of lands near Blackwater.

15.2.2 POTENTIAL PROJECT EFFECTS

CONTAMINANTS OF POTENTIAL CONCERN

New Gold conducted a Human Health and Ecological Risk Assessment (HHERA) to assess the potential health impacts from exposure to contaminants associated with Blackwater activities. Operations activities at the mine site were expected to contribute the most contaminant emissions to which humans could be exposed through activities such as drilling, blasting, hauling, and ore processing. Accordingly, for the air and soil pathways, the HHERA used the Operations Phase at the mine site as a worst-case scenario to predict potential exposures to contaminants. For the surface water pathway, all project phases were considered in the HHERA.

The exposure pathway for COPCs in air is through inhalation, while COPCs in soil and water may be ingested incidentally or through drinking water or may be absorbed through the skin (dermal contact). COPC exposure could also occur through the consumption of vegetation or animals from the Blackwater area as country foods. New Gold used a human health exposure model (Figure 16) below, to show pathways by which COPCs could affect human health.

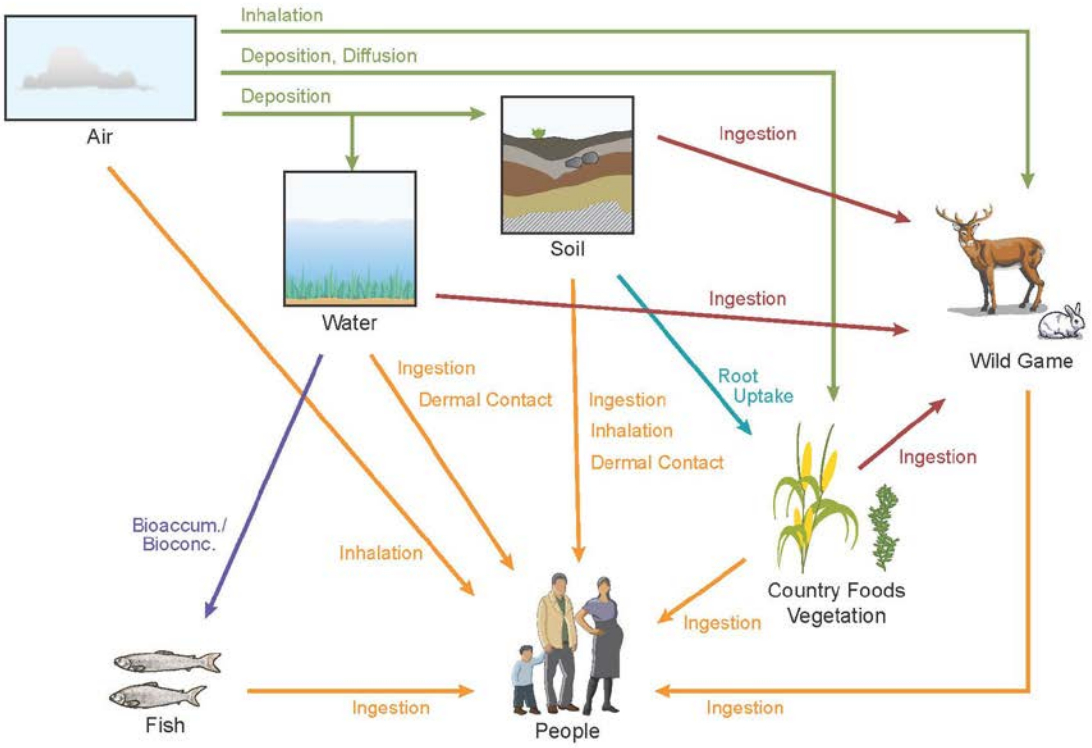

Figure 16: New Gold's Human Health Exposure Model

Contaminants were selected for inclusion in the HHERA through two methods:

- Contaminant concentrations in soil, water, and air from the Blackwater region were compared to screening level concentrations derived from the regulations noted in Section 15.1.1: Regulatory Context above. If the baseline contaminant concentration exceeded the screening level, the contaminant was carried forward into the HHERA as a COPC.
- Contaminants selected based on an understanding of which COPCs were expected to be emitted from Blackwater due to the equipment being used or from the activities being performed. The COPCs were then re-examined to determine if there was additional rationale for their inclusion or exclusion, such as bioaccumulation or non-toxicity.

The final COPCs selected for inclusion in the HHERA of those expected to be emitted from Blackwater were:

- **Volatile organic compounds (VOCs)**, including both polycyclic aromatic hydrocarbon (PAH) VOCs and Non-PAH VOCs: benzene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, ethylbenzene, indeno(1,2,3-cd)pyrene, and toluene;
- **Metals**: aluminum, arsenic, cadmium, mercury, molybdenum, and selenium;
- **Cyanide**; and

- **Criteria air contaminants (CACs)**: sulfur dioxide (SO_2), NO_2, CO, PM with a diameter less than 2.5 micrometres ($PM_{2.5}$), and PM with a diameter less than 10 micrometres (PM_{10}).

HUMAN RECEPTORS

In the HHERA, human exposures to the selected COPCs through various pathways were then calculated or modelled. The human receptors used by New Gold in the HHERA included four receptor locations and two receptor profiles. The receptor profiles were for Indigenous peoples spending all of their time in or around the Blackwater area, and engaging in traditional hunting or recreational activities.

The selected receptor profiles were:

- For non-carcinogenic COPC analysis: Indigenous toddler (as toddlers were considered the most sensitive age group for non-carcinogenic COPCs) exposed 24 hours per day, 365 days per year for 4.5 years (duration of toddler life stage); and
- For carcinogenic COPC analysis: Indigenous adult (as adults were considered the most sensitive life stage), exposed 24 hours per day, 365 days per year for their lifetime (60 years), as well as a composite age class receptor incorporating the higher relative COPC exposure during earlier stages (that is, infant, toddler, child and youth) with adult exposures (for a total lifespan of 80 years).

To investigate the risks from air contaminants, New Gold evaluated impacts to human health for four locations where the human receptor profiles might be located, based on their proximity to the mine. The four locations were:

- Blackwater-Spruce Ranch (20 km from centre of mine site);
- Laidman Lake Ecolodge (23 km from centre of mine site);
- Pan Phillips Resort and IR Kluskus 1 (27 km from centre of mine site); and
- Tatelkuz Lake Resort and IR Tatelkus Lake 28 (14 km from centre of mine site).

EXPOSURE PATHWAYS

The HHERA calculated or modelled exposures for the receptor profiles for each COPC, including information on the pathways by which exposure could occur and what amount of the COPC each receptor might be exposed to. The HHERA estimated environmental concentrations for all COPCs for all human receptors through the following pathways:

- Exposure and through inhalation of air;
- Incidental ingestion of and dermal contact with soil;
- Ingestion and dermal contact with surface water; and
- Consumption of country foods including mammals, vegetation from plants, and fish.

EXPOSURE CALCULATIONS

Having identified exposure pathways, the New Gold then modeled health risks based on level of exposure to chemicals.

THRESHOLD COPCS (NON-CARCINOGENS)

"Threshold" COPCs have the potential to cause non-carcinogenic effects when exposures are elevated above a specific level. To examine which COPCs might be above specific threshold levels, the HHERA identified future predicted COPC concentrations in various media and compared them to acceptable threshold values (also called toxicity reference values [TRVs]) resulting in calculated hazard quotients (HQs). An HQ is the ratio of the estimated daily intake or dose of a substance to the level at which no adverse effects are expected (a specific TRV for each COPC).

HQs over 1.0 indicate that the exposure to that COPC is greater than the TRV. For threshold COPCs, HC suggests that an HQ of less than 0.2 indicates that the exposure does not pose a significant health risk to human receptors. HC also suggests that HQs from multiple pathways, including all of a receptor's exposure to foods or retail products in other locations or environments or through other pathways not identified by New Gold,[38] may be summed to form a Hazard Index (HI) where the threshold value is 1.0 rather than 0.2.

NON-THRESHOLD COPCS (CARCINOGENS)

The HHERA also measured the carcinogenic risk of exposure to COPCs where a toxic effect occurs at all levels of exposure, using an incremental lifetime cancer risk (ILCR). The ILCR is calculated based on an estimate of exposures and the risk associated with those exposures. According to HC an ILCR value of less than $1x10^{-5}$ (1 in 100 000 people developing cancer as a result of a particular exposure), is considered to indicate an "essentially negligible" cancer risk. If predicted COPC values fall above HC's 1×10^{-5} value, adverse human health outcomes will not necessarily occur, but further analysis of the findings would be necessary.

BASELINE RISK TO HUMAN HEALTH

New Gold's Environmental Health Baseline Report describes the assessed human health risks currently present in the vicinity of Blackwater using both historic and recent site information. New Gold identified four metals (aluminum, arsenic, cadmium and molybdenum) as baseline (current) COPCs.

New Gold's calculations showed that the baseline health risks for aluminum, cadmium and molybdenum did not exceed the applicable human health screening thresholds. New Gold included these metals in the HHERA because chemical concentrations in some soil or water samples were greater than one or more of the regulations/guidelines referenced in Section 6.1.1, above.

New Gold's calculations identified arsenic as the only COPC with a baseline HQ above the threshold (1.24 compared to 1.0), and a baseline ILCR greater than the threshold (2.7×10^{-4} compared to 1.5×10^{-5}). The

[38] Guidance provided by HC in: Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment of Air Quality Version 2.0. Available at: http://publications.gc.ca/collections/collection_2018/sc-hc/H144-40-2017-eng.pdf.

main exposure pathway for both these baseline receptor profiles is through ingestion of surface water and fish for the adult profile, and through ingestion of surface water, fish and soil for the toddler profile.

New Gold also identified elevated baseline levels of CACs greater than the HC value of 0.2. However, given that inhalation was the only potential intake pathway for CACs, New Gold's comparison in the Application of the CAC HQs to the HI limit of 1.0 showed that there was no acute (for example, 1-hour, 8-hour, and 24-hour) or chronic (annual) CAC levels that exceeded 1.0 at assessed receptor locations.

PROJECT RISK TO HUMAN HEALTH

This section includes an overview of potential effects from Blackwater for the Environmental Exposure VC provided in Application Section 9, subsection 9.2.2.3. The potential sources of release of COPCs from Blackwater include both air and liquid effluent emissions such as run-off, surface water, and sediment displacement. The Application noted that surface water quality in receiving streams downstream of the TSF is expected to meet the BC WQGs or other permitted discharge levels through installation of a water treatment facility (see Application Appendix 9.2.2A.4).

The HHERA predicted that at all four receptor locations, exposures for all non-carcinogenic COPCs previously listed, except for arsenic and cyanide, would be below the HQ toddler threshold of 0.2. For all carcinogenic COPCs, except for arsenic, the predicted risk for both adult lifetime alone and amortized over an entire lifetime is below the HC threshold of 1.0×10^{-5}.

AIR CONTAMINANTS

The Application did not predict any short-term (1-hour, 8-hour, and 24-hour) or chronic (annual) exceedances of the objectives for CACs. New BC Interim AAQOs from 2014 and new federal CAAQS from 2017 were announced for NO_2. These standards were lower than the standards used in the Application, and New Gold's modelled NO_2 levels exceeded both the 1-hour and annual thresholds. For more information about the analysis of AQOs and potential air effects, please see Section 5: Air Quality of this Report.

ARSENIC

The effects of arsenic to human health can be either carcinogenic, typically for lower level longer-term exposures, or non-carcinogenic, typically for shorter-term higher-level exposures. The Application predicted that Blackwater-associated risk levels from long-term arsenic exposure would exceed both the 0.2 HQ threshold for the toddler profile and the 1.0×10^{-5} ILCR adult threshold at all four receptor locations. The calculated arsenic HQs ranged from 0.93 to 0.99. The ILCRs for adult alone exposure ranged from 2.0×10^{-4} to 2.1×10^{-4}, and the ILCR for adult amortized over lifetime exposure was 3.4×10^{-4}, for all four receptor locations. The HQ and ILCR exceedances resulted from the main exposure pathways of ingestion of fish and surface water. The HHERA predicted carcinogenic and non-carcinogenic health risks for arsenic that were lower than the baseline risk levels owing to the prediction for the proposed mine water treatment to remove arsenic from mine water, implying that Blackwater would be expected to have minimal additional negative effects with respect to arsenic.

CYANIDE

The Application predicted that cyanide would exceed the HC HQ threshold of 0.2 with a calculated HQ value of 0.31 at all four human receptor locations. The primary exposure pathways for cyanide is: surface water ingestion, and to a lesser extent dermal contact with surface water, and inhalation of air emissions.

New Gold's HHERA assumed that human receptors would be present continuously at the receptor locations and that they would spend all their lives inside the LSA. New Gold noted that it would be highly unlikely for all air and ingested water for an individual to come from the LSA over their lifetime. Therefore, New Gold concluded that the HHERA analysis likely overestimated potential risks to human health. In addition, New Gold committed to work with Indigenous groups, community stakeholders and individuals potentially affected to develop an emergency notification and response plan to address accidents or malfunctions resulting in release of cyanide to the environment.

NOISE

While noise impacts on workers during the work day would be managed through the Health, Safety and Reclamation Code for Mines in BC, New Gold also examined potential effects from noise on off-duty workers while at rest in the work camp. This analysis took into account WHO guidance of 30 dBA as the limit for noise to allow workers to rest and predicted that outdoor noise levels at the work camp would be about 40 dBA, with noise levels inside the camp buildings expected to be about 20 dBA. Considering these analyses, noise while workers would be at rest was not expected to contribute to risks to human health.

NEW GOLD'S CONCLUSION

New Gold concluded that the actual exposures are expected to be lower than those presented in the HHERA, given:

- Consumption rates of country foods is likely to be lower than that assumed in the HHERA;
- The HHERA assumed full bioavailability of chemicals within the area, which may not be the case;
- The HHERA assumed continuous presence of an individual at identified locations within study area, which is unlikely; and
- The HHERA's modelled methods of soil ingestion may not be realistic.

Based on this evaluation, New Gold concluded that an increase in potential exposure resulting from Blackwater was unlikely.

15.2.3 MITIGATION MEASURES PROPOSED IN THE APPLICATION

The Application proposed the following key mitigation measures to address potential effects to human health from environmental exposures:

- Air quality mitigation measures, including:
    - Off-road vehicles would meet emission standards and use ultra-low sulphur diesel;
    - Vehicle speeds would be controlled throughout mine site;

    - Unpaved roads would be wetted as needed to control dust emissions;
    - Road surfaces would be constructed of coarse aggregate with very low silt content; and
    - Road surfacing materials would be wetted before handling to reduce PM emissions.
- Surface water mitigation measures to avoid uncontrolled surface water discharge and seepage from operating mine facilities, including:
    - Spillways, collection and diversion ditches, and the creation of an ECD;
    - Collection and pump back systems to manage seepage;
    - Surface and groundwater monitoring systems; and
    - Sediment and erosion control measures;
- Implementation of a Country Food Monitoring Plan, including:
    - Prior to mine operations, determination of baseline concentrations of metals in country foods;
    - Monitoring of country foods to detect changes in COPCs against baseline levels over Blackwater's lifetime; and
    - Adaptive management would be implemented if COPC trigger values were exceeded.

In addition, New Gold would take the following steps to mitigate environmental exposures:

- Implementation of an Aquatic Resources Management Plan;
- Water treatment systems to address effluent water quality;
- Development of a Hazardous Materials Management Plan and an Emergency Spill Preparedness and Response Plan to both train staff and reduce the risk associated with hazardous materials;
- Development of a MWWMP which would include monitoring waste rock for ML/ARD; and
- Development of a Cyanide Management Plan to minimize risks to employees, adjacent communities and the environment during all phases of Blackwater when cyanide is at the site. This plan would include transportation, storage and usage methods, treatment and disposal of cyanide tailings, environmental monitoring, and emergency preparedness.

15.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

Technical comments on the human health effects assessment and HHERA were raised by the Working Group during Application Review. The following key issues were distilled from these comments:

- Risk from air contaminants;
- Risk to off duty workers;
- Country foods assessment;
- Potential risk from herbicides along the transmission line;
- Changes to the transmission line; and
- Changes to water management.

15.3.1 RISK FROM AIR CONTAMINANTS

HC noted that if Indigenous peoples were to be present where the highest levels of CACs are expected, called the maximum point of impingement (MPOI), they would be exposed to those elevated levels of CACs. As a result, HC requested that New Gold evaluate all CACs at the mine boundary (also called the "fence line"). HC's view was that any increase in NO_2 and/ or PM exposures could be harmful.

New Gold calculated predicted NO_2, SO_2, TSP, $PM_{2.5}$ and PM_{10} levels at the MPOI, using the assumption that a person would be at the MPOI full-time throughout the whole year. The results showed HQs higher than 1.0 for the following:

- NO_2 (1-hr) – exceeded for a total of 24 hours in one year;
- TSP (24-hr and annual) – exceeded 94 days per year;
- $PM_{2.5}$ (annual) – exceeded 3 days per year; and
- PM_{10} (24-hr) – exceeded 181 days per year.

New Gold predicted that the concentrations for $PM_{2.5}$ would be below the 24-hr AQO and noted that this size of PM is most relevant for human health risk (as it can reach the thoracic area of the lungs). New Gold also noted that due to the expected level of sensory disturbance from the mine site at the MPOI (less than 250 m from the open pit), it would be unlikely that people would conduct extended hunting, gathering or recreation activities in the area.

The EAO notes HC's and NHA's views are that any increase in PM or $N0_2$ represent an increased risk to human health. The EAO also notes that there are no permanent residences at the MPOI and it would be unlikely that even a transient land user would spend extended periods of time at the MPOI (at the fence-line). The EAO is also proposing Condition 20: Air Quality and Dust Management Plan to monitor and adaptively manage emissions from Blackwater.

Considering the calculated annual 1-hour HQs for NO_2 (=1.13) and $PM_{2.5}$ (=1.04) were only slightly above the HC threshold of 1.0, and given the low frequency with which human receptors would be expected to be at the MPOI, as well as the monitoring, mitigation and management of air quality that would be required by Condition 20: Air Quality and Dust Management Plan that the EAO is proposing, the EAO is satisfied that there would be a negligible human health risk due to CACs at the MPOI.

15.3.2 RISK TO OFF DUTY WORKERS

NHA and BCCDC requested a supplemental Human Health Risk Assessment (HHRA) for off-duty workers residing onsite at the worker camp, with consideration of how worker on-duty exposures could relate to additional exposures incurred while in camp. They noted that these individuals would be the most proximate human receptors to the mine and are located within the fence line but are not covered while off-duty by occupational health and safety legislation and regulations, such as the Occupational Health and Safety Regulation and the Health, Safety and Reclamation Code for Mines in BC. Also, the BCCDC

recommended air quality mitigation measures be employed, including HEPA filtration of all indoor environments and continuous PM monitoring station at the camp site with filters regularly tested for arsenic content.

In response, New Gold conducted a multi-pathway HHRA for each of the COPCs including exposure via air, soil (incidental ingestion and dermal contact) and drinking water. Country foods were not included as an exposure pathway for off-duty workers as New Gold proposes to restrict workers from fishing, plant harvesting and hunting while on-shift. The HHRA assumed that workers would be off-duty for 12 hours per day in shifts of two weeks on site.

New Gold determined that the estimated baseline HQs for arsenic, lead and fluoride would be greater than 0.2 for off-duty workers, but less than the HI threshold of 1.0. The baseline ILCR for arsenic for off-duty workers was calculated as $9.6x10^{-5}$, which is about 9.6 times above the HC ($1.0x10^{-5}$). This exceedance of the ILCR threshold was largely driven by predicted drinking water exposures being based on COPC concentrations found in sampling boreholes, while New Gold committed to treating or providing an alternate source of drinking water for the worker camp, which would lower COPC exposures considerably and mitigate concerns regarding drinking water at the camp.

For the carcinogens exposure scenario with Blackwater, the HHRA predicted that the total arsenic ILCR for the combined oral and dermal pathways to be $1.5x10^{-5}$, slightly above the $1x10^{-5}$ carcinogenic negligible risk threshold. New Gold explained that the arsenic risk would be driven primarily by drinking water exposure. New Gold has committed to ensuring safe drinking water for workers in the camps (for example, through treating water, and by providing bottled water if needed) and by monitoring water, if required, in order to comply with the BC *Drinking Water Protection Act*. For the inhalation exposure route, the HHRA predicted that the summed ILCRs for arsenic, cadmium and nickel would be less than the ILCR threshold of $1.0x10^{-5}$.

Based on the HHRA conducted for off-duty but on-site workers that predicted negligible non-carcinogenic health risks, combined with New Gold's commitment to monitor drinking water and mitigate impacts through options such as providing an alternate source of drinking water, the EAO is proposing Condition 40: Health and Medical Services Plan that would require New Gold monitor drinking water and to apply mitigation strategies if exceedances of the *BC Drinking Water Guidelines* were to be observed. Considering the requirements for the proposed Health and Medical Services Plan that the EAO is proposing, the EAO is satisfied that the issue of risks to off-duty workers are adequately addressed for the purposes of the EA.

15.3.3 COUNTRY FOODS ASSESSMENT

Throughout Application Review, HC raised a variety of methodological issues relating to New Gold's HHERA and the assessment of country foods. HC noted its view that these issues result in additional uncertainty into the predicted human health risk from the consumption of country foods. HC's concerns regarding country foods and the HHERA included the following:

- The number and location of vegetation samples collected for willow and huckleberry;
- Combining different species in vegetation samples;
- Using an appropriate mercury guideline for consumption of fish by Indigenous people for the Country Foods Monitoring Plan;
- Combining small game and mammal tissue samples when there could be variation between individuals;
- Sampling of only dust-free/ washed vegetation when some receptors might eat unwashed vegetation;
- Sampling locations for country foods – to ensure sampling in locations where foods are more likely to accumulate COPCs from Blackwater; and
- Omitting moose and medicinal plant sampling.

For many of the country foods methodological issues raised during Application Review, New Gold committed to addressing them through an updated country foods monitoring plan.

To address these uncertainties, the EAO proposes Condition 41: Country Foods Monitoring Plan. The proposed condition would require that the Plan be developed in consultation with ENV, EMPR, NHA and Indigenous groups, and would require monitoring of COPCs in country foods including vegetation, fish and small mammals, and would require New Gold to monitor CACs and dustfall.

LDN, UFN, StFN, NWFN and HC requested that community specific country food information such as the quantities, types of foods and frequency of consumption be included in the HHERA to accurately predict potential human health risks from the consumption of country foods. NWFN, StFN, LDN and UFN noted the importance of avoiding unnecessarily conservative assumptions in the HHERA exposure modelling which could lead to a falsely overestimated risk to human health. Such overestimates could result in inaccurate perceptions of increased contamination of country foods, which could in turn cause an actual reduction in country food consumption through behaviour changes and could have implications for the health of community members.

New Gold responded that expected or actual consumption patterns by local people would be considered and incorporated into the next iteration of the country foods monitoring plan. Regarding the level of conservatism in the HHERA, New Gold noted that the HHERA followed HC's guidance, which is conservative by nature and expected to result in an overestimation of risks. To address the potential that Indigenous citizens might perceive changes to country food quality as a result of Blackwater, New Gold committed to updating the monitoring plan with the participation of Indigenous groups.

To address the uncertainty regarding Indigenous groups' specific country foods exposures and concerns regarding the accuracy of risk predictions, the EAO proposes Condition 41: Country Foods Monitoring Plan which would require New Gold to address Indigenous groups' concerns related to assessing the appropriate consumption patterns of country foods by implementing a Country Food Monitoring Plan. The proposed condition would require that the Plan developed in consultation with ENV, EMPR, NHA and Indigenous groups, and would require monitoring of COPCs in country foods

including vegetation, fish and small mammals, as well as CACs and the amount of dustfall. Considering the requirements for the proposed Country Foods Monitoring Plan that the EAO is proposing, the EAO is satisfied that the issue of risks to human health from country foods are adequately addressed for the purposes of the EA.

15.3.4 IMPACTS FROM HERBICIDE USE ALONG THE TRANSMISSION LINE

NWFN raised to New Gold the issue of potential impacts on human health due to the application of herbicides/ defoliants along transmission line and associated access roads and branch roads.

In response New Gold stated it would address NWFN's concern by following a StFN policy which governs the use of herbicides and would restrict the use of herbicides along the Blackwater transmission line and access roads.

Considering New Gold's commitment to follow StFN's policy regarding herbicides, the EAO is satisfied that the issue of risks to human health from country foods are adequately addressed for the purposes of the EA.

15.3.5 CHANGES TO TRANSMISSION LINE ALIGNMENT

During Application Review, New Gold changed a portion of its TLA to reduce potential impacts to the environment and to Aboriginal Interests. New Gold did not evaluate impacts to human health from the new transmission line, noting that the new alignment would not be expected to affect Environmental Exposures.

The Working Group reviewed the transmission line re-alignment assessment and did not raise any issues related to human health.

15.3.6 CHANGES TO WATER MANAGEMENT

During Application Review, New Gold changed its approach to water treatment and water management in response to Working Group concerns, and re-evaluated potential effects to other VCs, including human health, as a result of the related surface water quality modelling updates. Three chemicals were of interest after this analysis: antimony, sulphate, and zinc. New Gold predicted that the only surface water parameter that would exceed drinking WQGs and baseline levels would be antimony in Davidson Creek during Post-Closure.

Upon analysis of the results for antimony, New Gold predicted that health effects from intake of antimony would be negligible as New Gold's view was that the WQG for antimony is very conservative, and New Gold assumed that a person would need to consume antimony at the guideline concentration for a long period of time for a health effect to occur. New Gold stated that it was also unlikely that the full day intake of water for a person would come from Davidson Creek for a long period of time, and conservatively, New Gold assumed that water would be consumed without

filtration or treatment, whereas some users might filter or treat their drinking water, which would further lower levels of antimony. New Gold proposed to mitigate the intake of antimony by posting signage during Post-Closure in areas that might be accessed by recreational users.

New Gold also predicted that changes in surface water quality could cause elevated concentrations of sulphate in aquatic biota in Davidson Creek and zinc in Creek 661. New Gold noted that there is no evidence that sulphate is toxic through the food ingestion route, and that there is no toxicity threshold for food. Additionally, sulphate is not known to be bio-accumulative in the food chain.

Regarding the predicted elevated level of zinc in Creek 661, New Gold stated that the maximum levels in Creek 661 would be below drinking WQGs and there are no fish tissue residue guidelines for zinc for human consumers of fish. New Gold predicted that people are likely to fish throughout the LSA, as opposed to obtaining all their fish from upper Creek 661 where higher zinc levels could contaminate fish. Therefore, New Gold did not anticipate that zinc would affect human health. New Gold committed to monitoring country foods through a country foods monitoring plan and would be required to monitor water quality under an EMA permit should Blackwater advance to the permitting stage. New Gold predicted that changes to human health would be "neutral" compared to the original predictions in the Application.

The Working Group reviewed the changes to the water management and treatment approaches and did not raise any issues related to human health. The EAO is proposing Condition 26: Water Quality Management and Condition 34: Closure and Post-Closure Water Quality Management Plan to manage effects to manage impacts to water quality.

Considering this, the EAO is not proposing a condition, and considers the issue of changes to water quality as a result of changes to water treatment adequately addressed for the purposes of the EA.

15.4 CHARACTERIZATION OF RESIDUAL EFFECTS

After considering the proposed mitigation measures and proposed EAC conditions, the EAO concludes that Blackwater would have residual adverse effects on human health. The EAO's characterization of the expected residual effects of Blackwater on human health is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 45: Summary of Residual Effects for Human Health

CRITERIA	ASSESSMENT RATING	RATIONALE
Context	Moderate resilience	There are no existing industrial projects in the area that release COPCs that could impact human health, however the local population baseline and health profile information indicated that health vulnerabilities exist in the RSA, meaning that the local population could be more heavily impacted by any effects from Blackwater. Additionally, some COPCs have elevated baseline levels, meaning that current exposures could already be higher.

CRITERIA	ASSESSMENT RATING	RATIONALE
Magnitude	Low	All COPCs have been determined to be one of the following: • Below the conservative HQ and ILCR levels; • Above the conservative levels but predicted to have minimal negative effects on human health due to minimal expected exposures and conservative modelling; or • From background sources, and mitigation measures have been identified.
Extent	Local	Measurable environmental exposures that could potentially impact human health would be limited to the LSA.
Duration	Permanent	Any increase in health risks from Blackwater would continue after Closure (for example, any periods of increased to cancer risks would permanently affect the health of individuals even if the cancer risk declined later).
Reversibility	Reversible to Irreversible	Health effects from short term exposure to COPCs would be generally reversible. Health effects from chronic exposures, including cancer health risks, would be irreversible.
Frequency (of residual effect)	Continuous	Exposure to COPCs and associated impacts to human health risk would be continuous throughout Blackwater Construction and Operations Phases.
Likelihood	There is a low likelihood that there will be residual impacts to human health risk as a result of Blackwater.	
Significance Determination	The EAO is satisfied that Blackwater would not have significant adverse effects on human health risk, primarily because the predicted residual effects to human health risk are low in magnitude and limited in extent.	
Confidence	There is a moderate level of confidence in the likelihood and significance determinations based on the human health data provided and the standard HHRA methodologies used to support the assessment.	

Note: Criteria and assessment ratings are defined in Appendix B: Summary Characterization of Residual Adverse Effects for Valued Components

15.5 CUMULATIVE EFFECTS ASSESSMENT

The Application determined that there are no other past, present, and reasonably foreseeable future projects and activities in the Blackwater area that would overlap with any Blackwater-related changes in Environmental Exposures (see Application Section 9, subsection 9.2.2.2.1). The Working Group did not raise concerns regarding cumulative effects on human health.

Considering the lack of interaction with past, present and reasonably foreseeable future projects, the mitigation proposed, and existing regulatory standards requirements regulating industrial activities, the EAO is satisfied that there are no expected cumulative adverse effects to human health.

15.6 CONCLUSIONS

Taking into consideration the above analysis and having regard to the EAO's proposed conditions, including the Condition 20: Air Quality and Dust Management Plan, Condition 26: Water Quality Management and Condition 34: Closure and Post-Closure Water Quality Management Plan, Condition 40: Health and Medical Services Plan, and Condition 41: Country Foods Monitoring Plan, identified in the TOC, and the proponent's commitments to monitor air, surface water and country foods, the low magnitude and limited extent of expected residual effects to human health, and lack of other projects to act cumulatively with Blackwater, the EAO is of the view that potential effects from Blackwater to human health would not be significant.

16 ACCIDENTS AND MALFUNCTIONS

16.1 BACKGROUND

Accidents and malfunctions could occur during any phase of Blackwater that would have the potential to result in effects to environmental, social, health, heritage or economic values. The Application identified the following accidents and malfunctions as potential concerns:

- **Structural or other failures:** slope failures at the open pit, waste rock overburden and LGO stockpiles, and structural failures of the TSF dam, ECD, FWR, and sedimentation control pond or water system pipeline failure, and tailings pipeline failure;
- **Accidents:** explosives accident, major fuel release (>100 L) during transport, transportation accidents involving movements of work crews or 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 stream (sewage treatment system), accidental sediment release into watercourses, forest fire (Blackwater-caused) due to clearing during Construction, Operations, or Closure activities, and power outages.

Each identified accident and malfunction, along with its potential environmental, social, health, economic or heritage concerns and associated risk, is described in Section 10, subsection 10.8 of the Application and in follow-up memos in response to Working Group comments. Proposed design, mitigation measures, operations safeguards, and proposed contingency and emergency response procedures were also provided by New Gold.

16.1.1 REGULATORY CONTEXT

Federal and provincial legislation, policies and guidelines that are relevant to the prevention of Blackwater -related accidents and/ or malfunctions include:

- Canadian Dam Association's (CDA's) Dam Safety Guidelines (2007 and revised in 2013) set out principles that are applicable to all dams, and outline processes and criteria for management of dam safety in accordance with the principles;
- CDA's Dam Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams, 2014;
- The *Mines Act* (1996) and the Health, Safety and Reclamation Code for Mines in BC, which sets out requirements for construction and operations of tailings and water management facilities;
- Federal *Explosives Act* (1985) and Explosives Regulations (2013), which include requirements for the acquisition, possession, storage, and transport of explosives;
- Pollution prevention provisions in Section 36 of the federal *Fisheries Act* (1985), the *Migratory Birds Convention Act* (1994), and the federal *Canadian Environmental Protection Act, 1999*;
- Federal *Transportation of Dangerous Goods Act,* (1992), as administered by Transport Canada; and
- Provincial Spill Reporting Regulation under the EMA (2003).

Following the independent review panel recommendations on the 2014 TSF failure at Mount Polley, the Health, Safety and Reclamation Code for Mines in BC was updated on July 20, 2016 to include design standards for TSFs tailored to specific BC conditions. These standards include design requirements for the steepness of downstream slopes, the minimum static factor of safety, and new seismic and flood design criteria. Other updates include new operations criteria for TSFs, requiring water balance and water management plans for TSFs, and requiring mines with TSFs to establish Independent Tailings Review Boards. Blackwater would be subject to all these requirements.

Engineers and Geoscientists BC has also completed professional practice guidelines for site characterization for tailings dams in BC. The new guidelines were developed in response to the Independent Panel's recommendation that Engineers and Geoscientists BC develop guidelines that would lead to improved site characterization for tailings dams with respect to the geological, geomorphological, hydrogeological, and seismic-tectonic characteristics.

16.2 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

New Gold assessed the significance of potential effects of accidents and malfunctions, on environmental, social, heritage, economic and health VCs and indirect effects on Indigenous groups using a consequence rating to describe the potential worst-case scenario of an accident or malfunction, including environmental consequences.

New Gold completed risk profiles for 24 potential accidents and malfunctions using Potential Problem Analysis (PPA) (see Table 46). Accidents and malfunctions with a risk ranking of medium or high were carried forward to the effects assessment on VCs. Accidents and malfunctions ranked as low risk had consequence scores of minor or insignificant and were not carried forward. The PPA ranked four accidents and malfunctions as having a high risk and these scenarios are explored further below. No accidents or malfunctions were classified as having an extreme risk.

The accidents and malfunctions with the highest assessed level of risk are:

- TSF dam failure;
- Forest fire (Blackwater-caused);
- Transportation accidents involving hazardous and non-hazardous materials; and
- Transportation accident involving non-hazardous materials and work crews.

The VCs that have the potential to be affected by these accidents and malfunctions include:

- Water VCs: Surface Water Quality, Sediment Quality, and Surface Water Flow;
- Wildlife and Ecosystem VCs: Forest Birds and Grassland Birds, Water Birds, Plant Species and Ecosystems at Risk;
- Fish and Fish Habitat;
- Human Health VC: Environmental Exposures; and

- Social VCs: Regional and Local Services, Family and Community Wellbeing, Non-Traditional Land Use, Current Use of Land and Resources for Traditional Purposes.

Table 46: Summary of New Gold's Potential Problem Analysis

ACCIDENT OR MALFUNCTION	LIKELIHOOD	CONSEQUENCE	PPA RISK RANKING
TSF dam failure	Very rare	Catastrophic	High
Forest fires (Blackwater-caused)	Possible	Moderate	High
Transportation accident – hazardous materials, excluding fuel	Possible	Major	High
Transportation accident – non-hazardous materials and work crews	Likely	Moderate	High – Health & safety
Fuel releases from storage facilities and dispensing areas	Almost certain	Insignificant	Medium
ECD breach	Very rare	Major	Medium
Spills of hazardous substances in contained areas	Almost certain	Insignificant	Medium
Accidental discharge of effluent streams (sewage treatment plant)	Possible	Minor	Medium
Major fuel release during transport to Blackwater	Unlikely	Moderate	Medium
IX-NF WTP discharge of insufficiently treated effluent –– Post-closure phase	Possible	Minor	Medium
Power outage	Possible	Minor	Medium
SCP failure (accidental release into water course)	Unlikely	Moderate	Medium
Water pipeline failure	Unlikely	Moderate	Medium
Water supply system (pump failure)	Unlikely	Moderate	Medium – Business
MRWTP Plant discharge of insufficiently treated effluent – Operations	Unlikely	Moderate	Medium
IX-NF WTP discharge of insufficiently treated effluent –Closure	Possible	Insignificant	Low
Seepage collection system failure	Unlikely	Minor	Low
FWR failure	Very rare	Minor	Low
Open pit slope failure	Very rare	Insignificant	Low
West Waste Rock Dump failure	Unlikely	Insignificant	Low
LGO stockpile failure	Unlikely	Minor	Low
Topsoil stockpile failure	Unlikely	Minor	Low
Tailings pipeline failure	Unlikely	Minor	Low
Explosives accident	Very rare	Insignificant	Low

ACCIDENT OR MALFUNCTION	LIKELIHOOD	CONSEQUENCE	PPA RISK RANKING
Aircraft accidents on site	Unlikely	Insignificant	Low
MRWTP discharge of insufficiently treated effluent – Closure and Post-closure	Unlikely	Insignificant	Low
Excessive inlet flow at WTP results in excessive discharge to Davidson Creek	Very rare	Minor	Low
Flyrock from blasting	Possible	Insignificant	Low – Health & safety

16.2.1 TAILINGS STORAGE FACILITY DAM FAILURE

As described in Part A, Section 2.2.3 of this Report, New Gold evaluated options for tailing and waste rock management that considered the risk and consequence of a TSF failure. While New Gold concluded that the proposed design of the Blackwater TSF is the preferred option considering technical merit and potential implications for VCs, as with any industrial mining project of this nature, the risk of a TSF failure with the option selected cannot be totally eliminated.

A failure of the TSF dam could result in the release of tailings solids, waste rock, and contact water to the downstream receiving environment. New Gold assessed a TSF dam failure as a very rare likelihood of occurrence that could have catastrophic consequences.

The TSF would be composed of two main dams: the upstream Site C Main Dam and the downstream Site D Main Dam. New Gold designed the TSF dams to meet or exceed the criteria outlined in the CDA Dam Safety Guidelines[39] and with reference to the Draft Technical Bulletin: Mining Dams – Application of 2007 Dam Safety Guidelines to Mining Dams[40]. The TSF dam design also meets the *Mines Act* (1996) requirements for PMF and maximum credible earthquake scenarios.

TSF dam failure scenarios generally are assigned one of two categories:[41] a sunny day failure or a rainy day failure. A sunny day failure scenario is a sudden dam failure that occurs during normal operations. A rainy day (or flood-induced) failure scenario is a dam breach resulting from a natural flood of a magnitude that is greater than what the dam can safely contain.

New Gold conducted a Tailings Dam Breach Inundation Study to consider the residual effects to VCs of a worst-case scenario in which a failure of the TSF Site D Main Dam would occur at the end of the Operations Phase when the TSF would be at full build-out. The inundation extent resulting from an initial flood wave during sunny day and rainy day failure scenarios is shown in Figure 17 and Figure 18. A failure of the TSF and initial flood wave has the potential to cause flooding and damage to downstream mine

[39] Dam Safety Guidelines. 2007. Canadian Dam Association (CDA). Available at www.cda.ca.
[40] Draft Technical Bulletin: Mining Dams – Application of 2007 Dam Safety Guidelines to Mining Dams. 2007. Canadian Dam Association (CDA). Available at www.cda.ca.
[41] Sunny day failure and rainy day failure are hydrologic conditions consistent with CDA (2007).

infrastructure, other infrastructure such as the Kluskus-Ootsa FSR and mine access road, as well as to lands and waters downstream of the mine site.

The slumping of liquefied tailings has the potential to occur following the initial flood wave. Some portion of the tailings mass would be expected to undergo static liquefaction resulting from the loss of containment and the local steepening of slope created by the initial discharge. In the worst case scenario of a rainy day failure, New Gold predicted that following the main debris flow/ flood wave, liquefied tailings could potentially slump through the failure and be deposited in the Davidson Creek valley extending up to about 5.5 km downstream of the dam, as indicated on Figure 17. The flood extent for a sunny day failure was expected to be comparable to a 1 in 100 year flood event (Figure 18) and have impacts similar to the rainy day failure.

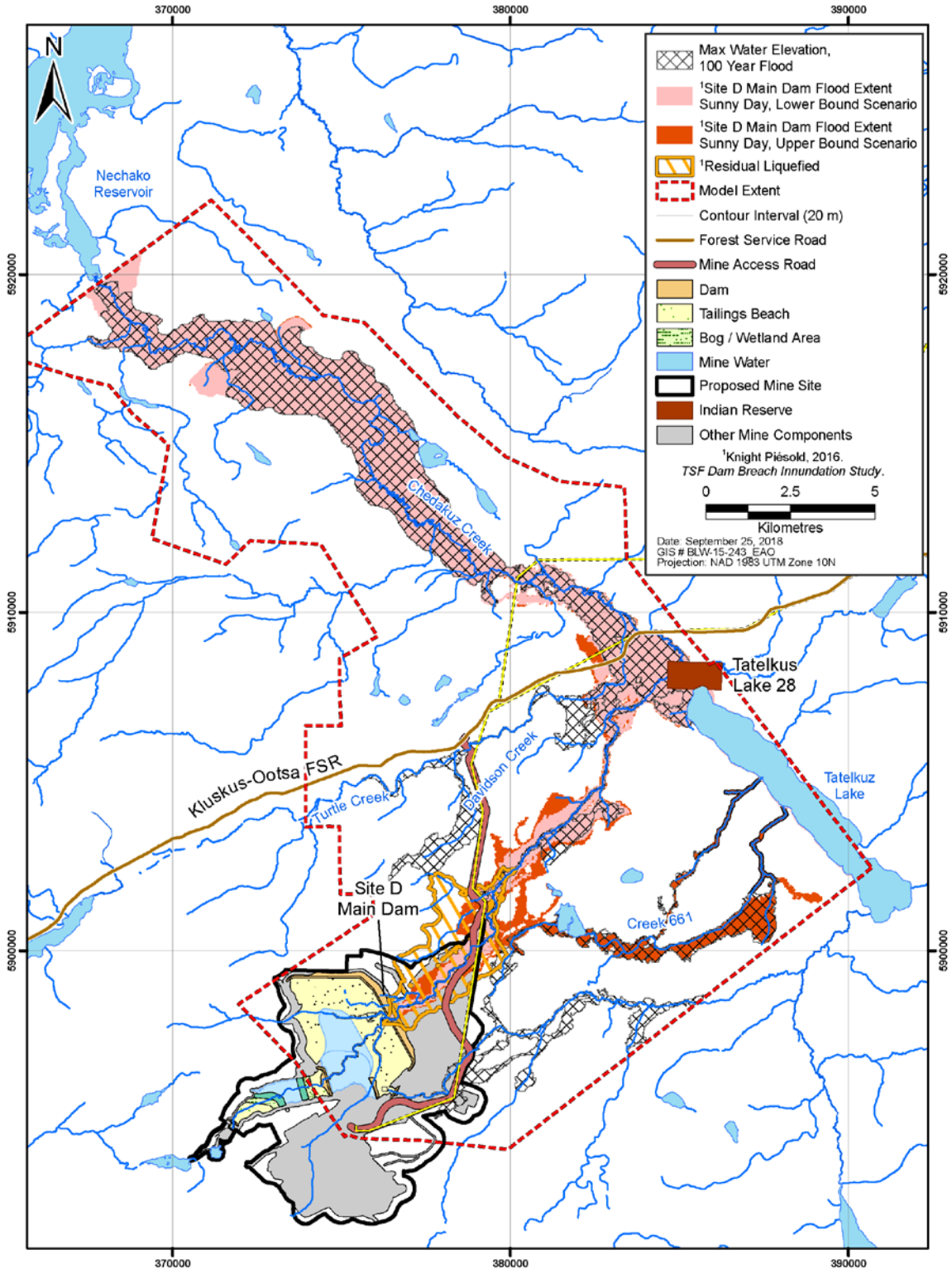

Figure 17: Ultimate Arrangement Site C Dam Sunny Day Failure Inundation Map

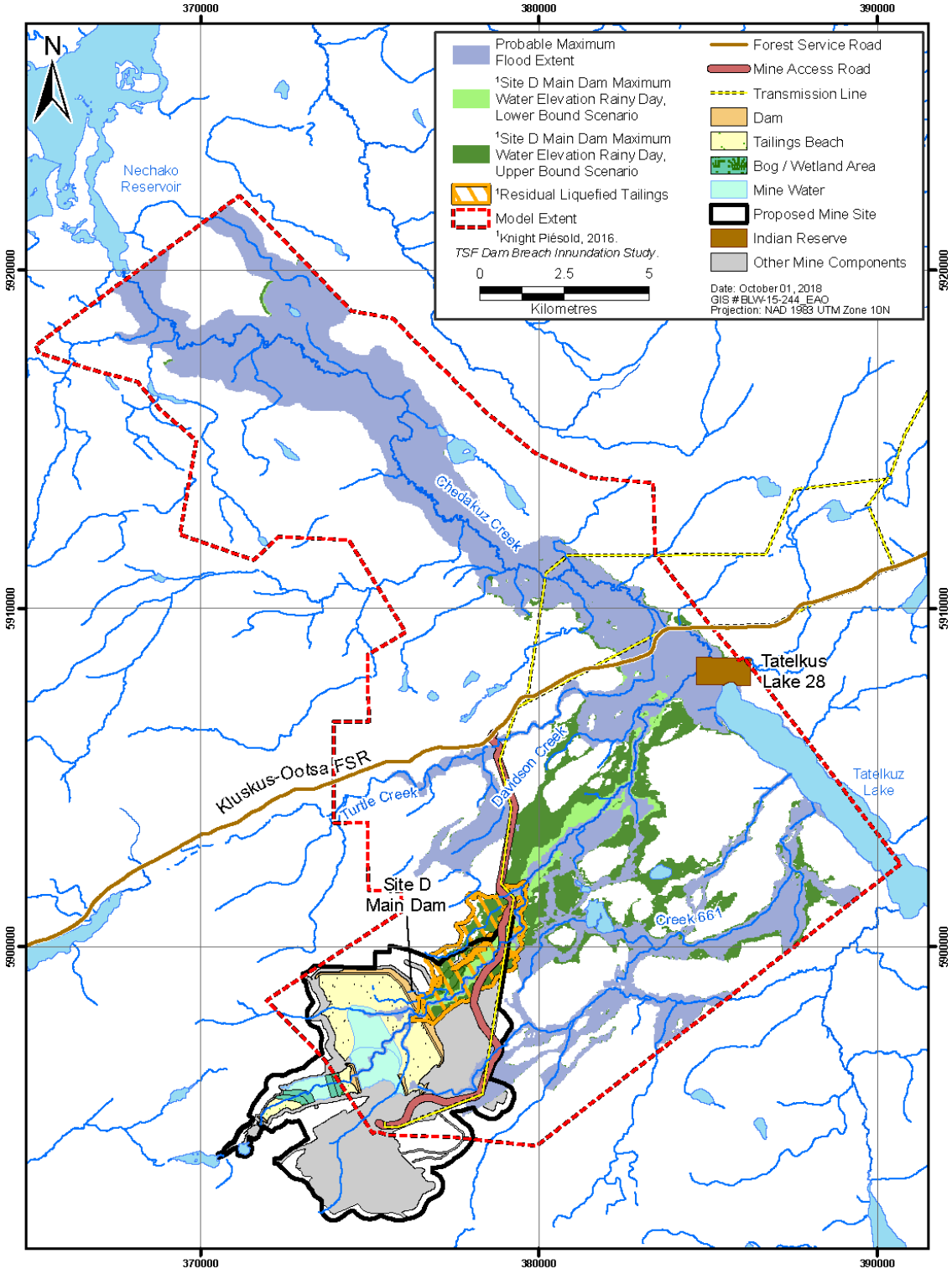

Figure 18: Ultimate Arrangement Site D Dam Rainy Day Failure Inundation Map

The primary mitigation to prevent failure of the TSF is its design. This includes having the flexibility to divert clean water, treating and releasing contact water, as well as moving site contact water to the pit in an emergency. New Gold stated that this flexibility would reduce risks and would enhance dam safety by providing a robust set of functional water management opportunities to maintain the right amount of water in the TSF.

Key design features for the TSF proposed by New Gold include:

- Designing the TSF dams to withstand deformations caused by a maximum credible earthquake scenario;
- Managing water in the TSF and TSF beach sizes by:
    - Using water diversions to capture and divert non-contact water;
    - Holding a majority of the TSF water behind the TSF Site C dam to minimize water behind the TSF Site D dam and to maximize tailings beach width;
    - Constructing an emergency overflow channel to prevent dam overtopping;
    - Ensuring the TSF capacity would accommodate the Inflow Design Flood below the emergency overflow channel;
    - Maintaining the TSF pond elevation at a level to create extensive tailings beaches in the TSF;
    - Constructing the TSF dams ahead of required waste storage to facilitate additional water storage; and
- Reducing the overall amount of water stored on the mine site by recycling process water and discharging treated water from the open pit into Davidson Creek during Operations.

New Gold would use the Tailings Dam Breach Inundation Study to inform its Emergency Response Plan (ERP) which would be prepared as part of *Mines Act* permitting. As New Gold's Tailings Dam Breach Inundation Study did not account for the above-noted design safety measures and management practices, it is considered a conservative assessment.

In the event of a TSF failure, New Gold would follow the requirements outlined in Section 1.7.1 of the Health, Safety, and Reclamation Code for Mines in BC and Mine Emergency Response Plan: Guidelines for the Mining Industry. New Gold would also follow the steps in the ERP required as part of the *Mines Act* permit process, which may include notification of stakeholders, evacuation, and remediation, as appropriate.

16.2.2 TRANSPORTATION ACCIDENTS INVOLVING HAZARDOUS AND NON-HAZARDOUS MATERIALS

New Gold considered two types of transport accidents in the risk analysis: a major release of fuels, and a release of hazardous materials other than fuel. Fuels and hazardous materials would be transported to Blackwater by road primarily from Prince George. Vehicles authorized under Transportation of Dangerous Goods Regulations and BC Fuel Guidelines would transport fuel and hazardous materials to the Blackwater site using Highway 16, Kluskus FSR and Kluskus-Ootsa FSR, and the proposed mine access road. A primary

concern is that a transportation-related accident could cause a release of materials into wetlands or watercourses adjacent to the road.

New Gold identified the following key mitigation measures to address a release of hazardous materials as a result of a transportation accident:

- Transportation and handling of hazardous materials would be by licensed carriers in purpose-built containers and vehicles;
- Contingency and emergency response procedures would be established and followed to ensure staff would be trained to respond to, report and clean up a spill, and that additional mitigation or monitoring measures would be put into place as soon as possible; and
- Other design and preventive measures as detailed in Application Section 10, subsection 10.8.2.7.2 Design and Operations Safeguards.

16.2.3 WORK CREW/NON-HAZARDOUS MATERIALS TRANSPORTATION ACCIDENT

An accident involving the transport of Blackwater staff could have serious health consequences for the staff involved or result in fatalities in an extreme situation. Family members would also be affected as a result of such an accident. Major impacts to environmental VCs would not be expected as a result of this type of accident.

New Gold identified the following key mitigation measures to reduce the likelihood of an accident involving Blackwater work crews and/ or non-hazardous materials transportation:

- Requiring that oversized loads of materials associated with Blackwater be transported during daylight hours only, and avoiding transport during poor visibility where possible;
- Ensuring that truck drivers have appropriate certification, and that rest periods for trucking staff are respected; and
- Requiring all transport vehicles working at Blackwater to carry basic emergency response equipment including communications equipment, a first aid kit and a fire extinguisher.

16.2.4 BLACKWATER-CAUSED FOREST FIRE

Forest fires are major disturbance events which alter the environment and therefore have a broad range of effects on a large number of VCs. As described in the Application in Section 10, subsection 10.8.3.2, Blackwater-related forest fires could be ignited directly by human error, equipment malfunctions or accidents, or indirectly as the interaction of Blackwater infrastructure with natural disturbances such as ignition from wind-thrown tree branches on transmission lines.

Forest fires present a hazard to human health and property, with the extent of impacts dependent on the location and severity of the fire, and on nearby facilities. A major fire at the mine site could pose serious health and safety concerns and could cause property damage and operations interruptions. Environmental impacts would include a temporary reduction of air quality and loss of localized terrestrial habitat.

New Gold identified the following key mitigation measures to address a forest fire caused by Blackwater activities:

- New Gold would complete monitoring to determine the Fire Danger Class and comply with any restrictions applicable to that Fire Danger Class. During the fire season, provisions that govern high-risk activities (fire watcher, early shift requirements, fire tools, and "cease activity in high fire danger") would be strictly followed. A specific exemption from the Prince George Fire Centre Manager would be required if activities were to continue during periods of high risk;
- New Gold would ensure that trained fire response crews would be on site; and
- New Gold would prepare a Wildfire Management Plan as per Application Section 12, subsection 12.2.1.18.4.20.

16.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

In response to Working Group comments during Application Review, New Gold proposed changes to the design of Blackwater. The design changes of consequence to Accidents and Malfunctions include:

- Elimination of SCP #5 in the 661 Creek watershed. This sediment pond was no longer needed given the elimination of the East Dump and much of the supporting works, meaning that a risk of failure or malfunction of the SCP no longer exists;
- Operation of a MRWTP to collect and treat water, infiltration and seepage from the mine site during Operations, Closure and Post-Closure, prior to discharge.

During Application Review, the EAO received and reviewed comments from the public, Indigenous groups and the Working Group. From these comments, the EAO distilled three central issues relating to Accidents and Malfunctions:

- Indigenous group involvement in management plan preparation, review and implementation;
- Disagreement about risk evaluation;
- The potential release of contaminants from a spill that would affect Indigenous groups' traditional territories; and
- TSF dam safety.

16.3.1 MANAGEMENT PLAN DEVELOPMENT, REVIEW AND IMPLEMENTATION

LDN, UFN, StFN and NWFN expressed a desire to be involved in the development and implementation, of New Gold's proposed Accidents and Malfunctions Management Plan (AMMP) and/ or other emergency management plans, including participation in training activities.

> New Gold responded that Indigenous groups would have an opportunity to participate through agreed mechanisms in a benefit agreement between the New Gold and Indigenous groups.

The EAO notes that subsequent permitting would require the development and implementation of an AMMP, but it would not cover off-site infrastructure or activities. The EAO is proposes Condition 36: Accidents and Malfunctions Administration and Communication Plan to cover aspects not addressed in *Mines Act* permitting, and for the inclusion of Indigenous groups in the development and implementation of the plan. The plan would include opportunities for Indigenous groups, local communities and other users of the area to assist in response to an accident or malfunction. Considering the requirements for the proposed management plan, the EAO is satisfied that the issue of Indigenous groups' ability to participate in the development, review and implementation of the Accidents and Malfunctions Administration and Communication Plan is adequately addressed for the purposes of the EA.

16.3.2 RISK EVALUATION

StFN and NWFN requested to be involved in a risk evaluation that would include prediction of Blackwater - specific and cumulative residual effects based on an accident or malfunction occurring at key locations meaningful to their communities (specifically for fish and fish habitat). StFN and NWFN also disagreed with the methodology used by New Gold to determine consequence scores of accidents and malfunctions.

New Gold responded that these matters would be addressed by establishing a proposed EMB. New Gold's EMB would be responsible for evaluating the effectiveness of monitoring and mitigation measures related to Blackwater, including those related to potential accidents and malfunctions which could potentially affect sites of interest or key receptors of concern to Indigenous communities within the EA study areas or key receptors of concern to Indigenous communities within the Blackwater area. New Gold has stated that this EMB would be comprised of representatives from Indigenous groups whose traditional territories overlap the mine site, New Gold and government agencies.

The EAO proposes Condition 19: Environmental Monitoring Committee, which would require New Gold to establish an Environmental Management Committee (EMC). The EMC is intended be in place for the life of Blackwater and would serve as a venue for sharing information, including discussion related to plans required under the Certificate, such as the Accidents and Malfunctions Administration and Communication Plan, as well as other topics that EMC members raise. Considering New Gold's commitments as well as the requirements for the proposed EMC, the EAO is satisfied that the issue of risk evaluation is adequately addressed for the purposes of the EA.

16.3.3 RELEASE OF CONTAMINANTS

NWFN, NFN and StFN raised concerns regarding potential transportation accidents and spills of hazardous materials that could release contaminants into their territories.

New Gold responded that its assessment of effects resulting from accidents or malfunctions considered the potential for effects to current use of lands and resources for traditional purposes.

The EAO notes that subsequent permitting would require the development and implementation of an AAMP for accidents and malfunctions at the mine site, but it would not cover off site infrastructure or activities. The EAO is proposes Condition 36: Accidents and Malfunctions Administration and Communication Plan to cover aspects not addressed in Mines Act permitting, and for the inclusion of Indigenous groups in the development and implementation of the plan. Considering the requirements for the proposed management plan, the EAO is satisfied that the issue of risk from release of contaminants is adequately addressed for the purposes of the EA.

16.3.4 TAILINGS STORAGE FACILITY DAM SAFETY

Indigenous groups also raised concerns regarding the safety of the TSF dam. The main concerns were the stability of the TSF dam, transparency of the management of the TSF dam, and the management of the amount of water that would be held behind the TSF dam. Indigenous groups were of the view that New Gold should minimize to the greatest extent possible the amount of water held behind the TSF dam, which would alleviate the need for the TSF dam height to be increased in response to a build-up of water in the TSF. CSFNs also raised a concern that the extent of the inundation area in the event of a breach in the TSF appeared to be limited to an area identified for the modelling, and appears to extend beyond that area, potentially as far as the Nechako Reservoir.

New Gold provided responses to comments raised on these issues in the Issues Tracking Table. The EAO also held detailed technical discussions on these issues with New Gold, Indigenous groups, and the wider Working Group to better understand the issues related to TSF dam safety. The result of these discussions was the development of several conditions related to TSF dam safety, which the EAO is proposing:

- Condition 11: Care and Maintenance Plan that would require New Gold to prepare a plan that would help monitor and manage water onsite during periods of Care and Maintenance, with the goal of avoiding the build-up of surplus water behind the TSF dam;
- Condition 19: Environmental Monitoring Committee that would provide a venue for New Gold to share information and discuss issues, such as TSF dam safety, with Indigenous groups and federal and provincial government agencies. The Environmental Monitoring Committee would also be able to provide advice to New Gold on the topics discussed at EMC meetings.
- Condition 33: Mine Waste and Water Management Plan that would require New Gold to work to minimize the amount of surplus water stored in the TSF while still managing the risk of ML/ARD; and
- Condition 35: Tailings Dam Safety Transparency Plan that would ensure Indigenous groups could access information regarding TSF inspections, reports and meetings, and would require New Gold to hold an annual meeting on TSF dam safety with Indigenous groups and government agencies.

16.4 RESIDUAL AND CUMULATIVE EFFECTS

Considering New Gold's proposed mitigation and the EAO's proposed conditions, the EAO is of the view that the four high-risk accidents and malfunctions are not likely to occur. Therefore, the EAO has not assessed the potential residual or cumulative effects from these accidents and malfunctions.

16.5 CONCLUSIONS

After considering the existing legislation, proposed mitigation measures, and proposed certificate conditions, the EAO concludes that Accidents and Malfunctions for Blackwater are not considered likely to occur for the following reasons:

- The proposed design, mitigation and contingency measures would lower the likelihood and reduce the severity of a potential accident or malfunction. Prior to the commencement of Construction, New Gold would be required, for the purposes of *Mines Act* and EMA permit applications, to develop an ERP; Environmental Emergency, a Spill and Hazardous Materials Plan; a Mine Waste, Tailings, and ML/ ARD Management Plan; and an Waste (Refuse and Emissions) Management Plan, in consultation with Indigenous groups, to address management of hazardous materials, emergency preparedness, prevention and response to an accident or malfunction at Blackwater.
- In the unlikely event of a failure of the Blackwater TSF, significant adverse effects would be expected on the environment, current use of lands and resources for traditional purposes, and human health. However, the EAO is satisfied that New Gold has adequately considered tailings management alternatives to address the risk and consequence of a tailings dam failure, and that New Gold would be required under the *Mines Act* to take measures to reduce the likelihood of the Blackwater TSF failure, through design and operation requirements, as well as by establishing an independent tailings review board, and preparing adequate plans and procedures to reduce the likelihood of such an event. The EAO notes that recent updates to the TSF requirements in the Health, Safety and Reclamation Code for Mines in BC would set a high standard of safety for the Blackwater TSF.
- The EAO has proposed the conditions listed below to address potential accidents and malfunctions:
    - Condition 36: Accidents and Malfunctions Administration and Communication Plan; and
    - Condition 19: Environmental Monitoring Committee

Considering the preceding analysis and conditions identified in the CPD and TOC (which would become legally binding if an EAC were to be issued), and considering the likelihood of occurrence, the EAO is of the view that Blackwater is not likely to result in significant adverse effects as a result of accidents and malfunctions.

17 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

17.1 BACKGROUND

The following environmental effects and processes have the potential to affect Blackwater and result in changes or effects to VCs assessed in the Application:

- Natural hazards (including avalanches, earthquakes, landslides, and forest fires);
- Extreme weather events (including flooding and drought); and
- Climate change.

17.2 POTENTIAL EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED IN THE APPLICATION

New Gold evaluated the likelihood (probability) and consequences (severity) of the effects of the environment on Blackwater, including:

- The likelihood that an event would occur to produce a risk;
- Should the event occur, the likelihood of these events having an impact on Blackwater, given design and mitigation measures; and
- The consequence(s) to Blackwater should an event occur.

17.2.1 NATURAL HAZARDS

AVALANCHES

Blackwater would be located in an area that receives a moderate amount of annual snowfall. An avalanche occurs when a layer of snow fractures and slides down a steep slope. Typically, avalanches occur on terrain that slopes at angles of 27 to 40 degrees or 49 to 70 degrees.

New Gold determined that the likelihood of an avalanche affecting Blackwater was relatively low, as the majority of the terrain in the Blackwater area ranges from relatively flat to gentle slopes. Moreover, mapping performed by New Gold did not identify any existing avalanche paths in the Blackwater area. While slightly steeper terrain was identified along the transmission line route, the slopes are generally short and avalanche paths were not identified in this area.

If an avalanche risk were to be identified, New Gold indicated that protection measures would be implemented to mitigate potential effects on Blackwater, such as the construction of snow collection fences, retaining barriers, or deflecting dikes/walls.

EARTHQUAKES

New Gold determined that earthquakes would pose a low risk to Blackwater due to the historically low level of seismic activity in the area. Should an earthquake occur, the key consequence associated with strong ground shaking would be the potential for soil liquefaction (water-saturated or sandy soils losing their strength), potentially resulting in damage to Blackwater facilities and infrastructure. New Gold determined that the risk to Blackwater facilities posed by liquefaction would be low.

New Gold noted that Blackwater buildings and waste management facilities (including the TSF, waste rock dump and LGO stockpile) were all designed in accordance with seismic requirements. The TSF was designed to meet Canadian Dam Association requirements (current to 2013), and to withstand a 10,000-year return period earthquake event[42]. A qualified geotechnical engineer would supervise the construction of the TSF to ensure that the seismic requirements are met.

LANDSLIDES

New Gold mapped terrain stability to identify slopes in the Blackwater area and along the proposed transmission line route. Most areas of Blackwater contain low (<26 percent) to moderate (27-49 percent) slopes. The TSF would be located in a moderately sloped area. New Gold determined that few previous landslides were located near the Blackwater area due to the lower terrain slopes. Observed landslides were located south of the Blackwater area in steeper terrain where gullies are present.

New Gold concluded that the greatest risk for landslides would be localized events, including rockfall, debris, and rock slides on steeper slopes and debris flows along tributary drainage channels. The transmission line and re-routes were identified as higher risk areas, as slopes are steeper, and sediments are composed of glacial till and glaciofluvial materials. Such localized events could damage or destroy Blackwater infrastructure depending on the component and the size of the event. A landslide in the TSF area could potentially result in a supernatant pond wave and/or deposition of additional material in the TSF.

To mitigate the risk of landslides across the Blackwater area, New Gold would implement a sediment and erosion control plan to minimize erosion, control the release of sediments and mitigate potential effects from erosion and sedimentation. New Gold would manage the risk of landslides in higher risk areas by conducting terrain stability assessments where towers or poles would be located and developing site-specific mitigations measures as required. New Gold proposed that the tailings dam and tailings themselves would eliminate or buttress susceptible areas in the area of the TSF once the mine was operational. For more information regarding the EAO's assessment of risk of a failure of the TSF, see Section 16: Accidents and Malfunctions of this Report.

Overall, landslides and other terrain stability events would not be expected to pose a major risk for Blackwater.

[42] Canadian Dam Association. *Dam Safety Guidelines 2007 (Revised 2013)*. Retrieved from: https://www.cda.ca/EN/Publications/Dam_Safety/EN/Publications_Pages/Dam_Safety_Publications.aspx?hkey=7726b6d1-7ca6-4c8b-a096-c5f93d0ebc40

FOREST FIRES

There would be a risk of fire damage to or destruction of Blackwater components, particularly the transmission line and the ore processing plant. The Blackwater area and Blackwater components would be located in the Vanderhoof Forest District. Between 1980 and 2016, most of the forest fires in the Vanderhoof Forest District were smaller fires (less than 1000 ha). The incidence of larger fires increased after 2003, possibly due to increased infestations of the mountain pine beetle and resultant death of standing timber. The EAO also notes that forest fires affected portions of the proposed transmission line route in 2017 and 2018.

In the event of a fire, the organization of mine site components would likely provide protection to the mill, as it would be located in the centre of components that would less likely be affected by fire (the TSF, stockpiles, open pit, and access road). New Gold would also decrease the risk of fire damage by:

- Maintaining fire breaks and reducing clutter;
- Installing fire suppression systems in key buildings;
- Establishing a mine rescue team that would be trained in firefighting;
- Complying with fire hazard ratings and managing potentially fire-generating activities;
- Meeting or exceeding fire water storage requirements; and
- Designating specific employees to be in contact with staff at the Prince George Fire Centre to share information.

If a fire were to threaten the Blackwater area, New Gold would evacuate workers from the area according to a set evacuation protocol. As there would be a single road access to the mine site, New Gold would stay in close contact with the Prince George Fire Centre to ensure workers would be able to be evacuated. The airstrip would also be available for evacuation depending on the location of the fire.

17.2.2 EXTREME WEATHER EVENTS

FLOODING

New Gold determined that extreme flood events would not be expected to affect Blackwater. Should they occur, flood events could impact Blackwater by damaging and possibly causing a failure of the TSF, as well as potentially flooding lower elevation areas that would house ancillary mine facilities (such as the TSF, water supply pumping stations, and transmission line waterway crossings). To mitigate potential impacts from flooding and to protect the transmission line, New Gold would situate associated structures above historical flood zones or use physical means for protection.

The Application also stated that the TSF was designed and situated to reduce the water catchment area above the TSF. Water management structures and features outside the TSF were designed to manage at a minimum a 1 in 10 year 24-hr storm event and a 1 in 10 year wet winter month water volume. Typically, water management structures were designed with an emergency spillway to withstand the peak flow associated with a 1 in 200 year storm event. Post-Closure water management structures such as spillways were designed to withstand the probable maximum precipitation event and a 1:100 year snowmelt event

(total of 654 mm in 24 hrs) with additional buffering provided by storage below the top of the spillway.

DROUGHT

Drought conditions refer to a temporary but prolonged period of abnormally low precipitation over more than a season, rather than normal seasonally dry conditions experienced in the Blackwater area.

New Gold determined the greatest threats from drought to Blackwater would be an increased risk of forest fires, as well as the potential impact to the viability of Operations and Closure due to decreased water supply. The risk of forest fires is addressed above. Drought would also be expected to reduce the success of the planned revegetation of the site during progressive reclamation and Closure and could result in a need for longer reclamation or more intensive effort.

The Application stated that Blackwater was designed to consider dry year conditions, and that a water management plan would be in place for all Blackwater phases. In addition to sourcing water via pipeline from Tatelkuz Lake, a FWR in Davidson Creek would provide an extra freshwater source as needed.

To address the possibility of PAG rock becoming exposed and generating acid, New Gold examined extreme scenarios under which drought might create acid-generating conditions in the TSF. This analysis showed that eight years of zero precipitation in a row would be required for PAG waste rock stored in the TSF to become exposed. A second analysis examined what might occur in a 1:200 dry year, and showed that even under these dry conditions, enough water would flow into the TSF pond to ensure that PAG waste rock would remain covered.

New Gold determined that drought events would be expected to have a minor effect on Blackwater.

17.2.3 CLIMATE CHANGE

The Application included an analysis of the effects of changing climate in the Blackwater area. New Gold concluded that there could be a slight increase in annual total precipitation and annual rainfall along with a slight decrease in annual snowfall. However, the Application stated that no clear, statistically significant trend could be identified. A review of historical streamflow data showed no particular pattern over time, other than the possibility of slight decreases in annual peak flows.

New Gold stated that Blackwater was designed to specifically address the increased chance of extreme impacts from a changing climate. This includes the TSF being designed to meet all regulatory requirements and the Canadian Dam Association “very high” dam safety design to withstand a PMF without reducing dam stability.

The EAO and an ENV reviewer requested additional information on whether future climate variability, influenced by climate change, would result in effects on surface water flows, quality, and the aquatic environment outside of the range of effects currently predicted in the Application. New Gold was asked to consider the predictions of downscaled global climate models.

New Gold reported climate projections from the Pacific Climate Impacts Consortium's and the Climate WNA website. All climate model scenarios examined showed an increase in annual precipitation, temperature and evapotranspiration, with an overall reduction in annual runoff volume of 10 percent from baseline conditions. The predicted timing of that runoff varied somewhat by scenario, with all scenarios showing increases in winter flow, decreases in summer flow, and earlier timing of freshet (which would either increase or decrease in volume, depending on the model and scenario).

New Gold's response emphasized that there is a very large range of potential seasonal changes in climate based on the various global climate models and carbon emission scenarios. The most viable mitigation strategy would therefore be a flexible water management system.

New Gold stated that during Operations, a 10 percent reduction in annual runoff volume would not push Blackwater into an overall water balance deficit condition and would not require additional make-up water from Tatelkuz Lake or elsewhere. However, the allocation of flow between Davidson Creek for IFN and Chedakuz Creek (which is fed by Tatelkuz Lake above the confluence with Davidson Creek) might need to be reassessed if climate change were adversely affecting either creek.

The open pit would fill more slowly during Closure, such that the time to final closure might be longer than predicted. However, a net water surplus would be maintained, which would be sufficient to manage geochemical risks from the pit walls and PAG materials in the TSF. The allocation of flows from Davidson Creek to Chedakuz Creek might need to be re-evaluated during Closure as well.

The Post-Closure phase has no specified end-date. New Gold's analysis considered projections in the period 2040-2070. New Gold concluded that the climate conditions predicted in in these scenarios would still result in a net surplus of water on the mine site, allowing for PAG materials in the TSF to remain saturated.

17.2.4 MITIGATION MEASURES

The Application stated that the implementation of mitigation measures as necessary for specific environmental events would allow Blackwater infrastructure to withstand potential adverse effects due to environmental conditions. New Gold stated that Blackwater would be unlikely to be severely affected by the environmental factors addressed in this section, and that considerations taken into account during the design of Blackwater would ensure that there would be no significant residual effects on Blackwater due to potential effects of the environment.

17.3 POTENTIAL PROJECT EFFECTS AND PROPOSED MITIGATIONS IDENTIFIED DURING APPLICATION REVIEW

During Application Review, the EAO received and reviewed comments from the Working Group on the effects of the environment on Blackwater. From these comments, EAO distilled two central issues relating to the Effects of the Environment on the Project:

1. Concerns about the potential for seismic activity to affect Blackwater; and
2. Concerns regarding the climate change analysis conducted by New Gold.

Concerns regarding the potential for Blackwater mine vibrations to trigger mass movements were also raised by the Working Group and are addressed in Section 7: Noise and Vibration of this Report.

17.3.1 CONCERNS REGARDING SEISMIC ACTIVITY

UFN and LDN raised concerns regarding seismic activity in the area and requested information about the likelihood of an earthquake resulting in deformation of the TSF embankment, overtopping of the TSF dam, and/ or slumping of the tailings resulting in a discharge of water from the TSF.

New Gold responded that the Blackwater TSF was designed to withstand "very rare" one in 10 000 year events, and this level of design would be expected to protect the TSF against smaller seismic events.

UFN and LDN were satisfied with the response provided by New Gold. Considering New Gold's response, the EAO is satisfied that the issue of potential for seismic activity to affect Blackwater is adequately addressed for the purposes of the EA.

17.3.2 CONCERNS REGARDING CLIMATE CHANGE ANALYSIS

The EAO and ENV raised concerns that New Gold's analysis of the effects of climate change on Blackwater did not adequately consider climate modelling showing warmer and wetter, or hotter and drier, climate scenarios. The EAO requested that New Gold analyze and report on the effects of downscaled global climate model predictions for the Blackwater area in order to confirm whether future climate variability influenced by climate change would result in potential effects on surface water quantity, water quality and the aquatic environment that differed from the effects presented the Application.

In response, New Gold produced two reports which analyzed a variety of possible climate scenarios, including warmer and wetter or hotter and drier climate scenarios. There was no notable difference in the predicted climate change effects on Blackwater in the additional analyses as compared to the Application.

ENV was satisfied with New Gold's response and noted that this topic would be discussed further and in more detail in permitting. The EAO is proposing Condition 30: Aquatic Effects Monitoring

Plan, which would require New Gold to prepare an Aquatic Effects Management Plan and Condition 33: Mine Waste and Water Management Plan including measures to monitor of changes in aquatic habitats over time and manage accumulation of surplus water onsite. Considering New Gold's response and the EAO's proposed condition, the EAO is satisfied that the issue of the potential impact of climate change on Blackwater is adequately addressed for the purposes of the EA.

17.4 CONCLUSIONS

Considering the above analysis and having regard to the proposed mitigation measures and conditions, including Condition 30: Aquatic Effects Monitoring Plan and Condition 33: Mine Waste and Water Management Plan, in the CPD and proposed in the TOC (which would become legally binding in the event that an EAC is issued), the EAO is satisfied that the environment would not have significant adverse effects on Blackwater.

PART C – INDIGENOUS CONSULTATION REPORT

18 EAO CONSULTATION PROCESS METHODOLOGY

18.1 DEPTH OF CONSULTATION

The Government of BC is legally obligated to consult and, where necessary, accommodate asserted or established Aboriginal rights and title (Aboriginal Interests) that may be impacted by provincial decisions. Where Indigenous groups have identified specific preferred terms to use in reference to their Aboriginal Interests, the EAO has used that term.

Where Aboriginal rights and title are asserted, an EA is not a rights-determination process. BC's assessment of the prima facie claim of any asserted Aboriginal rights or title is based on available information and is intended solely to inform the level of consultation required for each Indigenous group for the EA of a proposed project. A key objective of an EA is to identify potential adverse effects of proposed projects on Aboriginal Interests and identify measures to avoid, mitigate or otherwise appropriately address such effects.

In determining the level of engagement to undertake with each of the potentially impacted Indigenous groups, the EAO considered the overlap of Blackwater with each Indigenous group's asserted traditional territory, the nature of the potential effect on each Indigenous group's Aboriginal Interests, and, where applicable, an initial assessment of the strength of claimed Aboriginal rights and title, to determine the level of consultation it would undertake with each Indigenous group.

18.2 IMPACTS ASSESSMENT METHODOLOGY

The analytical framework for assessing the seriousness of impacts on Aboriginal Interests is not the same as the significance test for environmental, socio-economic or other effects. However, in many instances, information regarding potential biophysical and/or socio-economic effects from a project or activity and, in particular, effects to traditional land and resource uses, will be relevant to an assessment of adverse impacts on Aboriginal Interests.

It is recognized that adverse project impacts on Aboriginal Interests may not arise solely from changes to the biophysical environment. Aboriginal Interests are also understood as traditional practices related to hunting, trapping, gathering, fishing and marine harvesting, but Aboriginal rights are not understood to be limited to these practices.

In considering potential impacts of project-related activities on Aboriginal Interests including title and rights, the EAO typically includes consideration of biophysical factors, specific sites or areas of traditional use, social, cultural, spiritual and experiential factors. In the case of considering impacts on Aboriginal title interests, the EAO also considers impacts to use and occupation, decision-making and economic benefits.

The methods used to assess the impacts of Blackwater to Indigenous groups varied for UFN and LDN and again for CSFNs. Additional details are within the Sections below and within related Appendix G and Appendix H.

19 SUMMARY OF COLLABORATION AND CONSULTATION

19.1 COLLABORATIVE ENGAGEMENT WITH ULKATCHO FIRST NATION & LHOOSK'UZ DENÉ NATION

As part of the EAO and the Agency's collaboration with the UFN and LDN during the EA of Blackwater, UFN and LDN provided a detailed report setting out their perspectives of the impacts from Blackwater to the Aboriginal Interests of UFN and LDN, which is attached as Appendix G: Ulkatcho First Nation and Lhoosk'uz Dené Nation: Part C, Blackwater Gold Mine Project (the UFN/LDN Part C, May 10, 2019). This assessment provides a rich understanding, directly from LDN and UFN of:

- Who are the LDN and UFN;
- The collaboration process in the EA from LDN and UFN perspectives;
- The assessment methodology used by LDN and UFN;
- Description of the LDN's and UFN's interconnected values, and Blackwater's effect on those values related to the health of:
    - Land;
    - Water;
    - Aquatic life;
    - Wildlife;
    - Air; and
    - People, culture and language, spirituality, economy, and governance.

An overview of engagement activity timelines undertaken with UFN and LDN is provided in Section 4.4 of this Report and additional detail is provided in the UFN/LDN Part C. The EAO has sought to ensure that the following sections clearly and fairly articulate the views of UFN and LDN as a complement to, but not a replacement of information provided in UFN/LDN Part C, which clearly sets out the LDN's and UFN's conclusions.

The EAO, the Agency, LDN and UFN are in general agreement that the collaborative process led to the development of a strong relationships amongst the parties and gave LDN and UFN a strong voice on issues of importance to LDN and UFN. The EAO appreciates LDN and UFN sharing their conclusion that the collaborative approach "has given us the ability to exert governance over our land and its resources in a new way, marrying our traditional governance systems with government agreements and industry partnerships. In doing so, we can continue to promote and protect our community health values that were identified herein."

The collaborative approach to developing proposed conditions involved intensive and extensive discussions between the EAO, the Agency, LDN, UFN, and CSFNs (including multiple in person meetings, conference calls, and reviewing and revising multiple versions of draft conditions), as well as involvement of provincial agencies, federal agencies and New Gold. Both the federal and provincial timelines were extended by an additional 45 days to their respective processes to support successful conclusion of those discussions. The EAO further extended its review for more than another 50 days to continue to allow for issues or concerns to be resolved. The process for developing proposed conditions involved all parties working together to find reasonable solutions to issues of concern and required a considerable amount of dedicated time and resources from all parties. At the conclusion of those discussions, both the EAO and the Agency were able to propose conditions to provincial and federal ministers, respectively, that reflect general consensus amongst the EAO, the Agency, LDN, UFN and CSFNs.

On April 18, 2019, the Chiefs for LDN and UFN wrote to the EAO to share their final conclusions regarding the EA, adequacy of consultation and accommodation, and their consent to the issuance of the EAC in a separate submission. In that letter, LDN and UFN stated that New Gold has adequately consulted and accommodated LDN and UFN with respect to their asserted Aboriginal rights and title in respect of Blackwater. However, despite collaborative efforts during the EA process and proposed conditions, the letter states that not all of LDN's and UFN's concerns or interests regarding Blackwater have been addressed or resolved through the EA and additional steps must be taken by the Province to satisfy the Crown's duty to consult and accommodate the LDN and UFN; specifically, the following:

- Negotiate an agreement to share the direct mineral tax revenues from Blackwater with LDN and UFN; and
- Negotiate a government-to-government collaboration process with EMPR, ENV and FLNRORD for the initial permitting for Blackwater as well as over the life of the mine.

LDN and UFN Chiefs stated that if and when these two outstanding steps have been completed to the LDN's and UFN's satisfaction, LDN and UFN will consider the Crown to have adequately satisfied the duty to consult and accommodate LDN and UFN. However, and without diminishing the importance of these additional steps, LDN and UFN provided their consent to the issuance of an EAC for Blackwater.

The EAO appreciates receiving this clear statement from LDN and UFN.

With respect to mineral tax revenue sharing, the Province has committed to negotiate an Economic and Community Development Agreement (ECDA) for Blackwater with the LDN and UFN. Under this agreement, the Province would outline how it intends to share mineral tax revenues from Blackwater with LDN and UFN if Blackwater is developed and operated. Negotiations on the ECDA are ongoing and are led by LDN and UFN and provincial representatives.

Regarding collaboration with the Province during permitting and life of mine, the EAO understands that in a letter dated April 16, 2019 (Appendix E), EMPR, ENV and FLNRORD set out their commitment to take a collaborative approach with LDN, UFN and CSFNs through initial permitting and over the life of mine, including addressing a list of specific issues raised during the EA to be carried forward into a collaborative permitting process. While the details of the collaborative process have yet to be finalized, the letter

commits to working with the LDN, UFN and CSFNs to finalize a collaboration plan for initial permitting as soon as possible, with a target for May 2019, and a life of mine framework as soon as practical. The EAO notes that the outstanding issue identified in the UFN/LDN Part C was that many of the issues raised by LDN and UFN were to be addressed in post EAC collaboration plans. The UFN/LDN Part C recognizes the commitments that were made by the EAO, EMPR, ENV, and FLNRORD, and notes that while these are not legally binding, the commitments provide the LDN and UFN with "some comfort in knowing that there is a process for addressing unresolved concerns that will carry forward from the EA review process".

Overall, the EAO agrees that the EA process is just one step in the Crown's regulatory review of Blackwater, and that the LDN and UFN may have additional requirements to be fulfilled by New Gold or the province in order to conclude on whether LDN and UFN endorse or support Blackwater. The EAO's conclusions on adequacy of consultation and accommodation pertain only to considerations related to the decision of whether or not to issue an EAC, cognizant of the further consultation and accommodation, as appropriate, that would happen through subsequent permitting processes.

Considering the issues raised by UFN and LDN and New Gold's responses and proposed mitigation including the establishment of a participation agreement with UFN and LDN, and the conditions collaboratively developed by the EAO with UFN and LDN, and the CSFNs, the EAO is of the view that, at the EA stage, the Crown's duty to consult and accommodate UFN and LDN has been adequately fulfilled in relation to the decision of whether or not to issue an EA Certificate for Blackwater.

19.2 COLLABORATIVE ENGAGEMENT WITH THE CARRIER SEKANI FIRST NATIONS

The EAO and NWFN, SFN and StFN (collectively, the CSFNs) established a Blackwater Collaboration Plan (Appendix A in the CSFNs' Part C) to facilitate their collaboration on recommendations related to the EA process and decisions in relation to the Blackwater to ensure that the EA is carried out in accordance with the spirit and intent of the April 2, 2015, Collaboration Agreement between the Province and CSFNs, including addressing the potential adverse effects of the Project on any CSFNs' Aboriginal title, rights and interests in accordance with the Collaboration Agreement ("CSFNs' Aboriginal title, rights, and interests," or "CSFNs rights, title and interests" or RTI).

As part of the Collaboration Plan, CSFNs, the Agency and the EAO collaboratively developed a detailed report that sets out CSFNs' perspectives on the impacts from Blackwater to CSFNs' RTI. This report (the CSFNs' Part C) is attached in full as Appendix H: Assessment of Impacts to the Carrier Sekani First Nations' Aboriginal Title, Rights, and Interests from the Blackwater Gold Project (Part C).

The CSFNs' assessment provides a rich understanding, directly from CSFNs of their perspectives related to:

- The consultation and collaboration process;
- Profiles for each CSFN community;
- CSFNs' description of their RTI in relation to the Project;
- CSFNs' assessment of the effects of Blackwater on their RTI; including related to:

  - Biophysical impacts;
  - Traditional knowledge and traditional land use;
  - Transmission of traditional knowledge;
  - Socioeconomic conditions; and
  - Governance components of CSFNs' RTI;
- Accommodation measures and proposed conditions, including CSFNs' conclusions on adequacy of consultation and accommodation; and
- Weighting of residual impacts, including consideration of benefits to CSFNs.

An overview of engagement activity timelines undertaken with the CSFNs is provided in Section 4.4 of this Report and additional detail is provided in the CSFNs' Part C.

The EAO, the Agency, and CSFNs agree that the collaborative approach was beneficial in supporting an open and transparent flow of information between the EAO, the Agency and the CSFNs, and supported the adaptive management of issues, concerns and new information. The EAO appreciates the CSFNs' comment that they view collaboration as an interim step towards true accommodation of the governance aspect of their Aboriginal title and rights through joint decision-making.

The collaborative approach to developing proposed conditions involved intensive and extensive discussions between the EAO, the Agency, LDN, UFN, and CSFNs (including multiple in person meetings, conference calls, and reviewing and revising multiple versions of draft conditions), as well as involvement of provincial agencies, federal agencies and New Gold. Both the provincial and federal environmental assessment timelines were extended by an additional 45 days to their respective processes to support successful conclusion of those discussions. The EAO further extended its review for more than another 50 days to continue to allow for issues or concerns to be resolved, including those noted below. The process for developing proposed conditions involved all parties working together to find reasonable solutions to issues of concern and required a considerable amount of dedicated time and resources from all parties.

In accordance with the Collaboration Plan, on March 8, 2019, the EAO Executive Director and CSFNs met to discuss whether the EAO and CSFNs had reached consensus regarding the proposed EA conditions and recommendations to Ministers' regarding their decision as to whether to issue an EAC. At that meeting, the CSFNs communicated that CSFNs and the EAO had reached consensus on proposed conditions, and that in particular, the CSFNs valued the incorporation of YDWL in proposed conditions.

On March 20, 2019, the CSFNs wrote to the Minister of Environment and Climate Change Strategy and the Minister of Energy, Mines and Petroleum Resources in a separate submission stating that, while the achievement of consensus with the EAO on proposed EA conditions was a very considerable accomplishment, CSFNs viewed that economic accommodation and compensation are also required to address the serious residual impacts to the CSFNs' Aboriginal title, rights and interests, including impacts to the economic and governance elements of Aboriginal title. The CSFNs stated that they had not yet started revenue or benefit sharing negotiations with BC or Canada, nor secured economic benefits from New Gold, and revenue or benefit sharing was necessary for adequate accommodation. As a result, the CSFNs recommended the provincial Ministers order that further assessment be required in connection with the needed required economic accommodation and compensation, pursuant to Section 17(3)(c)(iii) of

the Act.

In response to this letter, the Executive Director requested further discussion with the CSFNs, pursuant to the Collaboration Plan, noting that the Collaboration Plan included seeking consensus with the Executive Director on recommendations to Ministers. The Executive Director noted that he was not in agreement with the recommendation contained in the CSFNs' March 20, 2019 letter.

The EAO and CSFNs met again on March 29, 2019, to share perspectives on the adequacy of accommodation at the EA stage. In light of the concerns raised by the CSFNs and ongoing discussions with the Ministry of Indigenous Relations and Reconciliation (MIRR), the Executive Director offered some additional time for CSFNs and MIRR to further discuss CSFNs' interest in economic benefits/ accommodation, and to see if this outstanding issue could be resolved in a reasonable timeframe prior to referring Blackwater to Ministers for decision.

As a result of these further discussions between MIRR and CSFNs, on April 17, 2019, the Deputy Minister for MIRR wrote to the CSFNs to commit to continue to work with the CSFNs on an economic benefits package in relation to Blackwater, should it proceed (Appendix F).

On April 23, 2019, the Executive Director and the CSFNs met again to conclude the discussions on consensus recommendations to the Ministers. The CSFNs expressed that, despite the commitments in the letter from the Deputy Minister for MIRR (Appendix F), the CSFNs needed to have something more concrete than a letter of commitment from MIRR (which committed to do additional work to seek a mandate to provide economic benefits and address CSFNs' interest in economic accommodation) in order to have confidence that their needs would be adequately addressed. The CSFNs confirmed that their recommendation to the Ministers in the March 20, 2019 letter to order further assessment still stood, and that the CSFNs were seeking a meeting with the Ministers to express directly to the Ministers the reasons underlying their position, consistent with the Collaboration Plan.

The differing views between the EAO and the CSFNs on the adequacy of accommodation at the EA stage are summarized below. The CSFNs' views are further described in the CSFNs' Part C.

New Gold has stated that it strongly disagrees with the CSFNs' recommendation to provincial Ministers.

19.2.1 CSFNS' VIEWS ON THE ADEQUACY OF THE CROWN'S CONSULTATION AND ACCOMMODATION TO CSFNS' RTI

The CSFNs' Part C describes CSFNs' assessment of the impacts of Blackwater on CSFNs' RTI, and the accommodations required for such impacts. The CSFNs undertook a territory-wide analysis to understand the current context of the CSFNs' ability to exercise their RTI. Their analysis concluded that the CSFNs' Territories have been the subject of substantial historical development and alteration that have resulted in adverse environmental effects and impacts on the CSFNs' RTI, largely resulting from forestry and forest health issues, and other natural resource development activities. The CSFNs concluded that the status and health of many species within their Territories is declining and/or poor, including many species that are

highly important to the CSFNs. Accordingly, the CSFNs view their abilities to meaningfully exercise their rights as ranging from being constrained (for chinook, lake trout, moose and grizzly), to severely constrained (for sockeye and caribou), to not possible (for coho, Nechako white sturgeon).

In the view of the CSFNs, this "current state of affairs" provides the appropriate legal context through which the "seriousness of Impacts" on the CSFNs' RTI must be assessed, and any incremental impacts, are likely to be characterized as impacts on the "Serious" end of the spectrum. The CSFNs stress that this approach aligns with clear guidance from the Supreme Court of Canada in *Chippewas of the Thames*, 2017 SCC 41 which states at para 42:

> That said, it may be impossible to understand the seriousness of the impact of a project on s. 35 rights without considering the larger context (J. Woodward, Native Law (loose-leaf), vol. 1, at pp. 5-107 to 5-108). Cumulative effects of an ongoing project, and historical context, may therefore inform the scope of the duty to consult (West Moberly First Nations v. British Columbia (Chief Inspector of Mines), 2011 BCCA 247, 18 B.C.L.R. (5th) 234, at para. 117). This is not "to attempt the redress of past wrongs. Rather, it is simply to recognize an existing state of affairs, and to address the consequences of what may result from" the project (West Moberly, at para. 119)."
>
> [emphasis added]

In reviewing Blackwater from this lens, the CSFNs concluded that it would have residual ecological impacts on several key species: in particular, negative and serious impacts on sockeye, coho, Nechako white sturgeon, and other resident species, (including kokanee, rainbow trout, bull trout and burbot), and negative and serious impacts on caribou, moose and grizzly.

The CSFNs note that New Gold's re-alignment of the transmission line to address the CSFNs' concerns, and the conditions included in the federal Decision Statement for Blackwater, and the conditions proposed in the EAO's referral materials, do not eliminate these residual effects, and impacts of Blackwater on CSFNs' RTI remain characterized as serious from the CSFNs' perspective.

Therefore, the CSFNs are of the view that more work is required to define the economic benefits/ accommodation that they must receive as accommodation for the serious adverse impacts the Project will visit upon their RTI.

The request for economic accommodation to address what the CSFNs view as serious impacts of Blackwater on CSFNs' RTI, is premised on the "current state of affairs" that derive from past and ongoing impacts of previous decisions made throughout CSFNs' Territories. The CSFNs have clearly expressed that this current state of affairs is the larger context that must inform the determination on the seriousness of the impacts of Blackwater on their RTI. Concurrently, the CSFNs note that, as acknowledged by the Supreme Court of Canada at para. 32 of *Chippewas of the Thames First Nation*, if a regulatory body (such as the EAO) does not provide adequate consultation and accommodation, the Crown must provide further avenues for meaningful consultation and accommodation in order to fulfill the duty prior to project approval. The CSFNs maintain that the "current state of affairs" renders further impacts on a number of key resources that they rely on to exercise their RTI serious, and although the conditions play a critical

role, accommodation remains outstanding.

The CSFNs have noted that while discussion with New Gold on an impact benefits agreement are underway, these have not yet been concluded. In addition, the CSFNs have stated that in addition to benefits from New Gold, the CSFNs require some form of economic benefit tied to Blackwater from the Province and the Federal government. In that regard, the CSFNs tabled a proposal with the EMPR and MIRR in August 2017 requesting that the CSFNs and the Province discuss the following issues so that the CSFNs would be in a position to potentially support the issuance of an EA Certificate for the Project:

1. Options for converting the transmission line from a temporary to a permanent line to facilitate CSFNs ownership;
2. Extending the transmission line from the mine site to the LDN and UFN to electrify those communities;
3. Obtaining Electricity Purchase Agreements for renewable energy generation projects in CSFNs' Territories;
4. Negotiating an Economic and Community Development Agreement (ECDA) for the Project; and
5. Obtaining grants of Crown land in fee simple (and corresponding commitments to re-habilitate and/or protect the ecosystems on that land) to compensate the CSFNs for the lands being used for the transmission line.

While there were initial discussions and additional attempts to meet and discuss this proposal, the EAO understands that other pressing priorities for all parties resulted in the proposal not advancing. In October 2018, the CSFNs again tabled their August 2017 proposal. EMPR and MIRR responded on January 15, 2019 with a proposed MOU. On March 29, 2019, CSFNs responded with a proposed negotiation framework, and on April 17, 2019 the Deputy Minister of MIRR responded with a written commitment to work with the CSFNs towards an economic benefit package. At this time, however, there is no agreement between the Province and CSFNs on an economic benefits package in relation to the Project.

The CSFNs point to the Province's commitments to: collaborative decision-making in the 2015 Collaboration Agreement; implementing the United Nations Declaration on the Rights of Indigenous Peoples; implementing the Truth and Reconciliation Commission's Calls to Action; and the Province's 10 Principles that Guide the Province of British Columbia's Relationship with Indigenous Peoples. The CSFNs point to Principles 6 and 7 in particular:

> Principle 6. The Province of British Columbia recognizes that meaningful engagement with Indigenous peoples aims to secure their free, prior and informed consent when B.C. proposes to take actions which impact them and their rights, including their lands, territories and resources.
>
> Principle 7. The Province of British Columbia recognizes that respecting and implementing rights is essential and that any infringement of Section 35 rights must by law meet a high threshold of justification which includes Indigenous perspectives and satisfies the Crown's fiduciary obligations.
>
> [emphasis added]

The CSFNs take the view that the honour of the Crown requires that the Province (i) obtain the CSFNs' consent before issuing an EAC, or (ii) "meet a high threshold of justification," which the CSFNs view as not being met at this time for Blackwater. The CSFNs view economic accommodation and compensation as central to addressing the serious, residual impacts to the CSFNs' RTI.

19.2.2 THE EAO'S VIEW ON THE ADEQUACY OF THE CROWN'S CONSULTATION AND ACCOMMODATION TO CSFNS' RTI

The EAO acknowledges that the CSFNs and the EAO have reached different conclusions on the adequacy of accommodations for Blackwater impacts to the CSFNs' RTI. The EAO's view is that such difference stems from two factors:

1. The assessment of effects from Blackwater on VCs; and
2. The consideration of the current state of environmental values in addressing the effects of a specific project.

Each of these factors are discussed below.

ASSESSMENT OF EFFECTS FROM BLACKWATER ON VCS

In considering the potential effects from Blackwater, the EAO and the CSFNs undertook different approaches to the assessment of Blackwater's potential effects on VCs assessed. As a result of these different approaches, the EAO assessment and CSFNs' assessment reached different conclusions on the nature and extent on potential effects on VCs.

The CSFNs commissioned an assessment of the current state of effects on their RTI, separate from the EA process, which was completed by consultants in 2016 (the CSFN Effects Assessment[43]). The CSFN Effects Assessment also included an assessment of the effects from Blackwater on fish, wildlife, flora, and social and economic factors, and nature and seriousness of these effects of Blackwater on the CSFNs' RTI. Towards the conclusion of the Blackwater EA, the CSFNs commissioned a review of their CSFN Effects Assessment in light of updated effects assessments provided by New Gold in late 2017, and in consideration of the transmission line realignment; that review, however, concluded that those updates and changes did not affect the findings in the original CSFN Effects Assessment. New Gold has expressed concern about this conclusion and disagreed that the realignment of the transmission line did not affect the findings of the CSFN Effects Assessment.

In addition to undertaking the CSFN Effects Assessment, the CSFNs also engaged in the EAO's Working Group discussions regarding the Application through their technical representatives, which did not include the consultants who conducted the CSFN Effects Assessment.

The EAO's process for assessing Blackwaters' effects on water, fish and fish habitat, wildlife and ecosystems, as documented in Part B of this Report, involved the EAO's Working Group conducting a

[43] Assessment of the Impacts of New Gold's proposed Blackwater Gold Project on the Aboriginal title, rights and interests of the Nadleh Whut'en, Saik'uz, and Stellat'en First Nations. June 2016. Brian Toth and Michelle Tung, Upper Fraser Fisheries Conservation Alliance.

technical review of New Gold's Application and supplemental information, and an iterative process of seeking and reviewing additional information when Working Group members were concerned about the adequacy of information for assessing potential effects or the adequacy of proposed mitigation measures. The EAO's assessment continued from January 2016 through early 2019, including consideration of proposed conditions that were collaboratively developed through the later part of 2018 and early 2019.

From the EAO's perspective, the condition development process focused on measures to avoid or reduce to an acceptable level the effects that had been identified through the EAO's assessment, and that informs the EAO's conclusions. The EAO is of the view that there are proposed conditions to address the effects identified in the CSFN Effects Assessment. While the conditions may not eliminate residual effects, the EAO would expect that the effects would be considerably reduced by the proposed conditions and would not be the same as effects assessed prior to applying the proposed conditions.

Although the CSFNs were deeply engaged in the EAO's technical review of Blackwater and are in consensus with the EAO on the collaboratively developed conditions proposed for this EA, the EAO understands that the CSFNs remain of the view that the findings in their Part C are the appropriate conclusions to consider for describing and characterizing the effects of Blackwater on the CSFNs' RTI, including on the economic dimensions of their Aboriginal title.

CONSIDERATION OF THE CURRENT STATE

The CSFNs' assessment takes a broader approach than does the EAO. The EAO agrees that consideration of past and ongoing impacts is important to understanding the current state of affairs, which must inform an assessment of the seriousness of impacts on an Indigenous nation's RTI, and for that reason, the EAO considered this context as relevant and appropriate to include in Part C. The EAO also agrees that where the cumulative effects of past and present activities that affect the conditions that exist today, the conclusion on effects from a current project on that right would be more serious. While the EAO is respectful of CSFNs' perspective that their ability to meaningfully exercise their rights range from being constrained to severely constrained, to not possible, within the CSFNs' Territories, the EAO is not in a position to confirm that assessment, and is not of the view that the "current state of affairs" throughout CSFNs' Territories means that any additional incremental effects, anywhere in CSFNs' Territories, should result in impacts on the "serious" end of the spectrum. The EAO is of the view that given the nature of the particular effects of Blackwater on CSFNs' RTI and mitigations proposed to avoid or minimize that effect, the effects are not on the "serious" end of the spectrum.

Figure 1 in Section 1.3 of the CSFNs' Part C attached to this Report shows the overlap between Blackwater and the CSFNs' Territories.

The EAO and CSFNs maintain different views about the role of the existing state of affairs, or existing combined effects of past and present activities, and how this state must be considered in assessing impacts to CSFNs' RTIs; as a result, they differ in their views on appropriate accommodation in view of the potential for impacts arising from Blackwater.

The EAO has considered the guidance provided by the Supreme Court of Canada regarding the scope of

consultation and accommodation, which it views as being confined to addressing adverse impacts flowing from the specific Crown decision at issue, and not to adverse impacts arising from past government conduct (see *Rio Tinto Alcan Inc. v. Carrier Sekani Tribal Council,* 2010 SCC 43 at paras. 53-4, 83). The EAO notes that the 2017 Supreme Court of Canada case, *Chippewas of the Thames First Nation v. Enbridge Pipelines Inc.* 2017 SCC 41 at paras. 41-42 supports that the seriousness of the impact of a project may be impossible to understand without considering the larger context, and that context, as well as the incremental project effects, informs the scope of duty to consult. However, the Supreme Court of Canada also reaffirms that the scope of the duty to consult does not mean that the Crown has to "redress past wrongs" or address the "historical grievances" arising from those previous decisions as part of consultation on a particular project.

While CSFNs have not proposed measures to redress past wrongs or historical grievances, the request for economic accommodation to address what they view as serious impacts of Blackwater on CSFNs' RTI, is premised on the "current state of affairs" that derive from past and ongoing impacts of previous decisions made throughout CSFNs' Territories.

Where the EAO is aware of other, broader initiatives that can address the CSFNs' concerns arising from past or present activities that have affected their current abilities to practice an RTI in their Territories, the EAO is of the view that it is relevant to the assessment of the seriousness of impact of the Project on CSFNs' RTI, and to addressing in part CSFNs' broader concerns. Such initiatives are discussed further below.

The EAO is aware that the CSFNs view the broader initiatives between the CSFNs and BC, as described below, to have low relevance to this EA. However, the EAO describes these initiatives to provide a more complete picture of Blackwater's context within the CSFNs' Territories. The EAO views this information as relevant to decision-makers, whose interests include both reconciliation and landscape-level ecological health, and the EAO views the information presented below as illustrating that substantial efforts are being undertaken to mitigate past impacts that contribute to the "current state of affairs" within CSFNs Territories.

STEWARDSHIP ACROSS CSFNS' TERRITORIES

The EAO recognizes the CSFNs' concerns about the current state of affairs and existing cumulative effects to the CSFNs' RTI, regardless of Blackwater, and that a significant portion of these impacts of concern arise from forestry activities in the CSFNs' Territories. The EAO notes that the Province has been engaging the CSFNs on a number of initiatives that seek to address these broader concerns.

In May 2014, the Province announced the Environmental Stewardship Initiative (ESI) to be developed collaboratively with Aboriginal Groups affected by proposed liquified natural gas (LNG)-related infrastructure, including Aboriginal Groups affected by the Blackwater. The Province initiated the proposed ESI in response to the environmental priorities that Aboriginal Groups expressed through various LNG-related discussions. The objectives of the ongoing Omineca ESI Demonstration Project are to cumulatively assess the effects of natural resource development activities based on risks to valued ecosystem components linked to Carrier Sekani RTI and to use the results of the Demonstration Project to inform

management responses. The Province looks to the ESI as the means to develop recommendations on how the CSFNs and BC can address cumulative effects. These recommendations include the development of a Terms of Reference for resource management planning that could inform Provincial land use mandates.

The CSFNs acknowledge the work being done at the ESI table but note that those activities remain preliminary and have therefore had little if any impact on the EA of Blackwater and the conclusions on the sufficiency of economic accommodation for impacts on the CSFNs' RTI.

RECONCILIATION EFFORTS ACROSS CSFNS' TERRITORIES

While fulfilling the Crown's duty to consult and accommodate in relation to the EA of Blackwater is part of the process of reconciliation, the EAO notes that there are also extensive, ongoing discussions between CSFNs and the Province as part of ongoing reconciliation efforts. The EAO recognizes that these ongoing discussions are not intended to address specifically effects from Blackwater but is aware that these discussions may advance broader reconciliation. Those discussions are intended, in part, to advance meaningful, incremental steps to achieve mutually-beneficial economic, socio-cultural, and stewardship outcomes. The 2017 Interim Pathway Forward Agreement (Agreement) included exploration of a variety of topics, including governance and decision making, CSFN lands, fiscal relations, revenue sharing and economic matters and mining. The Agreement included measures to support Carrier Sekani forestry, business development and partnerships, and deeper participation in forest-resource management and environmental stewardship. The Agreement also established a forum for BC and CSFNs to explore reconciliation approaches. Both parties will work together to develop the outline of a potential long-term reconciliation agreement that addresses the economic, social, cultural and environmental interests of the Nations, the role of Canada, and facilitates ongoing reconciliation between the Crown and CSFNs.

ECONOMIC BENEFITS FROM BLACKWATER

The EAO understands the importance to the CSFNs on having economic benefits and accommodation from Blackwater, in addition to measures to reduce adverse effects. The EAO notes that discussions related to economic benefits are occurring on two fronts.

IMPACT BENEFITS FROM NEW GOLD

The CSFNs have advised the EAO that CSFNs are currently in Impact Benefit Agreement negotiations with New Gold, although no agreement has been reached at this time. CSFNs have noted that discussions are ongoing with New Gold on high level topic areas such as business and employment opportunities, environmental matters, social/cultural mattes and the application of Yinka Dene Water Law.

In its letter of April 2, 2019 to the federal Minister of Environment, New Gold stated it is working to reach a mutually acceptable "participation agreement" with the CSFNs. New Gold noted that it has provided capacity funding arrangements to support consultation and collaboration activities in respect of Blackwater and has been negotiating a participation agreement that will include accommodative measures and other benefits, including discussions on financial compensation, business and employment opportunities arising from the Project, environmental matters, and implementation and communication protocols. New Gold noted that it is committed to continuing negotiations with CSFNs even after a

decision is made by the federal Minister. New Gold has confirmed to the EAO that it will continue negotiations with the CSFNs after a decision is made by provincial Ministers.

GOVERNMENT-TO-GOVERNMENT INITIATIVES

The EAO has considered that EMPR, MIRR and CSFNs have initiated discussions on the proposed establishment of a government-to-government table between BC and CSFNs to discuss and address interests raised by CSFNs regarding the transmission line, as noted above.

Regarding collaboration with the Province during permitting and life of mine, the EAO understands that in a letter dated April 16, 2019, EMPR, ENV and FLNRORD (Appendix E) set out their commitment to take a collaborative approach with LDN, UFN and CSFNs through initial permitting and over the life of mine, including addressing a list of specific issues raised during the EA to be carried forward into a collaborative permitting process. While the details of the collaborative process have yet to be finalized, the letter commits to working with the LDN, UFN and CSFNs to develop and finalize a collaboration plan for initial permitting as soon as possible, with a target of May 2019, and a life of mine framework as soon as practical. New Gold has expressed to the EAO that it would like to be included in this collaboration plan.

The EAO has also considered the commitments made in the April 17, 2019 letter from the Deputy Minister of MIRR to the CSFNs (Appendix F), that includes commitments to continue to work with CSFNs to subsequently seek a mandate for an economic benefits package in relation to Blackwater, and the provision of $120 000 in capacity funding to undertake these government-to-government discussions. The commitment includes collaborative work on a feasibility study to identify economic benefits and development opportunities, and commitment to seek a mandate for the economic benefits package after the work of the government-to-government table set out in the letter is completed.

PROJECT-SPECIFIC MITIGATION MEASURES TO ADDRESS CSFNS' CONCERNS

Blackwater impacts to CSFNs and their RTI relate to the transmission line, use of road to access the site, and potential downstream water quality and other effects. The CSFNs' Territories do not overlap the mine site.

Addressing Impacts to CSFNs' Exercise of Rights and Use and Occupation Component of Aboriginal Title

The construction of a transmission line would prevent the CSFNs and their members from exercising rights in the area during its construction, which would be a limited time period. After construction is concluded, CSFNs would continue to have access to the area to exercise traditional activities. The CSFNs have raised the potential that use may nonetheless be limited due to the new linear infrastructure and perceived impacts thereof. The EAO acknowledges that while this could occur, the EAO has proposed specific conditions to reduce the risk of "perceived" effects, including a proposed condition for an Aboriginal Group Monitor and Monitoring Plan that would require the Certificate Holder to retain or provide funding for Aboriginal Monitors for each of the CSFNs who can provide information to their communities directly, a proposed Country Foods Monitoring Plan condition that includes provision of reports written for a lay audience, and a proposed condition for an Aboriginal Engagement Plan that includes consideration of engagement customs or protocols from Aboriginal Groups, which would facilitate information being made

available to the community in a way that may be more readily accepted by the community.

New Gold revised its proposed alignment of the transmission line in March of 2017 in direct response to the concerns raised by CSFNs. The CSFNs viewed the original transmission line to have "negative and highly significant impacts on our ability to exercise our Rights." CSFNs described the outcome of the re-alignment in a March 20, 2017 letter to the EAO (Appendix D) as follows: "The proposed re-alignments are a mitigation and accommodation measure that significantly reduce the potential for the transmission line to adversely impact our Rights and should be assessed as such by the EAO and Agency." The EAO views the re-alignment as an important accommodation addressing impacts to CSFNs' exercise of rights and minimizing impacts on the use and occupation component of Aboriginal title. The EAO recognizes that the realignment does not eliminate effects from the full length of the proposed transmission line and included proposed conditions specifically to address the impacts related to the potential effects from construction and operations of the transmission line, including effects on wildlife.

The transmission line has the potential to have some short to long-term disturbances along the right-of-way as well as potential impacts to water due to the number of streams along the route, some of which are fish-bearing. The EAO and CSFNs collaboratively developed a condition specifically to address the potential effects on water quality in the waterbodies identified to be of importance to the CSFNs from transmission line construction and maintenance activities, as well as conditions around vegetation and access management in the transmission line right of way.

With respect to the effects on CSFNs from the use of the roads, the EAC conditions proposed include measures around accidents and malfunctions, air quality and dust, noise, and management of traffic and responding to concerns related to traffic on the FSR from Blackwater.

During the EA, New Gold revised its proposed water management design, including maximizing water recycling and agreeing to construct a water treatment plan in order to actively treat water so that it could be discharged to the environment during the operations phase. This was to address concerns from CSFNs, and UFN and LDN related to water quality generally and the potential for water surplus to Blackwater's needs to be stored in the TSF (increasing the extent of impacts should there be a breach of the TSF). The CSFNs expressed particular concern about downstream waters identified as important through the CSFNs' Yinka Dene Water Law (YDWL).

Addressing Impacts to CSFNs' Exercise of Rights and Governance Component of Aboriginal Title

With respect to downstream impacts, the EAO put considerable effort into finding ways to address the CSFNs' interests regarding the explicit consideration of CSFNs' YDWL, resulting in the incorporation of the consideration of YDWL into five proposed conditions. In addition, there were additional conditions developed to address CSFNs' concerns related to water quality generally and limiting storage of surplus water in the tailings storage facility.

The EAO also heard concerns about the uncertainty associated with the assessment of certain impacts, as some were intended to be addressed through management plans or subsequent permitting. In response to these concerns, several measures in the EAC have been proposed to support CSFNs engagement in plan

development and implementation (Aboriginal Group Engagement Plan (Condition 16), Environmental Monitoring Committee (Condition 19), the Community Liaison Committee and Community Effects Monitoring and Mitigation Plan (Condition 37). The EAO, EMPR, ENV and FLNRORD have also committed in writing to collaboration on post-certificate activities.

There are also several overarching conditions proposed to address RTI generally, including conditions for Indigenous Cultural Awareness and Recognition (Condition 15), Aboriginal Group Monitor and Monitoring Plans (Condition 17), and a Cultural and Spiritual Resources Management Plan (Condition 18).

Addressing Impacts to Economic Component of Aboriginal Title

CSFNs are of the view that Blackwater would "prevent CSFNs from using the lands, water and resources in the Project Area for their economic benefit." The CSFNs have stated that if the transmission line is built, it will significantly constrain the CSFNs' ability to use those lands for other economic development purposes.

Currently, as set out above, there are no agreements between the CSFNs and New Gold, or the CSFNs with the Province or Canada, which provide economic benefits/accommodation to the CSFNs in relation to the Blackwater impacts on CSFNs' Aboriginal title.

While the EAO acknowledges the potential that there are certain future uses that would be incompatible with the long-term placement of transmission lines along the proposed route, the CSFNs did not identify what particular activity or opportunity they would be prevented from pursuing in this location, as certain traditional harvesting activities could continue to occur after construction. Furthermore, in their March 20, 2017 letter to the EAO, the CSFNs Chiefs stated that the re-alignment of the route supports CSFNs future aspirations to take over ownership of the transmission line, which is addressing a specific economic interest of the CSFNs.

The EAO has also considered that proposed Condition 37 requires a Community Effects Monitoring and Management Plan that includes a requirement to implement measures to facilitate hiring of employees and service providers from the local area and includes skills training and recruitment approaches to facilitate hiring of members of Aboriginal Groups, including members of the CSFNs.

THE EAO'S CONCLUSION ON THE ADEQUACY OF THE CROWN'S CONSULTATION AND ACCOMMODATION TO CSFNS' RTI

In consideration of the re-alignment, changes to water management, the conditions developed to address the biophysical, place-specific and social, cultural, spiritual and experiential aspects of rights, the EAO is of the view that, as it relates to hunting, trapping and gathering, fishing and cultural activities, the residual impacts to CSFNs' RTI generally are more on the minor side of the spectrum, although if the proposed mitigations and conditions are not as effective as assessed, these effects may be greater than minor, but would not be expected to be more than moderate over the long term. The EAO acknowledges that if not mitigated there could be significant effects to the waterbodies immediately downstream and to waterbodies identified as important to the CSFNs. However, the EAO is of the view that the suite of conditions developed to address water quality, plus the further detailed review and requirements that would be addressed in permitting, adequately address these potential effects. In addition, the EAO notes

that the waterbodies affected are at the southern boundaries of CSFNs' Territories, and there is no information to suggest, should effects be greater than predicted, that the effects would have a broad geographic extent within the CSFNs' territories.

The EAO acknowledges that the CSFNs disagree with EAO's assessment of the effects to the CSFNs' RTI.

In consideration of the discussion above, the proposed conditions, as well as the collaborative manner in which the conditions were developed, the EAO is of the view that the residual impact of Blackwater on the CSFNs' Aboriginal title is also considered more on the minor side of the spectrum. The EAO acknowledges that CSFNs disagree with the EAO's views on this. The EAO also acknowledges in particular the differing views between the EAO and CSFNs regarding the need for economic accommodation.

The EAO views the re-alignment of the transmission line as one tangible way that the economic component of Aboriginal title is being addressed at the EA stage. In their letter of March 20, 2017 (attached in Appendix D), the Chiefs of the CSFNs wrote to the EAO and the Agency stating that the "…re-alignment was a form of accommodation of the governance element of their Aboriginal title and stewardship rights." Nevertheless, the EAO understands that the CSFNs view the re-alignment as insufficient to accommodate the impacts of the full length of the transmission line on their RTI.

The EAO also has considered that the Community Effects Monitoring and Management Plan, which is intended to address potential adverse social effects of Blackwater, includes a requirement to implement measures to facilitate hiring of members of Aboriginal Groups, including skills training. It is the EAO's view that this also contributes to the economic component of Aboriginal title being addressed in the EA. The EAO has also considered the commitment made by MIRR to continue to work with the CSFNs to seek a mandate for an economic benefits package in relation to Blackwater, should it proceed. The EAO is of the view that the re-alignment and the proposed conditions adequately address the effects to the CSFNs' interests at the EA stage of Blackwater's review, and that the Crown's duty to consult and accommodate has been adequately fulfilled in relation to the decision of whether or not to issue an EA Certificate for Blackwater.

The EAO also appreciates the views of CSFN that economic benefits from Blackwater are important to the CSFNs being able to conclude on the adequacy of accommodation, and notes, as discussed above, that there are commitments from the Province and New Gold to further discussions in this regard.

Overall, the EAO agrees that the EA process is just one step in the Crown's regulatory review of Blackwater and recognize that commitments have been made by New Gold and the Province to continue to engage with the CSFNs should an EAC be issued. The EAO's conclusions on adequacy of consultation and accommodation pertain only to considerations related to the decision of whether or not to issue an EAC, cognizant of the further consultation and accommodation, as appropriate, that would happen through subsequent permitting processes.

The EAO is of the view that, given the nature of the particular impacts on CSFNs' RTI that would arise from Blackwater, the accommodations provided are adequate at the EA stage. The EAO is also of the view that the information in the referral package, which includes both the CSFNs' and the EAO's assessments of

Blackwater-related effects, is sufficient to inform the Ministers' understandings of the Blackwater's effects on CSFNs' RTI, the adequacy of measures proposed to mitigate effects, and the adequacy of consultation and accommodation.

The EAO disagrees with the CSFNs' assessment that the honour of the Crown requires CSFNs' consent for an EAC to be issued, or that Blackwater would constitute an infringement.

In terms of consent, the Province does not interpret Article 32(2) the UNDRIP nor the Province's 6th principle to mean that consent is required, but rather, that it is the objective such that the Province seeks to achieve consent through a meaningful engagement process. The EAO is of the view that the deeply collaborative process that resulted in consensus on proposed conditions, as well as the good faith efforts of EMPR and MIRR to begin to address the CSFNs' concerns about a lack of economic benefits, and the EAO's provision of a significant amount of additional time in the attempt to achieve broad consensus on the EA demonstrates considerable effort towards addressing the issues that CSFNs identified as required for their consent. The EAO views these efforts as utilizing innovative collaborative approaches, being consistent with the honour of the Crown, and going beyond what is legally required of the Crown in the circumstances of the Blackwater EA.

The EAO is of the view that the applicable test in the case of the effects on the CSFNs RTI is whether consultation and accommodation are adequate in the circumstance. While the Province has recognized through the Collaboration Agreement that CSFNs' RTI exist within the Territories, the Agreement goes on to state that further processes are required to establish their scope and geographic extent.

New Gold has expressed that it strongly disagrees with both the CSFNs' conclusions and the CSFNs recommendation that further assessment be ordered in respect of economic accommodation.

19.3 CONSULTATION WITH NAZKO FIRST NATION

19.3.1 NAZKO FIRST NATION COMMUNITY PROFILE

The Nazko First Nation (NFN) members are Carrier (Dakelh) people whose territory is located in central BC. Their members are from a Carrier speaking people, part of the northern Athapaskan language family. The Carrier language is still actively used by the NFN membership. In the Federal 2011 census, more than 27 percent of NFN peoples learned Carrier as their first language and more than 55 percent had knowledge of the language.

Carrier region terrain varies from the low, rolling hills along the Blackwater River in the south to the mountainous regions that border Carrier region to the west, north and east.

The Carrier territory was and remains important grounds for fishing, hunting, trapping and plant gathering; salmon were one of the most important sources of protein. Along with migratory salmon, depending on their abundance, other varieties of fish were included in the Carrier diet, such as land-locked salmon, trout, carp, whitefish, sucks and sturgeon. Moose, caribou and deer were not abundant in the Carrier

territory, but mountain goats, mountain sheep, marmots, ground-hogs, rabbits, hares, beavers and bears were more plentiful. The Carrier peoples prized these animals not only for their flesh, but also for their parts, making tools out of bone, horn, teeth and antler, and using fur to make clothing, shoes, bags, blankets and sinew. With respect to fowl, migrating birds (geese, swans and ducks) were trapped with snares and nets in the spring and fall. Summer months were used for plant and berry gathering, including wild turnip, bulbs, lichen, onions, cambium (the inner bark of a pine) and other greens.

As NFN stated, in 2017, NFN, along with LDN, UFN and Lhtako Dené Nation formed the Southern Dãkelh Nation Alliance (SDNA) for the purposes of engaging in a government-to-government relationship with the Province of British Columbia. SDNA and the Province are currently pursuing comprehensive reconciliation through the establishment of an Alliance Reconciliation Table.

NFN has 22 reserves which were established by legislation in 1911. The main communities are located at Baezaeko (Besikoh), Trout Lake (Bunchek) and Nazko (Chuntezn'ai). Nazko (IR #20) is the main reserve and is located 100 km west of Quesnel, on the NFN Highway #59 in the interior of BC. NFN currently has an elected political governing structure in place pursuant to the *Indian Act*.

From review of the 2011/12 federal census and Indigenous and Northern Affairs Canada's Indigenous groups' profiles dataset, NFN had 1973 ha of reserve land, spread out over 22 reserves; as of March 2018, the total registered population was 401.

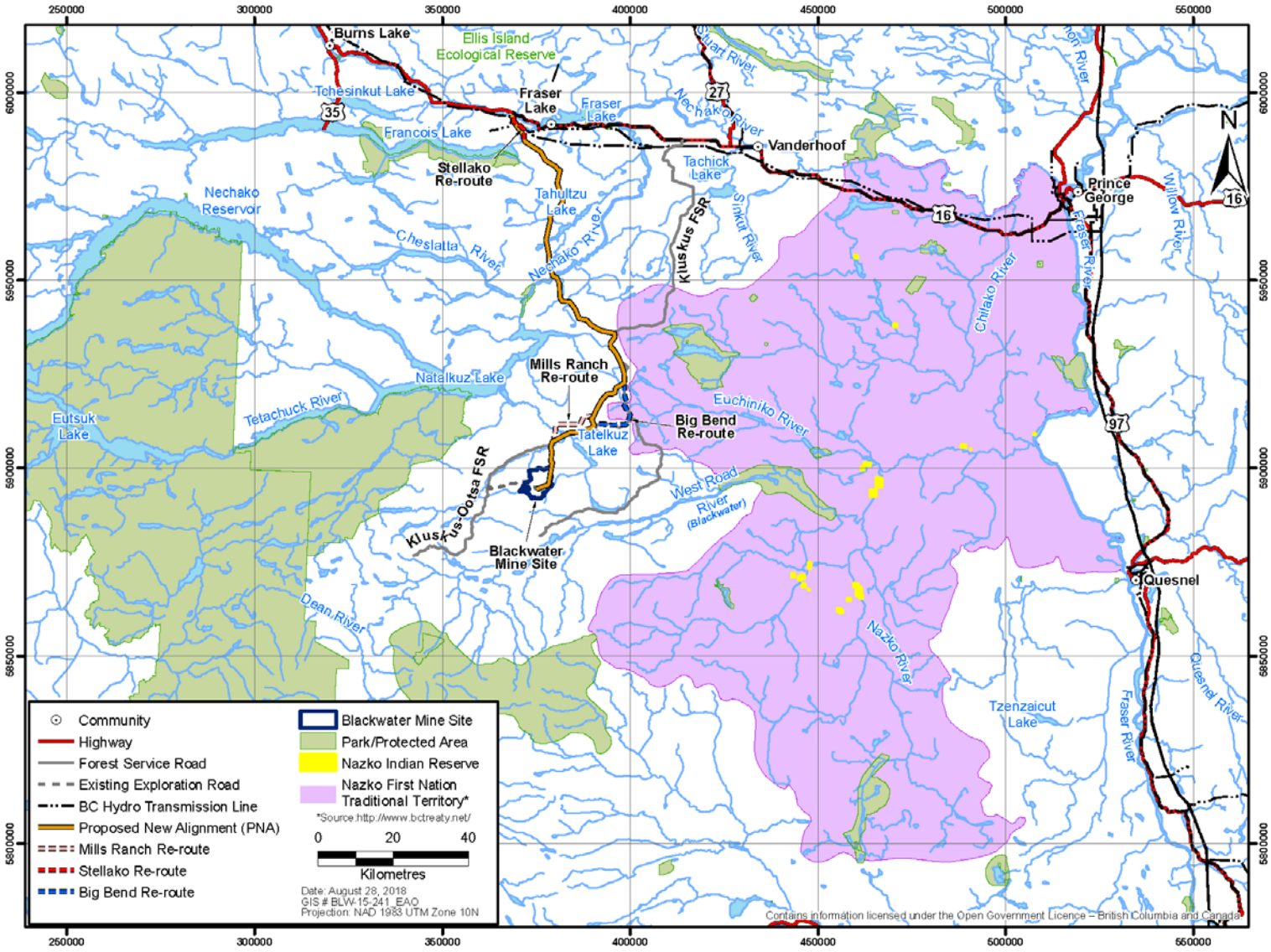

Figure 19: NFN Boundary

19.3.2 SUMMARY OF CONSULTATION PROCESS WITH NFN

This Section describes the consultation and collaboration that occurred with NFN during the Blackwater EA. New Gold had proposed three alternative transmission line alignments (TLAs) and about five km of one of these TLAs (TLA-3 Big Bend), the access roads for TLA-3, and less than 30 km the existing forest service road are located in the traditional territories of NFN.

The EAO's original proposed approach to consultation was communicated to NFN by letter dated April 5, 2013. The approach was informed by the EAO's review of ethnographic information available regarding any historic NFN use of the Blackwater project area and articulated the results of this analysis and how it informed the scope of consultation in the April 5, 2013 letter. In that letter, the EAO also communicated that the use of and improvements to the Kluskus FSR have the potential to affect fish and fish habitat through risk of erosion and spread of invasive species, dust, and risk of spills from vehicle accidents. However, it was noted that the access road (Kluskus FSR) is an existing road and is approximately 10 to 15 km to the west of Tatuk Lake (although the FSR does pass within five km of Finger Lake for a short distance). The Kluskus FSR only overlaps NFN's territory at the far eastern border. Based on this information, the EAO was of the initial view that the potential impacts to NFN's ability to exercise its Aboriginal Interests were likely to be low. At that time, the EAO concluded that the duty to consult NFN lay at the low end of the *Haida* consultation spectrum for Blackwater, placing NFN on Schedule C.

On July 9, 2013, the EAO issued a Section 11 Order which specified the consultation activities that the EAO and engagement activities that New Gold would undertake with all the Indigenous groups.

NFN provided a response letter to the EAO on September 19, 2013, stating disagreement with NFN's placement on Schedule C. NFN felt it important to note that the NFN, West Road and Blackwater peoples were from the same cultural group and had a long-standing history of use of the northwest corner of their territory, in close proximity to the FSR. NFN referenced NFN's longstanding use extending up and down the entire Euchiniko watershed, which overlapped the FSR. Over 1000 archaeological sites were referenced as being located in the area surrounding the northwest portion of NFN territory, in addition to multiple fishing, hunting, gathering, traditional knowledge and spiritual sites.

Despite the mine site itself being located outside of NFN territory, the letter stated their view that the risks of Blackwater were equal to or greater than the environmental degradation threatening the Indigenous groups already being consulted at a higher level by the EAO. In particular it noted the risks of the transportation of several types of environmentally toxic materials (diesel fuel, gasoline, aviation fuel, etc.) to the Blackwater site through NFN territory along the FSR. These risks included potential effects on watersheds that would negatively affect resources the NFN people rely on.

The EAO acknowledged the overlap of the FSR with NFN territory in a letter on December 10, 2013 and sought further information from NFN regarding its traditional use of the project area. While the EAO did not place NFN on Schedule B of the Section 11 Order at that time, the EAO did direct New Gold to provide NFN additional project information and respond to any NFN questions or comments.

In February and March 2017, New Gold confirmed that it intended to proceed with consideration of an alternate routing for the Blackwater TLA which included Big Bend TLA-3 that would pass through five km of a western portion of NFN territory in parallel to the FSR.

To address the overlap of the proposed TLA-3 and FSR with NFN territory, on May 3, 2017, the EAO amended the Section 11 Order by issuing a Section 13 Order to add Schedule D. The Section 13 Order and Schedule D directed that NFN be engaged by New Gold and EAO at the deeper end of the consultation spectrum for the TLA-3 and use of the FSR.

While listed on Schedule C of the Section 11 Order, NFN would be provided the following notifications:

- Issuance of the Section 11 Order and any Section 13 Orders;
- Public comment period for the draft AIR;
- Approval of final AIR;
- Acceptance of Application by EAO for review;
- Public comment period for Application; and
- Decision on the Application.

Following the issuance of the Section 13 Order on May 3, 2017, in addition to the consultation noted above, NFN was provided with the following opportunities for consultation at the deeper end of the consultation spectrum:

- Consultation regarding the potential impacts on their Aboriginal Interests from the transmission line connecting the mine site with an existing substation and related access road;
- Consultation regarding the potential impacts on their Aboriginal Interests from transportation of workers, materials and equipment along the FSRs to the mine site; and
- Consultation respecting other potential impacts of Blackwater on NFN's Aboriginal Interests.

Following the May 3, 2017 Section 13 Order, the EAO provided NFN with capacity funding to support consultation activities with the EAO. The EAO also followed up with various emails and phone calls with NFN to discuss the EA and offers to provide assistance to NFN in their review of the information.

On September 28, 2018, the EAO sent a letter to NFN requesting a meeting to discuss the EA, specifically to ensure that NFN information would be accurately portrayed in the EAO's analysis of potential impacts to NFN Aboriginal Interests and that appropriate mitigations/conditions were proposed to address impacts on NFN's Aboriginal Interests. On October 29, 2018, NFN and their legal and technical representatives met with the EAO and other provincial and federal government entities in Vancouver, BC. The meeting focused on the following:

- The provincial and federal environmental assessment process and timelines of Blackwater;
- The issues analysis and community comments in NFN's submission and confidentiality;
- Potential for capacity funding to be provided to NFN for further participation;

- How the work NFN had undertaken would be or had already had been reflected in the federal and provincial EAs; and
- The next steps for involvement of the NFN.

Following the inclusion of NFN on Schedule D, NFN was invited to participate in Working Group meetings, to comment on EA documents and to meet with EAO staff. New Gold had multiple meetings, conversations and other communications with in 2017 and 2018, after NFN's addition to Schedule D. A summary of New Gold's consultation with NFN is available on the EAO's ePIC website.

The EAO shared draft chapters of the Assessment Report and draft EA conditions with NFN in batches of chapters and potential conditions between October 1, 2018 and November 23, 2018. The EAO also shared the EAO's draft consultation report for NFN on December 14, 2018. Between February 15, 2019 and February 27, 2019, the EAO shared with NFN updated chapters for comment.

The EAO received comments from NFN on the earlier drafts of the Assessment report chapters and proposed conditions between November 14, 2018 and February 12, 2019. The EAO received comments on the EAO's draft consultation report for NFN and the EAO's final draft Assessment Report chapters on March 4, 2019.

In response to the comments from NFN, the EAO reached out to NFN on March 7, 2019, to request a meeting with NFN to review the comments received and discuss how the EAO would respond to those comments. The NFN and the EAO held a conference call on March 20, 2019.

On that call, NFN asked that the EAO first provide written responses to NFN comments, rather than walking through them verbally as the EAO had proposed. The EAO shared the current version of proposed conditions on March 20, 2019 and provided a detailed response to each of the NFN's comments on March 27, 2019. In that letter, the EAO offered to meet again with NFN and reminded NFN of the opportunity to provide a submission to the Ministers. The EAO asked for any submission, discussion or comments by April 3, 2019, based on the then anticipated date for referral of Blackwater to Ministers for decision. The NFN acknowledged receipt of the letter but did not comment further.

Based on the last round of correspondence between the EAO and NFN, the EAO is of the view that the EAO has adequately addressed NFN's comments and requests related to the potential effects of the Blackwater. NFN's comments focused mainly on seeking assurance that NFN would be included in development of plans that would be required by the EAC, if issued, including the analysis of effective mitigation measures, and the development of adaptive management strategies. The NFN noted particular interest in being consulted on the following plans proposed as conditions of the Certificate: Aboriginal Group Engagement Plan (Condition 16); Air Quality and Dust Management Plan (Condition 20); Caribou Mitigation and Monitoring Plan (Condition 22); Wildlife Management and Monitoring Plan (Condition 23); Accidents and Malfunctions Administration and Communication Plan (Condition 36); Final Transmission Line Routing Plan (Condition 39); and Country Foods Monitoring Plan (Condition 41). NFN also asked to have an Aboriginal Group Monitor (Condition 17) and to be included in the proposed Environmental Monitoring Committee (Condition 19). The EAO confirmed that the proposed EAC would require the Certificate Holder to consult with and/or include NFN with respect to all of these conditions. The EAO also

made some additional changes to proposed conditions to address NFN concerns.

NFN also stated that NFN disagreed that the process of consultation was appropriate and reasonable in the circumstance and noted that there was no meaningful or substantive dialogue around the concerns raised by NFN.

It is the EAO's view that NFN have been offered many opportunities to participate in the review of information regarding relevant components of Blackwater following NFN being listed on Schedule D, including offers from the EAO to meet with NFN and discuss any comments or concerns. However, it is the EAO's view that NFN had provided limited response to the opportunities that were presented.

The EAO has carefully considered and incorporated as much as possible the issues discussed with NFN and the comments received in the development of the Assessment Report and the Table of Conditions. Further, as reflected in the EAO's responses above, the EAO has been able to confirm NFN's requested involvement in management plan development and that by and large, the EAO has proposed conditions that address the issues of concern to NFN.

The EAO also responded directly to two other issues raised by NFN outlined below. These are further discussed in the subsection devoted to the analysis of impacts to NFN Aboriginal Title below.

1. NFN stated that economic accommodation from New Gold was needed for the use of NFN Territory and for the impacts to NFN rights.
2. NFN stated that NFN required a commitment to fund NFN's participation in the development, monitoring and oversight of proposed conditions that relate to concerns identified by NFN.

19.3.3 NFN DESCRIPTION OF THEIR ABORIGINAL TITLE, RIGHTS AND INTERESTS IN RELATION TO BLACKWATER

In January 2017, NFN provided to EAO a report titled "Assessment of Impacts of New Gold's Proposed Blackwater Gold Project on the Aboriginal Title, Rights and Interests of the Nazko First Nation" to identify the impacts of Blackwater on NFN Aboriginal Interests.

In September 2018, NFN provided to EAO a report titled "Proposed New Gold Blackwater Project: Nazko First Nation Issues Analysis."

For the purpose of this Part C, the January 2017 and September 2018 reports have been summarized below in this section and included in the sub-section devoted to the EAO's analysis of potential of Blackwater on NFN Aboriginal Interests.

NFN ABORIGINAL TITLE

NFN assert Aboriginal Title to NFN's Traditional territory, which includes:

- The right to decide how the land will be used;
- The right of enjoy and occupy the land;
- The right to possess the land;
- The right to economic benefits of the land; and
- The right to proactively use and manage the land.

NFN identified the management of lands and resources to allow for the sustainability of wildlife species that NFN harvests as an important component of their Aboriginal Title. NFN noted concerns regarding the status of wildlife (moose, caribou and grizzly bears) and noted that a moose population resides within and around NFN Title lands where the FSR and proposed TLA-3 would be located. As such, NFN asserts the right to manage these lands and the moose population itself.

NFN is of the view that the activities being proposed on NFN territory must also be addressed with regards to the jurisdictional and economic component of NFN Title. These include management of wildlife resources, making shared decisions with the other parties involved, and sharing any benefits their lands provide. NFN is of the view that the use of the FSR and development of TLA-3 will require NFN consent.

NFN ABORIGINAL RIGHTS

NFN asserts Aboriginal Rights to hunt, fish and harvest plant resources throughout its traditional territory, including:

- The harvest of wildlife, including fish, and the harvest of plants, including fruits and other plant components, for food, social and ceremonial purposes; and
- The use and/or harvest of timber to meet personal needs.

NFN also assert that:

- Land/water uses and activities that affect the productive capacity of ecosystems may limit their ability to generate flora and fauna that support NFN Rights; and
- Factors that impart increased competition for resources including exploitation management and access management affects NFN's Aboriginal Rights.

19.3.4 ASSESSMENT OF POTENTIAL IMPACTS TO THE PROJECT ON NFN ABORIGINAL INTERESTS

The NFN identified that NFN's territory had been experiencing adverse impacts due to underlying environmental trends, with climate change having the greatest effect. These included: large-scale forest health issues (mountain pine beetle) and more frequent/intense forest fires; changes in spring-summer peak and lower flow timings; and higher summer water/air temperatures.

In a letter sent to the EAO in 2013, NFN noted that they had a long-standing history of usage of the northwestern corner of their territory, which has spiritual sites and sites/features important to traditional ecological knowledge. The EAO's assessment of impacts to Aboriginal Interests below includes consideration of all of the available information, including New Gold's Application and NFN reports.

NFN is of the view that the construction and effects of the proposed TLA-3, increase in traffic along the FSR passing through NFN territory, and mine infrastructure footprint outside of NFN territory has the potential to adversely impact the exercise of NFN Rights as follows:

1. Increase wildlife mortalities (including moose) from increase in traffic, thereby causing an additional impact on NFN harvesting Rights of a species already in a declining population;
2. Potential accidental waterway contaminations from spills of the hazardous materials being transported to/from the mine, causing implications on fish and water quality which would significantly adversely impact NFN ability to exercise their fish harvesting Right;
3. Effect on wildlife (caribou and grizzly bear) populations, already low or in decline, from the mine infrastructure located outside of NFN territory. This would adversely impact NFN wildlife harvesting Rights;
4. Effect on water quality/quantity and habitat from mine infrastructure outside of NFN territory. This would adversely affect sockeye populations that are already declining or below levels that can sustain harvest; thereby having a significant negative impact on NFN sockeye harvesting Rights;
5. Effects of increased access leading to potential exploitation of wildlife and fisheries, increasing competition for resources; and
6. Potential contaminants as a result of the mine and associated infrastructure that could potentially impact human health (for example, effects of road dust/contaminants on exposure to contaminated country foods, medicinal plants).

These potential impacts have been organized into a discussion of impacts on aquatic and terrestrial resources below.

AQUATIC RESOURCES

FISHING RIGHTS

According to NFN, Blackwater would contribute to changes to water quality (including temperature) and quantity, which were believed to contribute to the declining status of specific fish populations (that is, sockeye) that support NFN fisheries.

NFN's reports disagreed with the findings of New Gold's predicted project effects on aquatic values described in the Application due to disagreement between methodological approaches. NFN's reports predicted there would be adverse effects caused by clearing, riparian forest removal and road and linear feature development; conversely, New Gold did not find residual adverse effects in relation to the proposed transmission line following the implementation of mitigation measures.

Aquatic Effect Assessment Area

NFN identified the following effects on aquatic resources:

1. Direct effects in the NFN territory:
    - The existing FSR would see an increase in a variety of traffic (through construction, operation and reclamation):
        - Crossing of Euchiniko and Chilako Watersheds by the FSR resulting in the risk of accidental spills/contamination of downstream waterways. This would have the potential to adversely affect fish and water quality in the watersheds;
        - It also would increase access and potential exploitation of fisheries resources.
    - TLA-1, 2 and 3 (up to 50 m right-of-way) crossing 6.5 km of the Euchiniko River watershed, and five km of TLA-3 crossing NFN territory in the watershed, would increase land clearing and riparian forest removal for transmission line/access roads. A 140 m corridor width is being requested by New Gold to allow flexibility for their placement of the right-of-way. Each of these factors would have the potential to affect the quality/quantity and habitat of the Euchiniko Watershed as well as increase access to aquatic resources.
2. Indirect effects outside the NFN territory:
    - Effects on water quality/quantity and habitat of fish populations of importance to NFN from land clearing, riparian forest removal, stream crossings and linear feature (for example, roads, transmission lines) density for the TLAs in the Cheslatta River, Francois Lake and Nechako River Watersheds.
    - The land clearing and riparian forest removal for the transmission line/access roads outside of NFN territory may also affect the aquatic habit, leading to indirect effects on NFN.

Anticipated Project Effect on Aquatic Resources

NFN reports that there would be an increased risk to the Euchiniko watershed, which was identified as a high use area by NFN and that supports the only remaining viable lake trout fisheries within their territory. NFN also reports that outside and inside of NFN's traditional territory, primarily due to TLA-3, three primary effects to aquatic resources would be expected:

- Minor adverse impact on NFN sockeye fishery, already constrained by the diminished status of populations supporting the fishery;
- Minor adverse impact on NFN Interest in coho, the status was already precluding a viable/legal fishery; and
- Minor negative impact on NFN interest in white sturgeon, the status at that time precluded a viable/legal fishery.

The table below provides a summary of NFN's view of Blackwater's effects on aquatic species and NFN Aboriginal Rights.

Table 47: Summary of NFN's View of Blackwater's Effects on Aquatic Species and NFN Aboriginal Rights

SPECIES/ STOCK	HEALTH/STATUS	NFN CURRENT ABILITIES TO EXERCISE RIGHTS	ANTICIPATED PROJECT EFFECT	ANTICIPATED PROJECT IMPACT ON NFN ABILITIES TO EXERCISE RIGHTS
Sockeye (Nadina/ Stellako)	Poor/ Poor-cautionary	**Highly constrained**; • Harvest constrained by diminished abundance, regulation. • Key sustenance species.	**Creation of the TLA-3 and associated access roads** will increase land clearing, riparian forest removal and linear feature density in the Cheslatta River, Francois Lake and Nechako River Watersheds. This will contribute to incremental negative effects on water quality/quantity and habitat on which these populations rely.	**Negative** (minor)
Sockeye (Late Stuart, Early Stuart/ Bowron, Quesnel)	Poor-cautionary, Poor/Poor, Poor-cautionary	**Highly constrained**; • Diminished abundance, regulation. • Key sustenance species.	Blackwater not anticipated to affect habitat on which these populations rely.	**Negligible**
Chinook (Spring and Summer); upper Fraser, Quesnel and Nechako	Lowest abundance trends on record	**Highly constrained**; • Limited abundance, regulation. • Key sustenance species.	Blackwater is not anticipated to affect habitat on which these populations rely.	**Negligible**
Chinook (Spring and Summer); Euchiniko and Chilako Stocks	**Poor status**: lowest abundance on record	**Highly constrained**; • Limited abundance, regulation. • Key sustenance species.	Transport of dangerous goods/hazardous materials on the FSR poses the potential for accidental spills and contamination of downstream waterways, with implications for fish and water quality in the Euchiniko and Chilako Watersheds (sensitivity of populations is high; that is, resiliency is low). Creation of TLA-3 corridor and associated access roads and stream crossings in the Euchiniko Watershed will increase land clearing, riparian forest removal. This will have localized negative effect on water quality/quantity and habitat in the Euchiniko Watershed.	**Significant Risk**- Consequence to populations in the Euchiniko and Chilako due to potential spills. **Negligible** effect from proposed TLA-3 in Euchiniko Watershed.

SPECIES/ STOCK	HEALTH/STATUS	NFN CURRENT ABILITIES TO EXERCISE RIGHTS	ANTICIPATED PROJECT EFFECT	ANTICIPATED PROJECT IMPACT ON NFN ABILITIES TO EXERCISE RIGHTS
Coho (IFC)	**ENDANGERED**, COSEWIC	**Fully constrained.**	Creation of the TLA-3 corridor and access roads will increase land clearing, riparian forest removal and linear feature density. This will contribute to incremental negative effects on water quality/quantity and habitat.	**Negative** (negligible - minor). Effect is contrary to NFN interests in recovery of the populations that support their fishery.
Pink	**Data deficient**	**Not constrained.**	Creation of the TLA-3 corridor and access roads will increase land clearing, riparian forest removal and linear feature density. This will contribute to incremental negative effects on water quality/quantity and habitat.	**Negligible**
Nechako White Sturgeon	**Endangered**, COSEWIC, SARA-listed	**Fully constrained.**	Creation of the TLA-3 corridor and associated access roads and stream crossings will increase land clearing, riparian forest removal and linear feature density in the Cheslatta River, Francois Lake and Nechako River Watersheds. This will contribute to incremental negative effects on water quality/quantity and habitat on which this population relies.	**Negative** (negligible to minor). Effect is contrary to NFN interests in recovery of the species/population.
Upper Fraser White Sturgeon	**Endangered**, COSEWIC, SARA-listed	**Fully constrained.**	Blackwater not anticipated to effect habitat on which this population relies.	**N/A**
Middle Fraser White Sturgeon	**Endangered**, COSEWIC	**Fully constrained.**	Blackwater not anticipated to effect habitat on which this population relies.	**N/A**
Lake trout (char)	**Diminished status;** (2 of 4 lake populations demonstrate overharvesting)	**Moderately constrained** and negatively affected in some lakes.	Transport of dangerous goods/hazardous materials on the FSR poses the potential for accidental spills and contamination of downstream waterways, with implications for fish and water quality in the Euchiniko and Chilako Watersheds (Euchiniko supports important NFN-lake trout interests, which have been lost in other portions of territory. Creation of TLA-3 corridor and associated access roads and stream crossings in the Euchiniko Watershed will increase land clearing, riparian forest removal. This will have localized negative effect on water	**Significant Risk**- Consequence to populations in the Euchiniko and Chilako due to potential spills. Negligible effect from proposed TLA-3 in Euchiniko Watershed.

SPECIES/ STOCK	HEALTH/STATUS	NFN CURRENT ABILITIES TO EXERCISE RIGHTS	ANTICIPATED PROJECT EFFECT	ANTICIPATED PROJECT IMPACT ON NFN ABILITIES TO EXERCISE RIGHTS
			quality/quantity and habitat in the Euchiniko Watershed.	
Other resident species, including bull trout, kokanee, rainbow trout, whitefishes and burbot (non-sportfish species).	**Unknown.** Insufficient information to determine health status of populations within NFN territory.	**Not constrained/ unmeasured.**	Transport of dangerous goods/hazardous materials on the FSR poses the potential for accidental spills and contamination of downstream waterways, with implications for fish and water quality in the Euchiniko and Chilako Watersheds. Creation of the TLA-3 corridor and associated access roads and stream crossings in the Euchiniko Watershed will increase land clearing, riparian forest removal. This will have localized negative effect on water quality/quantity and habitat in the Euchiniko Watershed.	**Significant Risk**- Consequence to Populations in the Euchiniko and Chilako Due to Potential Spills. **Negligible** effect from proposed TLA-3 in Euchiniko Watershed.

Section 11: Fish and Fish Habitat of this Report provides a more technical discussion of the potential effect of Blackwater on aquatic resources.

There are multiple watersheds in the NFN territory that support a range of sedentary and migratory fish populations. The potential negative effects on the fish population resulting from Blackwater could be experienced throughout the five km of the TLA-3 overlapping the Euchiniko watershed in NFN territory, as well as 1.5 km of Euchiniko watershed outside of NFN territory overlapped by other potential transmission line routings.

In their Application, New Gold determined that TLA-3 and the FSR would have either no or negligible potential residual effect on the aquatic environment and resources following the implementation of mitigation measures, and therefore did not conduct a cumulative effect assessment for potential residual effects. However, as noted above, the NFN did not agree with this conclusion as NFN also considered the long-term adverse effects on aquatic resources from clearing, riparian forest removal and road/linear feature development. The NFN commented that there would also be a decrease in fish stock availability due to altered production environments, all of which would negatively impact NFN Right to fish.

The EAO notes that New Gold did not include the three fish species NFN identified as being of the highest importance (sockeye, chinook salmon and white sturgeon) as indicator species for aquatic resources. As both salmon and sturgeon are migratory species, the activities occurring outside of NFN territory could negatively impact NFN fishing of these species within its territory. The health/status of these salmon species ranged from poor to poor-cautionary and the white sturgeon was listed as endangered. Thus, EAO

finds that aquatic resources could be adversely affected.

The EAO agrees that the two identified potential impacts on NFN fishing within its territory and one potential impact outside of NFN territory would all have ongoing potential for effects. The first potential direct impact would be an increase in traffic and indefinite usage of the FSR for transportation of hazardous materials. This would result in the potential for contaminants from potential spills to enter the watersheds that NFN rely on to support their fish harvesting Rights. The TLA-3 could increase fishing access for legal or illegal harvest of aquatic resources by third parties. While TLA-3 would parallel an existing FSR, having another additional linear connection from other areas to NFN territories could increase access. A direct impact on NFN fishing Rights could be caused by the development of the TLA-3, stream crossings and access roads requiring land clearing/riparian forest removal, thereby negatively affecting the aquatic habitat. The indirect impact on NFN Rights outside of NFN territory could result from land clearing, riparian forest removal and linear feature density in the surrounding watersheds, once again negatively effecting relevant aquatic habitat.

The EAO recognizes that fish harvesting is an important cultural activity and resource NFN relies on. The risks and impacts to fishing Rights identified by NFN may negatively affect their cultural identity. NFN may also experience decreased quality of experience due to the increased presence of non-Indigenous people on their territory for work or tourism purposes, and the potential for decreased resource availability from the unauthorized harvesting of fish.

Mitigations and Accommodations of Impacts to Fishing

New Gold's mitigation measures, listed in their Application, relating to fish and fish habitat were developed following the decision to consider the three new TLAs (TLA-1, TLA-2 and TLA-3). The primary measures proposed to address the potential negative impacts to NFN Right to fish are discussed below.

To address the issues of potential contamination of the watersheds, New Gold has proposed the development of an Emergency and Spill Preparedness and Response Plan that would include minimizing the environmental impact of an event and ensuring spill and incident clean-up would be timely and effective. Protection of the environment would be one of the main priorities of spill response. All trucks and operators carrying hazardous materials would be certified, meet the federal and provincial legislative standards where applicable, and have appropriate materials (for example, emergency spill response kits) and training to manage spills should they occur. Equipment would be cleaned and inspected for leaks prior to starting work as well as washed and refueled away from waterbodies.

The potential negative effects of the access roads, stream crossings and TLA-3 would be reduced through multiple measures. Existing access roads and watercourse crossings for site access would be used wherever possible with TLA-3 running parallel to the FSR. If new stream crossings were to be required over fish-bearing streams, clear-span bridges or open-bottom structures would be constructed. These crossings would be designed to not interfere with fish passage, constrict the channel width or reduce flows, and any intake pipes would be screened to prevent entrainment of fish. The construction in-stream or near sensitive habitat would either be avoided or minimized. A Sediment and Erosion Control Plan for the site would be developed that minimizes risk of sedimentation to the waterbody during all phases of

Blackwater. These erosion control measures would include immediately stabilizing shoreline or banks disturbed by construction activities, preferably through re-vegetation with native species suitable for the site and minimizing the removal of riparian vegetation and natural woody debris, rocks, sand and other materials from the banks.

In addition to New Gold's three primary mitigation measures, NFN has requested the following additions:

- Inclusion, and financial support, in the Access Management Working Group;
- Funding provided to NFN to be used for them to contribute to development, implementation and/or tracking of the Transportation and Access Management Plan, Emergency and Spill Preparedness and Response Plan, and Aquatic Resource Management Plan; and
- Provide immediate response to notify NFN of spills and include NFN in the emergency response to these spills.

The NFN's comments on the EAO's draft Assessment Report concluded that no residual effects of fish and fish habitat within NFN's territory would be anticipated, given effects related to access roads and transmission line rights of way can be avoided or significantly reduced through design, planning and the implementation of mitigation measures. The primary issue from the components overlapping the NFN territory are sedimentation from construction and maintenance of the transmission line and potential effects from accidents and malfunctions. The conditions proposed by the EAO that address these issues include the proposed Transmission Line Sedimentation Monitoring Plan, the proposed Air Quality and Dust Management Plan, the requirements in the proposed Wildlife Management and Monitoring Plan related to vegetation and access management along the transmission line right of way, the proposed Accidents and Malfunctions Administration and Communication Plan, the proposed Country Foods Monitoring Plan and the proposed Construction Environmental Management Plan (Condition 13) which addresses erosion and sediment control and spill prevention and response for hydrocarbons. The EAC, if issued, would require the Certificate Holder to consult with NFN on the development of these plans.

In addition, the EAO has proposed Condition 39: Final Transmission Line Routing Plan, which would require NFN be consulted, should TLA-3 be selected, for determination of potential effects on their Rights and the appropriate mitigation measures, and Condition 19: Environmental Monitoring Committee, which would provide a venue for Indigenous groups, including NFN, to discuss issues of concern associated with Blackwater with New Gold and government agencies.

Conclusion on the Impacts to Fishing

In consideration of New Gold's proposed mitigation measures noted above, and the conditions the EAO is proposing, including those noted above, and provincial and federal regulatory requirements (for example, *BC Environmental Management Act, Federal Fisheries Act*), the EAO concludes that for the whole project, Blackwater's residual effects to Fish and Fish Habitat would be low to high in context, low to moderate in magnitude, local in geographic extent, permanent in duration, irreversible, and continuous.

These conclusions included consideration of downstream water quality effects from the mine site, which does not discharge into watersheds in the NFN's traditional territory.

Considering the importance of fish harvesting to NFN as an important cultural activity and resource they rely on, the concerns NFN identified about the potential impacts of Blackwater on aquatic resources, NFN's proposed additions to the New Gold's mitigation measures, some of which the EAO has incorporated into the proposed EAC conditions, and NFN's conclusion that they anticipate no residual impacts to fish or fish habitat within their territory, the EAO concludes that, with mitigation, there are likely not to be residual effects on fish and fish habitat, however there could be experiential effects as noted above, and therefore Blackwater would result in a negligible to minor impact[44] to NFN's Right to fish.

The EAO notes that NFN has outstanding issues related to capacity funding with respect to development and implementation of plans, as discussed in the Aboriginal Title section below.

TERRESTRIAL RESOURCES

HUNTING AND TRAPPING RIGHTS

Traffic associated with Blackwater mine construction, operation, closure, reclamation on the FSR was understood by NFN to be the primary form of vehicular interactions with wildlife. NFN noted that the Application identified the following effects:

- Increased mortality due to vehicle collisions and increased access for legal and illegal hunting; and
- Changes to movement patterns, due to changes in habitat availability and sensory disturbance.

The potential for wildlife mortality was identified to increase from the potential negative effect on wildlife from the TLAs and FSRs outside of NFN territory and related effects from habitat loss/alienation. The Application identified the following pathways:

- Habitat loss and alteration;
- Increase in mortality risk;
- Changes in movement patterns; and
- Changes in population dynamic.

Similarly, New Gold's Application also identified potential negative impacts to hunting and trapping arising from increased traffic and the associated emissions (noise and dust). In addition, access for hunters would experience temporary delays during construction along that portion of TLA-3.

NFN indicated that NFN currently and/ or historically used all wildlife resources on the landscape for some purpose. NFN considered large game wildlife resources (moose, caribou and grizzly bear) to be of particular importance for the purposes of supporting NFN hunting and trapping Rights, due to time and resource constraints. In NFN's reports it was noted that large game remains an important part of their diet and is critical to cultural and community events. NFN community knowledge holders identified three key wildlife resources: moose; grizzly bear; and caribou.

[44] EAO initially concluded minor impacts to NFN's Right to fish and shared these conclusions in the sections of the draft Assessment Report provided to NFN on December 14, 2018. The conclusion was subsequently revised in response to their comment to EAO on that draft, indicating that there would not be residual effects to fish and fish habitat.

It was noted that small game, game birds, waterfowl, furbearers and black bears, in relation to the exercise of the NFN Aboriginal Rights as asserted in the NFN report, were not considered in NFN reports due to inadequate population-level information within the spatial context of NFN territory. It was therefore not possible to determine the state of NFN abilities to harvest those species. The NFN reports also note that while there is a consideration of the three species identified as VCs (caribou, moose and grizzly bear) this was not a complete list of species of interest or importance to NFN.

NFN indicated that its assessment of Blackwater's impact on the exercise of NFN Aboriginal Rights differed from New Gold's Application because of two different methods of assessment: (1) NFN evaluated the health-status of biological indicators key to NFN exercise of NFN's Rights; and (2) NFN characterized adverse effects as being more consequential when they affected biological indicators that impacted NFN ability to exercise their Rights.

In Section 9 Wildlife and Ecosystems of this Report, it was determined that the unavoidable habitat loss and degradation from Blackwater would be permanent for both caribou and grizzly bear, while a portion of the effect on the moose population (at the mine site) would be long-term (17 to 35 years).

Moose – Effect Assessment Area and Anticipated Project Effects

NFN reported that the health/ status of moose in the region overlapping NFN territory to be "declined". The moose population in the Omineca region is reported by FLNRORD to be declining more than 20% between 2008 and 2011, and "declining-stable" in the Cariboo region (decline ranged from <20% to >20%). The available information suggested that the NFN territory had likely experienced a 30% to 50% decline in moose population between 2005 and 2015. NFN viewed this decline as linked to extensive forestry activities resulting in increased access, thereby increasing legal and illegal hunting and increasing predation by wolves.

The two northwestern portions of NFN territory where the FSR and TLA-3 crossed the territory were included in Blackwater's effect assessment area for moose.

NFN indicated that the use, maintenance and upgrading of the FSR and installation of the TLA-3 would further the population decrease through vehicle collisions, increased hunting access and changes to movement patterns. As moose had become a more common species to hunt in the absence of caribou this decrease would have potential impacts to hunting.

NFN is of the view that Blackwater's potential effects on moose are:

- Increased mortality due to vehicle collisions, increased access for legal and illegal hunting and increased moose harvest; and
- Changes to movement patterns due to changes in habitat availability and sensory disturbance.

NFN's view is that Blackwater would have a negligible to moderate impact on the following NFN Aboriginal Interests:

- Moderate impact on NFN moose harvesting Rights within their territory due to importance of moose in absence of caribou.
- Negligible impact on moose harvesting Rights from Blackwater activities occurring outside of NFN territory.

Caribou – Effect Assessment Area and Anticipated Project Effects

The Tweedsmuir-Entiako sub-population of caribou, located outside of NFN territory but still of interest to NFN Aboriginal Rights, are COSEWIC threatened and SARA-listed. The New Gold and NFN reports noted Blackwater's potential effects would worsen their status through:

- Direct and indirect habitat loss and alteration/degradation;
- Increased mortality risk from:
    - Increase in traffic;
    - New options for hunting access; and
    - Increase in predator efficiency from clearing; and
- Changes in population dynamics from linear developments in habitats.

NFN identified that the caribou distribution had been extirpated from the majority of NFN territory, indicating that the primary cause of this status was attributed to habitat alteration (loss, degradation, etc.) from human and natural sources, and increased predation as a result of habitat alteration.

NFN indicated that the portions of NFN territory affected by the FSR and TLA-3 were not expected to have direct effects on caribou as they had been extirpated from that portion of the territory. However, the effect of Blackwater outside of NFN territory was anticipated to have negative impacts on caribou and NFN harvesting Rights. The Tweedsmuir-Entiako sub-population was located outside of NFN territory, but was considered relevant to NFN harvesting Rights, and the Itcha-Ilgachuz subpopulation overlapped a western portion of NFN territory.

NFN's view of Blackwater's effect on caribou would be as follows:

- Loss/degradation of caribou habitat;
- Increased mortality risk (access road, FSR, TLA-3) through vehicle collisions, indirect effects related to predator efficiency and hunting access; and
- Changes in population dynamics due to additional linear development.

NFN's view is that Blackwater would have a moderate to serious impact on the following NFN Aboriginal Interests:

- Ability to exercise NFN Right not possible/viable;
- The affected caribou population was in decline and the caribou sustainability thresholds were expected to be exceeded without influence from Blackwater; and

- Blackwater's negative impact to NFN Interests in recovery of caribou.

Grizzly Bear – Effect Assessment Area and Anticipated Project Effects

Grizzly bears would be impacted by habitat loss, mortality risk along the FSR and increase in linear density. The grizzly bear populations in the Blackwater area (Blackwater-West Chilcotin and Nulki) are COSEWIC special concern and BC CDC Blue Listed.

NFN noted that the grizzly bears already experienced habitat loss and fragmentation (approximately 25%) due to logging, mineral exploration and road development altering low elevation habitat in the area Blackwater would be located. In addition, conflicts between bears and humans had increased in frequency, causing bears to be killed or relocated.

NFN's view of Blackwater's direct effects on grizzly bears would be as follows:

- Habitat loss (one to three percent of spring/ summer and one to four percent of late summer/ fall suitable habitat);
- Increase in linear density (populations are already above linear density threshold); and
- Increased mortality risk (populations already above mortality risk threshold).

NFN's view is that Blackwater would impact NFN Aboriginal Rights as follows:

- Minor direct impact on NFN territory; and
- Moderate to serious broader impact on NFN Aboriginal Interests due to the already constrained baseline and the cumulative effects of Blackwater on the grizzly bear populations (already either extirpated, designated as threatened or declined below levels that are considered viable to sustain a direct harvest in NFN territory).

Other Wildlife – Effect Assessment Area and Anticipated Project Effects

NFN indicated that there was insufficient information to assess deer and elk within NFN territory. However, it was likely that the effects from Blackwater's components (increased traffic and access) would result in higher mortality rates (collisions and hunter access).

However, New Gold concluded that no significant residual effects were anticipated on these species from any of these effects. As previously noted, NFN reports and the Application's findings differed from one another due to differing methodology applied. In this case Blackwater's effects on terrestrial/wildlife values were not different in the NFN and Application, but the factors that exceeded risk thresholds on biological indicators in NFN reports were characterized to have higher consequence; with impacts of Blackwater on NFN hunting trapping Rights ranging from low to serious. The NFN's assessment is that the negative impacts to NFN Right to hunt would be ongoing as the FSR and TLA-3 would remain in operation indefinitely post-closure of the mine. However, the effects would diminish post-closure from reduction in FSR usage.

With respect to socio-cultural effects, NFN could experience a decrease in the quality of experience of hunting due to increased public access to their territory. NFN reported that large game remains an important part of their diet and is important in cultural community events. The security of their territory and resource consumption may also be negatively affected by an increase in public access to resources resulting from the TLA-3 development. The increase in noise and visual area modifications could also negatively affect these socio-cultural components.

Mitigations and Accommodations of Impacts to Hunting and Trapping

While the TLA-3 would overlap NFN territory, the route was designed to decrease the overarching negative environmental effects of Blackwater on wildlife by following the existing FSR. As previously mentioned, construction of TLA-3 would result in temporary delays on the Kluskus FSR and access potential access to surrounding areas. NFN hunters/ trappers wishing to use the area around the FSR would be informed of the ongoing activities, schedules and locations, to reduce the impacts.

New Gold's Application proposed mitigation measures to address impacts on hunting and trapping, which EAO reviewed in Section 9 Wildlife and Ecosystems are described below. New Gold would also be required to participate in regional wildlife and resource management initiatives.

In addition to New Gold's primary hunting and trapping mitigation measures, NFN has requested the following additions:

- Funding provided to NFN to be used for them to contribute to review, input and implementation of the management plans that relate to wildlife, noise, transportation and access.
- Inclusion, and financial support, in the relevant working groups.

The EAO has proposed a Community Liaison Committee and Community Effects Management and Mitigation condition (Condition 37) that would include management of traffic along the FSR, including responding to public concerns, and providing information to land users and tenure holders on potential impact of Blackwater activities on their use and enjoyment of an area affected by Blackwater and respond to concerns raised.

In addition, the EAO's proposed conditions for caribou and wildlife management plans include requirements for the Certificate Holder to participate in regional initiatives related to grizzly bear, moose and caribou, including those that could be set up under the Hubulhsooninats'uhoot'alh: Foundation Agreement between the Province and the SDNA, of which NFN is a member.

Habitat Loss and Alteration

To reduce impacts to wildlife habitat, the EAO has proposed Condition 25: Wildlife Management and Monitoring Plan, which would require New Gold to develop and implement mitigation measures to reduce impacts to wildlife, including to grizzly bear and moose. These, and other mitigations proposed by New Gold, include:

- Mine access road designed to avoid caribou winter range;
- Transmission lines located in disturbed areas where possible;
- New Gold would avoid clearing berry and kokanee salmon habitat areas;
- Invasive plant management techniques; and
- Minimization of damage to sensitive habitats.

New Gold would also be required to offset losses to caribou habitat via the EAO's proposed Condition 22 Caribou Mitigation and Monitoring Plan, which also includes other mitigation measure to reduce impacts to caribou.

Mortality Risk

A traffic speed limit of 50 km/hour would be set on all project roads over which New Gold has control to lower the potential for wildlife collisions. The proposed Wildlife Management and Monitoring Plan condition includes requirements for New Gold to address carrion resulting from impacts with Project vehicles, to avoid predators congregating in the area. This proposed condition also includes a requirement that the Certificate Holder not allow employees to hunt while resident at the camps, or when travelling for work related purposes along the FSR, which would reduce the risk of legal/ illegal hunting of moose/ caribou/ grizzly bear from Blackwater employees. The condition would also require pre-clearing surveys would be conducted to identify and avoid potential key habitats.

Changes to Movement Patterns

Through the EAO's proposed Condition 23: Wildlife Management and Monitoring Plan, the Certificate Holder would need to identify wildlife crossing corridors and offer to FLNRORD that the Certificate Holder install and maintain wildlife crossing signs along the Kluskus and Kluskus-Ootsa FSR, and includes measures related to reducing the effects of lighting. The proposed Noise and Vibration Effects Monitoring and Mitigation Plan (Condition 21) addresses sensory disturbance through measures such as the use of noise abatement technology, equipment placement and regular equipment maintenance.

Condition 23: Wildlife Management and Monitoring Plan and Condition 22: Caribou Mitigation and Monitoring Plan would also reduce impacts to wildlife habitat through requiring New Gold to develop and implement relevant mitigation measures. These include:

- A vegetation and access management plan for the transmission line right of way to decommission and revegetate newly created access roads;
- Preparation of sub-component management plans for moose and grizzly bear, including wildlife surveys for moose and grizzly bear; and;

- Offsetting for loss of caribou habitat.

In addition, the EAO has proposed Condition 39: Final Transmission Line Routing Plan, which would require NFN be consulted, should TLA-3 be selected, for determination of potential effects on NFN's Rights and the appropriate mitigation measures.

Conclusions on The Impacts to Hunting and Trapping

In consideration of New Gold's proposed mitigation measures including a Caribou Mitigation and Monitoring Plan, Country Food Monitoring Plan, Accidents and Malfunctions Plan, Transportation and Access Management Plan, Wildlife Management and Monitoring Plan, Reclamation and Closure Plan, the conditions the EAO is proposing, and provincial and federal regulatory requirements (for example, *BC Wildlife Act, Federal Species at Risk Act*), the EAO concludes that Blackwater's residual effects to Wildlife with respect to the full project, including components that do not overlap NFN's traditional territory, would be low to high in context, low to high magnitude, local in geographic extent, permanent in duration, reversible to irreversible, and continuous. The range reflects the variety of wildlife considered in the assessment.

Considering the importance of harvesting wildlife to NFN as an important cultural activity and resource NFN relies on, the concerns NFN identified about the potential impacts of Blackwater on terrestrial resources, and NFN's proposed additions to the New Gold's mitigation measures, which EAO has considered and incorporated into the proposed EAC conditions, the EAO concludes that Blackwater would result in a minor impact to NFN's Right to hunt and trap.

TRADITIONAL PLANT HARVESTING RIGHTS

A letter provided to EAO by NFN in 2013 indicated that NFN had a number of traditional land-use sites, including those important to traditional ecological knowledge in the northwest section of their territory, which would overlap TLA-3.

In New Gold's Application, TLA-3 was determined to have the potential to negatively impact NFN Right to harvest traditional plants from proposed modifications to the current site, changes to species available and abilities to harvest these species, potential effect of contaminants being absorbed and change in experience of harvesting. In addition, the impact of dust deposition on traditional use plant habitat was reported by New Gold to occur from increased FSR use as well as from installation of the potential TLA-3. With respect to the potential impacts from the section of TLA-3 passing through NFN territory, New Gold's Application concluded that no significant effects on the success of harvesting were expected.

The EAO determined that, due to the potential for impacts on VCs including wildlife and ecosystem VCs and associated impacts on traditional use plant habitat, the increased usage of the FSR and presence of the transmission line would have permanent effects and require mitigations.

Mitigations and Accommodations of Impacts to Harvest Traditional Plants

Based on their conclusions as to the impacts of TLA-3 on NFN Right to harvest traditional plants, New Gold did not propose any direct mitigation measures. However, the Air Quality and Management Plan will

reduce the impact on vegetation (that is, Terrestrial Ecosystems). NFN has directly requested mitigations to address the impacts to medicinal plants they harvest through funding provided so that the NFN can assist with contributions to development, implementation and/or tracking of Air Quality and Emissions Management Plan.

To reduce impacts to terrestrial habitat, the EAO has proposed Condition 13: Construction Environment Management Plan; Condition 20: Air Quality and Dust Management Plan; Condition 23 Wildlife Management and Monitoring Plan; Condition 25: End Land Use Plan, and Condition 41: Country Foods Monitoring Plan, which would require New Gold to develop and implement relevant mitigation measures.

These conditions address, among other things:

- Manage potential for invasive plant species;
- Measures to reduce dustfall on vegetation;
- Measures related to revegetation of the transmission line right of way,
- Identification of potential contaminants and concentrations in country foods; and
- Developing culturally appropriate country food sampling plan.

In addition, the EAO has proposed Condition 39: Final Transmission Line Routing Plan, which would require NFN be consulted, should TLA-3 be selected, for determination of potential effects on NFNs' Rights and the appropriate mitigation measures.

Conclusion on the Impacts to Harvest Traditional Plants

In consideration of New Gold's proposed mitigation measures including a Country Food Monitoring Plan, Invasive Species Management Plan, Air Quality Management Plan, Access Management Plan, the Conditions the EAO is proposing, and provincial and federal regulatory requirements (for example, *BC Environmental Management Act, Federal Species at Risk Act*), the EAO concludes that Blackwater is not likely to result in significant residual effects on Terrestrial Ecosystems.

The residual effects to Terrestrial Ecosystems from all Blackwater components would be low in context, moderate to high in magnitude, local in geographic extent, permanent in duration, irreversible, and continuous.

Based on the nature of Blackwater, the proposed mitigations measures and the proposed conditions, the EAO concludes that Blackwater would result in a minor impact to NFN's ability to harvest traditional plants.

ABORIGINAL TITLE

The health of wildlife was identified as one of the potential impacts to Title with the other being the Right to determine NFN's Title lands usage. NFN assert Aboriginal Title to the portion of their territory that would be passed through by portions of TLA-3 and the FSR.

NFN stated that consent from NFN is required prior to usage of the FSR passing through the NFN's territory and development of TLA-3 for Blackwater. NFN also stated that to obtain this consent NFN would require

appropriate avoidance and mitigation measures be put in place, the inclusion of NFN in meaningful management and oversight of the implementation of these mitigation measures, in relation to NFN's concerns for the life of Blackwater. NFN's view is that appropriate accommodation for Blackwater impacts on NFN's Section 35 rights includes NFN sharing in the economic benefits generated from Blackwater. NFN specifically noted that employment and business opportunities would be possible from Blackwater and should be provided to their members.

The EAO acknowledges that there is an outstanding issue regarding NFN's desire for additional economic benefits from New Gold, which the EAO does not ultimately view as necessary to adequately accommodate the effects of Blackwater on NFN's Aboriginal Interests.

The EAO is of the view that in light of the nature of the potential effects to NFN Aboriginal Interests, the proposed conditions provide adequate accommodation. The potential effects to NFN result from the use of an existing Forest Service Road over a distance of less than 30 kilometres and the potential development of five kilometres new transmission line along the Forest Service Road, if the Big Bend re-route is ultimately selected. The EAO has proposed conditions to develop plans related to avoiding or minimizing potential effects as noted above, which would be required to be developed in consultation with NFN. The EAO acknowledges NFN's concerns about impacts on broader ranging wildlife and has included NFN as an Aboriginal Group to be consulted in the development of related plans.

The EAO also notes that the proposed Community Liaison Committee and Community Effects Monitoring and Management Plan (Condition 37) includes recruitment approaches to facilitate hiring of members of Indigenous groups (which includes NFN).

It is the EAO's view that the measures proposed to avoid, minimize or otherwise address the potential impacts to NFN's Aboriginal Interests adequately accommodate those impacts.

NFN also stated that NFN required a commitment to fund NFN's participation in the development, monitoring and oversight of proposed conditions that relate to concerns identified by NFN.

In response to requests from NFN and other Indigenous Groups, the EAO is proposing Condition 16: Aboriginal Group Engagement Plan, which would require New Gold to set out a plan to engage with NFN and other identified Indigenous Groups in the development of the management plans identified as relevant to addressing potential effects on their section 35 rights, including Aboriginal Title.

The EAO has also included other certain requirements to support effective engagement of NFN in post-Certificate work (should an EA Certificate be issued). These include the Environmental Monitoring Committee and the Community Liaison Committee. Both committees require terms of reference to identify how the Certificate Holder will facilitate effective participation in these committees.

The EAO understands that NFN and New Gold entered into a capacity funding agreement to support consultation activities in respect of the Project's Environmental Assessment and the negotiation of an agreement relating to potential opportunities for NFN in relation to the Project (including legal, specialist consultant and other costs). The EAO understands that capacity funding is a topic that may be

accommodated through such an agreement. The EAO has been advised by New Gold that New Gold has offered to meet with NFN to further these discussions.

Conclusion on the Impacts to Aboriginal Title

In consideration of the New Gold's proposed mitigations (access management working group; Traditional Knowledge/Land Use Committee to monitor project development and incorporate knowledge and land use information throughout all Blackwater project stages) and the conditions the EAO is proposing, including requiring New Gold to have an engagement plan with NFN during the development of management plans identified as relevant to accommodating impacts to NFN section 35 rights, the EAO concludes that Blackwater would result in minor impacts to NFN Aboriginal Title.

19.4 SCHEDULE C INDIGENOUS GROUP CONSULTATION

19.4.1 CHESLATTA CARRIER NATION

COMMUNITY PROFILE

The Cheslatta are a southern Carrier people located in the interior plateau region of BC. Cheslatta are understood to correspond with the Cheslatta subtribe of the Carrier (also described as *Tatchatotenne* or Cheslatta Lake Band. At some earlier point, the Cheslatta were part of a larger entity, the *Nu-tca-'tenne* or *Nechaotin*, that also included the predecessors of UFN and LDN. The Cheslatta speak Nedut'en, an Athabaskan language also known as Babine, Nado'ten, and Nat'oot'en. The Cheslatta's traditional territory includes Tahtsa Lake (western boundary), Nechako river (eastern boundary), Ootsa and Cheslatta Lakes (northern boundary), and Entiako and Tetachuk Lakes (southern boundary), as identified in the core territory area provided to the Province in March 2017.

Historically, the Cheslatta travelled for hunting and trading purposes by canoe on the large river and lake systems and used the extensive trail network that connected the Ootsa Lake area with the coast and areas far to the south. The Cheslatta fished in the surrounding lakes for whitefish, char, trout, ling cod, and other lake fish. The Cheslatta obtained meat, hides, and furs from hunting and trapping bear, duck, beaver, moose, caribou, blue grouse, groundhog, and mountain goat. Additionally, the Cheslatta harvested huckleberries and blueberries.

As a result of the creation of the Nechako Reservoir by Alcan, the Cheslatta people were dislocated. The Nechako Reservoir covers a vast area, flooding the Upper Nechako River from above its canyon to its headwaters in Tahtsa Lake. In exchange for the surrender in 1953 of a number of Indian reserves in the area of the flooding, the Cheslatta received a reserve, comprising of 11 parcels of land, largely situated south of Francois Lake, around Grassy Plains, and northwest of Uncha Lake. Since the inundation, a majority of Cheslatta members have lived in these new areas.

CCN has eight reserves near Southbank, BC, including Cheslatta 1, Alexis Thomas 1A, Holy Cross Lake 3, Murray Lake 4, Knapp Lake 6, Baptiste Louis 8, Leon 14, and Targe Creek 15.1. CCN's total registered population is 363, of whom just over one third live on reserve. CCN, an elected Band under the Indian Act,

is governed by a Chief and Council.

CONSULTATION WITH CHESLATTA CARRIER NATION

CCN was not originally listed as an Indigenous group to be consulted for the Blackwater EA in the Section 11 Order issued by the EAO on July 9, 2013. On March 20, 2014, the EAO received a letter from CCN, providing its Traditional Use Area Map, which was to supersede all prior maps depicting its traditional territory. This revised map extended to the east and overlapped with the Blackwater footprint including the access road and transmission line.

On June 20, 2014, the EAO sent a letter to inform CCN that if desired by the CCN, the EAO would add CCN to Schedule C (Notification) of the Section 11 Order for Blackwater. In that letter, the EAO articulated the results of an analysis of the available ethnographic information and how it informed the assessment of the scope of consultation. This was revisited in a letter to April 7, 2016, following the *Tsilhqot'in Nation v. British Columbia* decision, and there was no change in the assessment regarding potential impacts from Blackwater on CCN as a result of the re-assessment.

The EAO provided CCN with an initial assessment of the potential impacts of Blackwater on CCN's Aboriginal Interests in the June 20, 2014 letter. The EAO stated that Blackwater had the potential to impact vegetation, wildlife, fish, and fish and wildlife habitat. Additional impacts communicated to the Cheslatta included the risk of erosion, spread of invasive species, dust, noise, and the risk of spills from vehicle accidents. The EAO articulated that the impacts to CCN's Aboriginal Interests were anticipated to be 'low' and communicated that it was of the view that the duty to consult CCN regarding Blackwater lay at the lower end of the *Haida* spectrum. The EAO did not receive a response from CCN to the June 20, 2014 letter. Considering that the EAO's view was that the CCN should be notified of Blackwater milestones, the EAO sent Cheslatta a notification email regarding start of Application Review on January 8, 2016. The EAO did not receive a reply to this email.

On March 9, 2016, the EAO sent another follow-up email to CCN and received a reply on March 11, 2016 from CCN requesting to be notified of Blackwater milestones. On March 15, 2016, a Section 13 order was issued by the EAO in which CCN was added to Schedule C (Notification) for Blackwater. The EAO noted that CCN would be notified of the remaining milestones in the EA process for Blackwater, including:

- The timing of PCPs;
- The timing when the final assessment is referred to Ministers; and
- The decision of the Ministers.

On March 31, 2017, CCN revised its assertion of its territory, providing a map attached to a Band Council Resolution that included an area identified as CCN Area of Interest (Post 1952), and an area identified as CCN Core Territory.

On April 28, 2017, the EAO sent a letter to CCN confirming the Province's understanding that there was no longer any overlap between Blackwater and its new asserted territory and stated that CCN would remain on Schedule C (Notification).

On May 2, 2017, the EAO received an email from CCN requesting a face to face meeting. The EAO responded to this request on May 4, 2017 with an email confirming that the EAO would be available to meet and requesting that the CCN suggest a date for the meeting. The EAO did not receive a response from the CCN.

Considering the alterations by CCN to their assertion of territory noted above, the footprint of the Blackwater mine site is located approximately 20 km outside the boundary of the area identified as the CCN Core Territory. The Blackwater transmission line comes within 3 km of the CCN Core Territory at its closest point. There is no overlap between Blackwater components and the CCN Area of Interest (Post 1952). Given the lack of overlap between CCN's current asserted territory, it is the EAO's view that the potential impacts to CCN's Aboriginal Interests are anticipated to be negligible. The EAO communicated this analysis to the CCN in a letter sent on December 10, 2018.

In the letter sent on December 10, 2018, the EAO also stated that the EAO was implementing additional consultation with CCN through the opportunity to review and provide comments on the draft of this consultation report. CCN was provided with a draft of this consultation report and asked to provide feedback on the EAO's draft assessment of impacts to CCN from Blackwater, and to provide any additional information not reflected in the report. Additionally, the letter notified CCN that the EAO would be issuing a Section 13 Order to amend the Section 11 Order with a clause that would allow the EAO to implement additional measures for consultation with all Indigenous groups connected to Blackwater, including the review of the EAO's draft consultation report for Schedule C Indigenous groups. CCN did not provide comments on the draft consultation report to the EAO.

IMPACTS TO ABORIGINAL INTERESTS

In consideration of the information available to the EAO, New Gold's commitments, issues that will be addressed in subsequent permitting, should an EAC be granted, and the EAO's proposed conditions for any EAC issued, the EAO anticipates that Blackwater would have a negligible impact on CCN's Aboriginal Interests. The key factors that have informed the EAO's conclusion include:

- There is no overlap between CCN's current asserted territory or area of interest and the Blackwater footprint. The Blackwater mine site footprint is approximately 20 km outside of the boundary of the CCN Core Territory area, and the transmission line is approximately 3 km away from that area at its closest point;
- The potential effects to Wildlife and Ecosystems VCs from Blackwater include loss and degradation of wildlife habitat and ecosystems, increased risk of indirect wildlife mortality, and impacts to wildlife movement patterns and populations for some species. For more information on impacts to Wildlife and Ecosystem VCs, please refer to Section 9 of this Report;
- A TSF dam failure could potentially result in the release of solids, waste rock, and contact water to the downstream receiving environment, which includes approximately 1.5 km^2 of Cheslatta territory. The EAO has concluded, however, that a TSF dam failure has a very rare likelihood of occurrence. The EAO is satisfied that with New Gold's assessment and concludes that Accidents and Malfunctions for Blackwater are not considered likely to occur;

- The EAO is proposing Condition 13: Construction Environmental Management Plan which would address sediment and erosion control and other potential effects related to construction; Condition 23: Wildlife Management and Monitoring Plan to help mitigate impacts to wildlife; Condition 25: End Land Use Plan to address the objectives for reclamation, to require New Gold to minimize differences between pre-mining and post-mining land capabilities, and associated impacts to vegetation; Condition 33: Mine Waste and Water Management Plan to address the potential for storage of surplus water in the TSF, which will reduce the potential consequence of a TSF failure; Condition 35: Tailings Dam Safety Transparency Plan, which will result in publicly available information about tailing dam safety; and Condition 36: Accidents and Malfunctions Administration and Communication Plan.;
- The EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems; and
- The CCN has not identified to the EAO any concerns regarding potential impacts from Blackwater to its Aboriginal Interests.

19.4.2 NEE-TAHI-BUHN BAND

COMMUNITY PROFILE

Based on a review of ethnographic and historical sources, at the time of contact, the ancestors of the Nee-Tahi-Buhn were part of a Witsuwit'en-speaking Northern Carrier group whose territories were centered on the Bulkley River watershed. Nee-Tahi-Buhn are speakers of the Witsuwit'en language in which 'Nee-Tahi-Buhn', another name for Francois Lake, means "it fills at one end and empties at the other." The Nee-Tahi-Buhn were originally recognized as the Francois Lake Tribe by the Indian Reserve Commissioners in 1916. In 1965 the Nee-Tahi-Buhn amalgamated with the Skin Tyee, Decker Lake, and Maxim Lake Bands to form the Omineca Band. In 1984 the Omineca Band split into the Broman Lake and NTTBs. The Skin Tyee separated from the NTBB in 2000.

The NTBB, listed as a Band under the *Indian Act*, is part of the Wet'suwet'en Nation, a name meaning "people of the Bulkley River." According to ethnographic information, the Wet'suwet'en fished for salmon, trout, ling cod, and sucker. Additionally, the Wet'suwet'en hunted and trapped deer, beaver, hare, marten, duck, geese, mountain goat, groundhog, grizzly bear, and black bear. The Wet'suwet'en also gathered food including soapberries, saskatoon berries, black huckleberries, rosehips, crab apples, tubers, bulbs, roots, bark, and hazelnuts. Some resource gathering followed an annual round, with salmon harvesting occurring primarily in the summer and fall, and plant gathering occurring primarily in the spring. In the winter the Wet'suwet'en would travel to their winter villages where they relied primarily on stored foods, as well as freshly caught rabbits and fish.

NTBB has five reserves located on Francois and Uncha Lakes, approximately 30 km south of Burns Lake, including Eastern Island 13, Francois Lake 7, Isaac (Gale Lake) 8, Omineca 1, and Uncha Lake 13A (which is held jointly with the STN). NTBB has a total registered population of 151, approximately a quarter of whom live on reserve, and is governed by a Chief and Council.

CONSULTATION WITH NEE-TAHI-BUHN BAND

NTBB was not originally listed as an Indigenous group that would be consulted regarding the EA process for Blackwater in the Section 11 Order issued by the EAO on July 9, 2013. On February 10, 2016, the EAO informed NTBB that based on NTBB's revised 2014 territory map and New Gold's 2015 transmission line access road report, approximately 500 m of the access roads for the transmission line overlapped within NTBB's asserted territory. The EAO conducted an analysis of the ethnographic information available regarding any NTBB historic use of the Blackwater footprint and articulated the results of this analysis and how it informed the assessment of the scope of consultation in the letter sent on February 10, 2016. In that letter, the EAO also communicated that Blackwater had the potential to impact wildlife, wildlife habitat, and vegetation. Based on the information available, the EAO stated its initial view that the potential impacts to NTBB Aboriginal Interests were anticipated to be "minimal." The EAO communicated that it was of the view that the duty to consult NTBB regarding Blackwater lay at the lower end of the *Haida* spectrum.

On March 15, 2016, a Section 13 Order was issued by the EAO, in which NTBB was added to Schedule C (Notification) for Blackwater. The EAO informed NTBB that it would be notified of the remaining milestones in the EA process for Blackwater, including:

- The timing of PCPs;
- The timing when the final assessment is referred to Ministers; and
- The decision of the Ministers.

Following this communication, the EAO undertook a subsequent analysis regarding the overlap between NTBB's identified territory and the Blackwater footprint. In this analysis it was determined that, due to New Gold's updated transmission line access road placement, there would be no overlap between NTBB's identified territory and the Blackwater footprint. In consideration of this updated analysis, it is the EAO's view that the potential impacts to NTBB's Aboriginal Interests are anticipated to be negligible. The EAO communicated this updated analysis to NTBB in a letter sent on December 10, 2018.

In the letter sent on December 10, 2018, the EAO also stated that the EAO was implementing additional consultation with NTBB through the opportunity to review and provide comments on the draft of this consultation report. NTBB was provided with a draft of this consultation report and asked to provide feedback on the EAO's draft assessment of impacts to NTBB from Blackwater, and to provide any additional information not reflected in the report. Additionally, the letter notified NTBB that the EAO would be issuing a Section 13 Order to amend the Section 11 Order with a clause that would allow the EAO to implement additional measures for consultation for all Indigenous Nations connected to Blackwater. NTBB did not provide comments on the draft consultation report to the EAO.

IMPACTS TO ABORIGINAL INTERESTS

In consideration of the information available to the EAO, New Gold's commitments, issues that will be addressed in subsequent permitting, should an EAC be granted, and the EAO's proposed conditions for any EAC issued, the EAO anticipates that Blackwater would have a negligible impact on Wet'suwet'en Nation's Aboriginal Interests, including the Aboriginal Interests of NTBB. The key factors that have informed the EAO's conclusion include:

- Based on New Gold's updated transmission line access road placement, there is no longer any overlap between the Blackwater footprint or any of its project components and NTBB's identified territory;
- New Gold has committed that new roads and trails required for transmission line construction would be temporary and only located within the transmission line RoW and would be deactivated and decommissioned early after construction. If the access roads are located within the transmission line RoW, they would fall approximately 75 m outside of NTBB's identified territory at their closest points;
- The transmission line access roads would be used for the construction and maintenance of the transmission line, meaning that the roads would have infrequent use and activity over the life of Blackwater, and would be reclaimed after transmission line construction;
- The potential effects to Wildlife and Ecosystems VCs from Blackwater include loss and degradation of wildlife habitat and ecosystems, increased risk of indirect wildlife mortality, and impacts to wildlife movement patterns and populations for some species. Impacts from the transmission line access roads are expected to make up a minimal portion of overall effects to Wildlife and Ecosystems VCs due to the small area affected. For more information on impacts to Wildlife and Ecosystem VCs, please refer to Section 9 of this Report;
- The EAO is proposing Condition 13: Construction Environment Management Plan which would address sediment and erosion control and other potential effects related to construction; Condition 23: Wildlife Management Plan to help mitigate impacts to wildlife and to manage the decommissioning, deactivation and revegetation of the transmission line access roads; and Condition 25: End Land Use Plan to address the objectives for reclamation, to require New Gold to minimize differences between pre-mining and post-mining land capabilities, and associated impacts to vegetation;
- The EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems; and
- NTBB has not identified to the EAO any concerns regarding potential impacts from Blackwater to its Aboriginal Interests.

19.4.3 SKIN TYEE NATION

COMMUNITY PROFILE

Based on a review of ethnographic and historical sources, the ancestors of the STN were part of a Witsuwit'en-speaking Northern Carrier group whose territories were centered on the Bulkley River watershed. Wet'suwet'en means "people of the Bulkley River" in the Witsuwit'en language, which is spoken by members of the STN. The Skin Tyee were named after a Wet'suwet'en man who testified at the 1915 Royal Commission that he was born at Skins Lake and that his parents and several other families had lived there prior to that. Skins Lake is located north of Ootsa Lake, and south of Francois Lake and the community of Burns Lake. Species that were historically fished by the Skin Tyee include salmon, trout, carp, whitefish, suckers, and sturgeon. Species that were historically hunted in the area include mountain goat, mountain sheep, marmot, groundhog, rabbit, hare, beaver, grizzly bear, and black bear.

In 1915, Reserve Commissioners recognized the STN as part of the Francois Lake Tribe. Later, in 1965, the STN was merged with the Francois Lake, Decker Lake, and Maxim Lake Bands to form the Omineca Band. In 1984 the Omineca Band split into the Broman Lake and NTBBs. The Skin Tyee separated from the Nee-Tahi-Buhn in 2000.

STN has six reserves located on Skins Lake (50 km south of Burns Lake), Uncha Lake (35 km south of Burns Lake), and Octopus Lake (25 km south of Burns Lake). These reserves include Skins Lake 15, Skins Lake 16A, Skins Lake 16B, Tatla't East 2, Uncha Lake 13A (which is held jointly with the NTBB), and Western Island 14. STN's total registered population is 186, approximately one third of whom live on reserve. STN is an elected Band under the *Indian Act* and is governed by a Chief and council.

CONSULTATION WITH SKIN TYEE NATION

On November 6, 2012, the EAO sent a notification letter to STN Chief and Council advising that Blackwater was subject to a provincial EA in accordance with the Act. The EAO conducted an analysis of the ethnographic information available regarding the Skin Tyee's historic use of the Blackwater footprint, and articulated the results of this analysis and how it informed the assessment of the scope of consultation in a letter sent to STN on April 5, 2013.

In the April 5, 2013 letter, the EAO also communicated its initial view that it did not anticipate any potential impacts to STN's Aboriginal Interests. The Blackwater footprint (the mine site, approximately 100 km of the transmission line, and approximately 115 km of the Kluskus FSR) overlaps with the far southeast portion of STN's identified traditional territory. Based on the nature of the impacts on STN's Aboriginal Interests, the EAO was of the view was that the duty to consult STN regarding Blackwater lay at the lower end of the *Haida* spectrum. The EAOs stated in this letter that STN would be provided with notifications of key milestones so that STN could be informed of the progress of the EA and have the opportunity to raise any issues to the EAO for discussion. These milestones included the following:

- Issuance of the Section 11 Order and any Section 13 Orders;
- PCP for the draft AIR;
- Approval of the final AIR document;
- When the Application has been accepted and the start of the review of the Application has commenced;
- PCP for the Application; and
- Decision on the Application.

The EAO invited STN to provide any additional information regarding use and occupation of the Blackwater footprint or concerns over the EAO's evaluation of potential impacts to Aboriginal Interests. The EAO received a response from STN on May 7, 2013, where STN inquired as to why it was not included in the Blackwater Working Group. The EAO responded to this letter on June 26, 2013 and referred to the explanation provided in the April 5, 2013 letter, that no impacts to STN's Aboriginal Interests as a result of Blackwater were expected. The EAO again invited STN to provide any additional information regarding STN's use of the Blackwater project area. The EAO did not receive any further responses from STN. On July 9, 2013, the EAO issued the Section 11 Order, in which STN was listed on Schedule C (Notification).

The analysis regarding potential impacts from Blackwater on STN was revisited following the *Tsilhqot'in Nation v. British Columbia* decision. The EAO determined that there was no change in the initial assessment and communicated this information in a letter sent to STN on April 7, 2016.

During Application Review, the EAO again analyzed the potential impacts of Blackwater to STN's Aboriginal Interests. Following the assessment of potential impacts, the EAO determined that Blackwater would have a negligible impact on STN's Aboriginal Interests. This assessment was based on a combination of factors including information that was communicated to STN in the letter sent on April 5, 2013, and the fact that Skin Tyee did not provide any additional information regarding Skin Tyee traditional use of the area to the EAO.

On December 10, 2018, the EAO sent a letter to STN stating that that the EAO would be providing additional consultation through the opportunity to review and provide comments on the draft of this consultation report. On December 10, 2018, the EAO provided STN with a draft of this consultation report and asked to provide feedback on the EAO's draft assessment of impacts to STN from Blackwater, and to provide any additional information not reflected in the report. Additionally, the letter notified STN that the EAO would be issuing a Section 13 Order to amend the Section 11 Order with a clause that would allow the EAO to implement additional measures for consultation for all Indigenous Nations connected to Blackwater. STN did not provide comments to the EAO on the draft consultation report.

IMPACTS TO ABORIGINAL INTERESTS

In consideration of the information available to the EAO, New Gold's commitments, issues that would be addressed in subsequent permitting, should an EAC be granted, and the EAO's proposed conditions for an if an EAC is issued, the EAO anticipates that Blackwater will have a negligible impact on Wet'suwet'en Nation's Aboriginal Interests, including Aboriginal Interests of STN. The key factors that have informed the EAO's conclusion include:

- The Blackwater footprint (the mine site, approximately 100 km of the transmission line, and approximately 115 km of the existing Kluskus FSR road) overlaps with the far southeast portion of STN's identified traditional territory;
- There is no information indicating traditional use of the Blackwater area by the STN;
- The EAO does not predict significant residual adverse effects to VCs from Blackwater inside STN's consultative area;
- Key potential impacts from Blackwater in areas within Skin Tyee's identified traditional territory are expected to be to wildlife and ecosystems, fish and fish habitat, and water VCs:
    - The potential effects to Wildlife and Ecosystems VCs from Blackwater include loss and degradation of wildlife habitat and ecosystems, increased risk of indirect wildlife mortality, and impacts to wildlife movement patterns and populations for some species. For more information on impacts to Wildlife and Ecosystem VCs, please refer to Section 9 of this Report;
    - The potential effects to Fish and Fish Habitat VCs from Blackwater include mortality or injury; change in health, growth, reproduction, and behaviour; and habitat loss and

isolation. For more information on impacts to Fish and Fish Habitat VCs, please refer to Section 11 of this Report;
    - The potential effects to the Water VC include decreases in groundwater quality, surface water flow, and surface water quality; and accumulation of metal in the sediments downstream of the TSF. For more information on impacts to Water VCs, please refer to Section 10 of this Report;
- The EAO is proposing Condition 13: Construction Environment Management Plan which would address sediment and erosion control and other potential effects related to construction; Condition 23: Wildlife Management Plan to help mitigate impacts to wildlife (including moose); Condition 22: Caribou Mitigation and Monitoring Plan to address impacts to caribou; Condition 26: Water Quality Management to ensure mine effluent is treated and downstream water quality is maintained; Condition 30: Aquatic Effects Monitoring to address potential impacts on fish and fish habitat; and Condition 25: End Land Use Plan to address the objectives for reclamation, to require New Gold to minimize differences between pre-mining and post-mining land capabilities, and associated impacts to vegetation;
- The EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems, fish and fish habitat, or water VCs; and
- STN has not identified to the EAO any specific concerns regarding potential impacts from Blackwater to its Aboriginal Interests.

19.4.4 TSILHQOT'IN NATIONAL GOVERNMENT

COMMUNITY PROFILE

The Tsilhqot'in, also known as the "People of the River," are a people located primarily in the Cariboo region of BC. The Tsilhqot'in speak the distinct Northern Athapaskan dialect of Tsilhqot'in. Tsilhqot'in territory encompasses the area west of Hanceville, east of the Coast Range, north of the Cascade Range, and south of the Itcha-Ilgachuz Range as identified in the Agreement Area of the Tsilhqot'in Stewardship Agreement Zone A.

According to ethnographic information, the Tsilhqot'in were a semi-nomadic people that moved with the changing seasons throughout their territory. In some cases, Tsilhqot'in people would travel and live with their immediate family unit, consisting of parents and children, which would be self-sufficient and somewhat isolated from other groups. More commonly the Tsilhqot'in would travel and live with their extended family, which usually consisted of a small number of closely related families. In summer and fall the Tsilhqot'in congregated along rivers to harvest and dry salmon, which the Tsilhqot'in relied on most heavily for their diet. Other species of fish, including rainbow trout, land-locked kokanee, suckers, and whitefish were available year-round. In the winter the Tsilhqot'in lived in sites located close to good ice-fishing spots. The Tsilhqot'in also relied on hunting, which provided them with meat, hides, furs, sinew, and tools. In the winter the Tsilhqot'in would hunt deer and trap small fur-bearing animals. In the spring the Tsilhqot'in left their winter sites to follow the deer migration routes back into the mountains. In addition to deer, the Tsilhqot'in hunted moose, geese, and water fowl, and trapped beaver and muskrat. Springtime also provided edible plants including roots, berries, corms, and tubers.

The Tsilhqot'in National Government (TNG) represents six First Nations including Tl'etinqox (Anaham), Tŝi Deldel (Redstone), Yunesît'in Government (Stone), Xeni Gwet'in First Nations Government (Nemiah), ʔEsdilagh (Alexandria) and Tl'esqox (Toosey). Each nation has its own Chief and Council, and two of these Chiefs serve as the Tribal Chairman and Vice Chairman of the TNG. The communities populated by these six First Nations are located between 50 and 200 km from Williams Lake. The total registered population for the Tsilhqot'in is 3,433, approximately a third of whom live on reserve. Currently, the Chief of the Tl'etinqox Nation and the Chief of the Yunesît'in Nation serve as the Chairman and Vice Chairman respectively.

CONSULTATION WITH TSILHQOT'IN NATIONAL GOVERNMENT

In 2014, the Supreme Court of Canada made a declaration of Aboriginal title to a portion of Tsilhqot'in identified territory, in *Tsilhqot'in Nation v. British Columbia.* The Blackwater footprint does not overlap with the area subject to the Aboriginal title declaration, or the area where Aboriginal rights were declared through a previous 2007 BC Supreme Court case. The Blackwater footprint overlaps the northwestern section of 'Engagement Zone A' of the Agreement Area identified in the Tsilhqot'in Stewardship Agreement.

On November 6, 2012, the EAO sent a notification letter to the Tribal Chairman of the TNG and the Chief and Council of the Tl'esqox Nation advising that Blackwater was subject to a provincial EA in accordance with the Act. On April 5, 2013, the EAO sent a letter providing an initial assessment of how Blackwater could potentially impact the Aboriginal Interests of the Tsilhqot'in Nation and stating that the TNG would be provided with notifications of key EA milestones and would have the opportunity to raise any issues to the EAO for discussion. These milestones included the following:

- Issuance of the Section 11 Order and any Section 13 Orders;
- PCP for the draft AIR;
- Approval of the final AIR document;
- When the Application has been accepted and the start of the review of the Application has commenced;
- PCP for the Application; and
- Decision on the Application.

The Blackwater footprint (the mine site, approximately 30 km of the new and existing access road, and approximately 20 km of the transmission line) overlaps with the northern boundary of Tsilhqot'in Nation's territory. In its April 5, 2013 letter to the TNG, the EAO communicated the results of an analysis of the available ethnographic information of Tsilhqot'in historical use in the area overlapping the Blackwater footprint and how that informed the scope of consultation.

Additionally, the EAO articulated in the April 5, 2013 letter that it did not anticipate any potential impacts to Tsilhqot'in Nation Aboriginal Interests and that, based on the nature of the impacts and the Aboriginal Interests that may be impacted, the Province's view was that the duty to consult TNG regarding Blackwater lay at the lower end of the *Haida* spectrum. The EAO invited TNG to provide any additional information regarding its traditional use of the Blackwater footprint. On July 9, 2013, the EAO issued the

Section 11 Order, in which TNG was listed as a Schedule C (Notification) Indigenous Group.

The EAO reviewed its analysis of impacts to TNG's Aboriginal Interests in a letter from the EAO to TNG on April 7, 2016, following the *Tsilhqot'in* decision; there was no change in the result of the assessment of the EAO's potential impacts to Aboriginal Interests.

On February 9, 2016, the EAO received a letter from TNG outlining key concerns with the Blackwater Application. These concerns are summarized below in Table 47. The complete list of concerns can be found on the EAO ePIC website under Application Review, Public Comments.

This list of concerns was forwarded to New Gold by the EAO for response. The EAO's understanding is that New Gold responded to these concerns in a letter sent to TNG on March 11, 2016. According to New Gold, it acknowledged TNG's concerns of TNG and communicated that it welcomed further input. Additionally, the EAO's understanding is that New Gold met with the TNG on March 14, 2016 to provide an overview of Blackwater and that New Gold had addressed TNG's comments on moose and caribou. According to New Gold's records, New Gold met with TNG on June 15, 2016 to conduct a site tour and discuss details about Blackwater including training and employment, timelines, access to site, and the proposed access roads. On February 10, 2017, the EAO sent a letter to TNG to advise where New Gold's responses to TNG's concerns could be found on the EAO ePIC website.

Table 48: Concerns raised by TNG and the EAO's Responses

	CONCERN	EAO'S RESPONSE
1	The ethnographic review of the Tsilhqot'in Nation (Vol. 6, Section 15, pp 78-79) is scant, inaccurate on some issues, and not informed by actual consultation with the Tsilhqot'in Nation.	The EAO did not rely solely on New Gold's information for the ethnographic review to assess impacts to Tsilhqot'in Nation's Aboriginal Interests. Instead, the EAO relied on ethnographic information available to the Province. Additionally, the EAO invited the TNG to provide any additional information regarding traditional use of the Blackwater footprint, as well as TNG's views on the EAO's assessments. The EAO did not receive a response from TNG.
2	New Gold has made inaccurate assumptions in its interpretation of the Tsilhqot'in Framework Agreement (now the Tsilhqot'in Stewardship Agreement) by concluding that, "The TNG are not extending claim into the Project area and do not wish to be consulted on an ongoing basis" (Vol. 6, Section 15, p. 79).	The EAO acknowledges the overlap between the project area and the area identified in the Tsilhqot'in Stewardship Agreement Engagement Zone A and consulted with TNG in accordance with the Section 11 Order. This included providing notification of key Blackwater milestones and other consultation activities.
3	In part due to its outright dismissal of Tsilhqot'in interests, New Gold has not adequately accounted for the Tsilhqot'in Nation rights and interests in its assessment of potential effects from changes to the environment.	In considering the potential impacts to Tsilhqot'in Nation's Aboriginal Interests the EAO did not rely solely on New Gold's assessment, as noted above. The EAO communicated the results of this initial assessment to the TNG in a letter sent on April 5, 2013.

	CONCERN	EAO'S RESPONSE
4	The TNG has not been consulted with regards to the effectiveness of the mitigation measures being proposed, or whether the residual effects and residual cumulative effects are significant or not.	The EAO's understanding is that New Gold met with TNG on March 14, 2016, to discuss, among other topics, comments from TNG on moose and caribou. Additionally, the EAO has proposed mitigation measures to address residual and cumulative effects to wildlife in Section 9.
5	Unsubstantiated conclusions regarding the employment and economic impacts associated with Blackwater. Also, there was a lack of engagement with TNG by New Gold regarding employment and economic impacts.	The EAO's understanding is that New Gold met with TNG on March 14, 2016 to discuss, among other topics, workforce statistics and training and employment. Additionally, on June 15, 2016, New Gold met with TNG to discuss training and employment. Additionally, EAO has proposed conditions to also address economic impacts. An analysis of adverse residual effects on Economic VCs is captured in Section 13.

The EAO's view is that TNG's concerns were adequately addressed by the responses provided by New Gold and the EAO.

During Application Review, the EAO determined that the potential impacts of Blackwater are anticipated to be negligible on Tsilhqot'in Nation's Aboriginal Interests. This assessment was based on a combination of factors including information that was communicated to TNG in the letter sent on April 5, 2013, that no information regarding Tsilhqot'in Nation's traditional use of the area was provided to EAO, and the EAO's assessment of potentially effected VCs and proposed conditions (described below).

On December 10, 2018, the EAO sent a letter to TNG stating that that the EAO would be providing additional consultation through the opportunity to review and provide comments on the draft of this consultation report, which was attached to the letter. The EAO requested that TNG provide feedback on the EAO's draft assessment of impacts to TNG from Blackwater, and to provide any additional information not reflected in the report. Additionally, the letter notified TNG that the EAO would be issuing a Section 13 Order to amend the Section 11 Order with a clause that would allow the EAO to implement additional measures for consultation for all Indigenous Nations connected to Blackwater.

TNG chose to not provide comments to the EAO on the report; however, on February 22, 2019, the EAO received TNG's closing response in relation to the Blackwater EA, indicating that since New Gold is including TNG in consultation and notification of employment opportunities, and there is a Working Document signed with the SDNA to work together, TNG indicated that it has no further concerns.

IMPACTS TO ABORIGINAL INTERESTS

In consideration of the information available to the EAO, New Gold's commitments, issues that would be addressed in subsequent permitting, should an EAC be granted, and the EAO's proposed conditions for any EAC issued, the EAO anticipates that Blackwater will have a negligible impact on Tsilhqot'in Nation's Aboriginal Interests. The key factors that have informed the EAO's conclusion include:

- The Blackwater footprint (the mine site, approximately 30 km of the new and existing access road, and approximately 20 km of the transmission line) overlaps with the northern boundary of "Engagement Zone A" of the Tsilhqot'in Stewardship Agreement;
- Key potential impacts from Blackwater in that area are expected to be to wildlife and ecosystems, fish and fish habitat, and water VCs:
    - The potential effects to Wildlife and Ecosystems VCs from Blackwater include loss and degradation of wildlife habitat and ecosystems, increased risk of indirect wildlife mortality, and impacts to wildlife movement patterns and populations for some species. For more information on impacts to Wildlife and Ecosystem VCs, please refer to Section 9 of this Report;
        - Potential effects on moose and caribou, two species that TNG raised concern about, are habitat loss and alteration;
    - The potential effects to Fish and Fish Habitat VCs from Blackwater include mortality or injury; change in health, growth, reproduction, and behaviour; and habitat loss and isolation. For more information on impacts to Fish and Fish Habitat VCs, please refer to Section 11 of this Report;
    - The potential effects to the Water VC include decreases in groundwater quality, surface water flow, and surface water quality; and accumulation of metal in the sediments downstream of the TSF. For more information on impacts to Water VCs, please refer to Section 10 of this Report;
    - The EAO is proposing Condition 13: Construction Environment Management Plan which would address sediment and erosion control and other potential effects related to construction; Condition 23: Wildlife Management Plan to help mitigate impacts to wildlife (including moose); Condition 22: Caribou Mitigation and Monitoring Plan to address impacts to caribou; Condition 26: Water Quality Management to ensure all effluent is treated and downstream quality is maintained; Condition 30: Aquatic Effects Monitoring to address potential impacts on fish and fish habitat; and Condition 25: End Land Use Plan to address the objectives for reclamation, to require New Gold to minimize differences between pre-mining and post-mining land capabilities, and associated impacts to vegetation;
- The EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems, fish and fish habitat, or water VCs;
- The EAO is of the view that the concerns expressed by the TNG in the February 9, 2016 letter regarding key concerns with New Gold's Application have been adequately addressed in the responses from the EAO and New Gold, including the proposed mitigation measures; and
- TNG's communication with the EAO stating no further concerns remain outstanding.

19.4.5 YEKOOCHE NATION

COMMUNITY PROFILE

The Yekooche are a people located in and around Stuart Lake in northern interior BC. Historically, the Yekooche were associated with the Carrier people, more specifically a sub-group of the Carrier with several villages in the area of Cunningham, Trembleur and Stuart Lakes. Some ethnographic sources refer

to this group as the Tachiwoten or Stuart Lake people. Yekooche's traditional territory included Stuart Lake, Pinchi Lake, Trembleur Lake, Cunningham Lake, much of Babine Lake, and the lower regions of Takla Lake, including the Middle and Tache Rivers, as identified in the Statement of Intent filed with the BC Treaty Commission.

The Yekooche people's traditional diet relied heavily on fish including trout, char, whitefish, burbot, kokanee, sturgeon, Chinook, and sockeye. Sockeye was the main staple of the Yekooche people. The Yekooche people obtained food and fur from hunting and trapping moose, deer, elk, cougar, black bear, grizzly bear, coyote, wolf, woodland caribou, beaver, otter, mink, muskrat, fisher, wolverine, and marten. Additionally, the Yekooche harvested saskatoon berry, bog bilberry, and crowberry.

YFN has four reserves including Nan T'lat 13, Ucausley 16, Ye Koo Che 3, and Ye Koos Lee 11. These reserves are located approximately 60 km northeast of Burns Lake. YFN currently has a registered population of 237 people, just under half of which live on reserve, and is governed by a Chief and Council.

CONSULTATION WITH YEKOOCHE NATION

YFN was not originally listed as an Indigenous Group that would be consulted regarding the EA for Blackwater in the Section 11 Order that was issued by the EAO on July 9, 2013. When the EAO completed the initial analysis for Indigenous groups' consultation, Yekooche did not assert a territory that overlapped with the Blackwater footprint. On April 30, 2014, YFN communicated to the EAO that it was asserting an expanded territory. The Blackwater footprint (approximately four km of the transmission line) overlaps with the far southern portion of the expanded asserted territory.

In a letter dated February 5, 2016, the EAO communicated the results of its review of available ethnographic information regarding any YFN traditional use of the Blackwater footprint and how that informed the scope of consultation. In the letter, the EAO also communicated that the Blackwater footprint had the potential to impact wildlife, wildlife habitat, vegetation, water quality, and fish habitat in the area; however, the Province's view was that the potential impacts of Blackwater on Yekooche's Aboriginal Interests were anticipated to be negligible. The EAO articulated that, based on the nature of the impacts and the Aboriginal Interests that may be impacted, the Province's assessment was that the duty to consult with YFN regarding Blackwater lay at the lower end of the *Haida* spectrum**.** The EAO did not receive a response from YFN.

In the letter dated February 5, 2016, the EAO informed YFN that it was proposing to complete a Section 13 Order to add YFN to Schedule C (Notification) for Blackwater. It was communicated that if added to Schedule C, Yekooche Nation would be notified of the remaining EA milestones. On March 15, 2016 a Section 13 order was issued by the EAO, in which YFN was added to Schedule C (Notification). The EAO informed YFN that it would be notified of the remaining milestones in the EA process for Blackwater, including:

- The timing of PCPs;
- The timing when final assessment is referred to Ministers; and
- The decision of the Ministers

On March 15, 2016, a Section 13 order was issued by the EAO in which YFN was added to Schedule C (Notification) for Blackwater.

On December 10, 2018, the EAO sent a letter to YFN stating that that the EAO would be providing additional consultation through the opportunity to review and provide comments on the draft of this consultation report, which was attached to the letter. The EAO asked YFN to provide feedback on the EAO's draft assessment of impacts to YFN from Blackwater, and to provide any additional information not reflected in the report. Additionally, the letter notified YFN that the EAO would be issuing a Section 13 Order to amend the Section 11 Order with a clause that would allow the EAO to implement additional measures for consultation for all Indigenous Nations connected to Blackwater. YFN did not provide comments to the EAO.

IMPACTS TO ABORIGINAL INTERESTS

In consideration of the information available to the EAO, New Gold's commitments, issues that would be addressed in subsequent permitting, should an EAC be granted, and the EAO's proposed conditions for any EAC issued, Blackwater is anticipated to result in a negligible impact to YFN's Aboriginal Interests. The key factors that have informed the EAO's conclusion include:

- The Blackwater footprint (approximately four km of the transmission line and its access roads) overlaps with the far southern portion of YFN's currently asserted territory;
- The potential impacts from the proposed Blackwater transmission line and transmission line access roads in areas within YFN's consultative Area B are expected to be to wildlife and ecosystems VCs:
    - The potential effects to Wildlife and Ecosystems VCs from Blackwater include loss and degradation of wildlife habitat and ecosystems, increased risk of indirect wildlife mortality, and impacts to wildlife movement patterns and populations for some species. For more information on impacts to Wildlife and Ecosystem VCs, please refer to Section 9 of this Report;
    - The EAO is proposing Condition 13: Construction Environment Management Plan which would address sediment and erosion control and other potential effects related to construction; Condition 23: Wildlife Management Plan to help mitigate impacts to wildlife; and Condition 25: End Land Use Plan to address the objectives for reclamation, to require New Gold to minimize differences between pre-mining and post-mining land capabilities, and associated impacts to vegetation;
- The EAO is of the view that Blackwater would not have significant adverse effects on wildlife and ecosystems VCs; and
- YFN has not identified to the EAO any concerns regarding potential impacts from Blackwater to its Aboriginal Interests.

20 WEIGHING IMPACTS ON ABORIGINAL INTERESTS WITH OTHER INTERESTS

The Crown has a responsibility to weigh the potential impacts and accommodations on Aboriginal Interests with other societal interests, including the social, environmental and economic benefits of the Project. This evaluation is an important component informing the Ministers' decision on whether to approve the Project. In weighing the Project benefits with the impacts on Aboriginal Interests, EAO holds the view that the following factors regarding the Project are relevant to consider.

20.1 IMPORTANCE OF THE PROPOSED PROJECT

New Gold estimated that direct expenditures during Construction would total $1,294 million, and that Construction would require approximately 2,436 PYs of direct employment within BC. Provincial tax revenues generated during Construction are estimated at be $82 million. New Gold estimated direct expenditures during Operations would be approximately $¬161 million per year within BC, while annual employment needs would be 396 PYs of direct employment within BC.

New Gold estimated that during Construction direct local benefits (occurring within a local study area) would include 225 PYs of employment, and $40 million in expenditures on goods and services. During Operations, annual direct local benefits are estimated to include 86 PYs of employment and the purchase of $10 million in goods and services from businesses each year.

Mine closure would provide some employment and business opportunities in the region; however, the net loss of jobs would be adverse. New Gold estimated that Closure activities would provide an average of 47 PYs of local employment in each of the five years after Operations, and 6 PYs of employment per year during the Post-Closure period. New Gold also estimated that Blackwater closure would cost $101 million, with 20 percent occurring during Operations, 47 percent in the five years after Operations cease, and the remaining 33 percent over the following 27 years.

New Gold estimated that total tax revenues over the life of Blackwater would be $1.2 billion. Of this, $656 million would accrue to the federal government, and $83 million would go to local governments. Total revenues for BC would be $511 million, which would include $450 million in taxes, and approximately $61 million in royalties. At Closure, the payment of annual taxes would cease. More information regarding the estimated economic impacts of Blackwater is available in Section 13 of the Assessment Report.

20.2 BENEFITS TO AFFECTED INDIGENOUS COMMUNITIES

Blackwater has the potential to provide economic benefits to UFN's, LDN's and CSFNs' members, including through: (i) stewardship and cultural initiatives; (ii) employment opportunities; (iii) contracting opportunities; and (iv) revenue-sharing or government to government arrangements. UFN, LDN and the Province are discussing ECDAs, and the Province has commitments to continue working with CSFNs on an economic benefits package should the Project proceed. On April 18, 2019, New Gold finalized a trilateral

participation agreement with UFN and LDN and is continuing to discuss participation agreements with CSFNs and NFN.

Should an EAC be granted, the CSFNs, UFN, LDN and the EAO plan to develop a longer-term collaboration plan for Blackwater that is expected to include collaboration on potential future EAC amendments, and implementation of EAC conditions. The Province is also building on the collaborative relationship with CSFNs, LDN and UFN and has provided a written commitment that to pursue a collaboration plan and framework for the permitting phase and for the life of mine. In addition, the Province is pursuing revenue sharing through an ECDA with UFN and LDN and has committed to continue to work with the CSFNs on an economic benefits package in relation to Blackwater, should it proceed.

New Gold indicated that Blackwater would support employment, training, contracting and business development for Indigenous groups. New Gold committed to implement a Recruitment, Training and Employment Plan to support employment for local and Indigenous workers, develop ongoing and collaborative working relationships in the region, and foster a diverse, safe and respectful work environment.

The EAO proposes Condition 37: Community Liaison Committee and Community Effects Monitoring and Management Plan which would include:

- A requirement to maintain a liaison committee that would allow for community issues to be addressed as they arise;
- Monitoring and mitigation of effects to community services
- Measures to facilitate hiring from the local communities;
- Measures to facilitate employees' connection to their families while on shift rotation; and
- Provision of housing at, and transportation for mine employees to, the mine site.

PART D – CONCLUSIONS

Based on:

- Information contained in the Application and substantial additional information provided by New Gold and Indigenous groups during Application Review;
- New Gold's, the EAO's and the Agency's efforts at consultation with Indigenous groups, federal, provincial, and local government agencies, and the public and New Gold's commitment to ongoing consultation;
- Comments on Blackwater made by Indigenous groups, federal, provincial and local government agencies as members of EAO's Working Group and New Gold's and the EAO's responses to these comments;
- Comments on Blackwater received during the public comment period, and New Gold's response to these issues;
- Issues raised regarding Blackwater by LDN, UFN, the CSFNs, NFN and the TNG, and New Gold's, the EAO's and the Agency's responses to these issues, including through the development of proposed conditions;
- Comments received during the community meetings in UFN's, LDN's and the CSFNs' communities, in accordance with these Indigenous groups' principles of governance that requires seeking community input to inform decision-making, and the collaborative effort to incorporate issues articulated by community members during these sessions into the EA;
- The EAO and the Agency's collaborative work with UFN and LDN and the CSFNs, which resulted in positive outcomes in terms of fostering a Government-to-Government relationship, allowed for a deeper understanding of the issues of concern to these Indigenous groups to resolve project-specific issues, assess the potential adverse effects of Blackwater on the Aboriginal Interests of these Indigenous groups on matters within the scope of the EA and to seek consensus on proposed conditions;
- Comments on Blackwater received during the public comment period, and New Gold's responses;
- The EAO's commitment to ongoing engagement in the implementation of the EAC with LDN, UFN and CSFNs, and the consultation and engagement requirements for New Gold in the proposed EA conditions, should an EAC be issued;
- The federal conditions included in the federal Decision Statement for Blackwater;
- The EAO's understanding of the issues that would be further addressed by the Province, specifically the negotiation of an ECDA with LDN and UFN and collaboration proposed by EMPR, ENV and FLNRORD in their April 16, 2019, letter that would occur with LDN, UFN and CSFNs during the permitting processes and life of mine engagement, and MIRR's commitment to continue to work with the CSFNs to seek an mandate for an economic benefits package in relation to the Project as set out in its April 17, 2019 letter, should Blackwater proceed;
- The design of the Project as specified in the proposed Schedule A (CPD) of the EAC to be implemented by the Holder; and
- Mitigation measures identified as proposed conditions in Schedule B (TOC) of the EAC which would be legally binding on the Holder if the EAC is issued.

The EAO also notes that:

- Despite these efforts, several Indigenous groups expressed that there were outstanding issues at the conclusion of the EA process:
    - LDN and UFN state that in for consultation and accommodation to be adequate for Blackwater, BC must negotiate both a mineral tax revenue sharing agreement for Blackwater and a government-to-government collaboration process that would endure from initial permitting through the life of the mine. However, without diminishing the importance of these additional steps, LDN and UFN provided their consent to the issuance of an EAC for Blackwater;
    - The CSFNs state their remaining concern is that the serious residual impacts Blackwater will have on upon the CSFNs' RTI have not yet been adequately accommodated and that the honour of the Crown is at stake and more work is required before it can be upheld in respect of a decision by BC or Canada to issue EA authorizations for Blackwater; and
    - NFN stated that consultation had not been appropriate and reasonable, economic accommodation from New Gold was needed but had not been provided, and NFN required a commitment for capacity funding to participate in the development of plans required by the EAC, if issued.

The EAO is satisfied that:

- The EA process adequately identified and assessed potential adverse environmental, economic, social, heritage and health effects of Blackwater, having regard to the proposed conditions set out in Schedule B (TOC) to the proposed EAC;
- The consultation with government agencies and the public has been adequately carried out by New Gold, and issues identified by federal, provincial, local government and the public were adequately addressed through the EA;
- Practical means were identified to prevent or reduce any potential adverse environmental, social, economic, heritage or health effects of Blackwater such that no direct or indirect significant adverse effects would be predicted or expected;
- The collaborative engagement with LDN, UFN and the CSFNs has been carried out in good faith and that the Crown's process of seeking to understand potentially outstanding issues and impacts was reasonable;
- Issues identified by Indigenous groups which were within the scope of the EA, were adequately and reasonably addressed during the review of the Application;
- The potential for adverse effects on the Aboriginal Interests of Indigenous groups that are within the scope of this EA, has been avoided, minimized or otherwise accommodated to an acceptable level; and
- On matters within the scope of this EA, the provincial Crown has fulfilled its legal obligations to consult and accommodate potentially affected Indigenous groups related to the issuance of an EAC for Blackwater.

PART E – SUMMARY OF PROPOSED ENVIRONMENTAL AND OPERATIONAL MANAGEMENT PLANS

EMPs would be required for all phases of Blackwater to minimize adverse project effects throughout Blackwater's lifespan. The plans provide a framework to communicate and implement mitigation measures and BMPs, and to support compliance with applicable legislation and terms and conditions of permits, approvals, and authorizations issued in relation to Blackwater, including an EAC (if issued).

The EMPs would be developed in consultation with appropriate regulatory agencies, Indigenous groups, and key stakeholders as required.

21 SUMMARY OF ENVIRONMENTAL MANAGEMENT PLANS

This section provides a summary of each EMP that was:

- Identified by New Gold in the Application (Section 12, subsection 12.2.1.18.4) or during Application Review; or
- Proposed by the EAO that would be legally-binding as part of the EAO's proposed TOC.

21.1 PLANS IDENTIFIED BY NEW GOLD

21.1.1 ENVIRONMENTAL MANAGEMENT SYSTEM

The Environmental Management System (EMS) is part of the New Gold's overall corporate management system used to develop and implement its environmental policy, manage its environmental risks, and achieve its environmental performance objectives. New Gold would use the EMS to guide all activities to ensure safe, compliant, and environmentally and socially responsible operations for Blackwater. The EMS would cover all aspects of mining and processing activity following site-specific policies and procedures that will meet the requirements of corporate policies and principles. The EMS would be the system through which New Gold would ensure that the conditions set at the time of authorization and all legal requirements are met.

21.1.2 HAZARDOUS MATERIALS MANAGEMENT PLAN

New Gold's proposed Hazardous Materials Management Plan would provide direction for transportation, storage, handling, and use of all chemicals, petroleum products, and materials that could potentially be harmful to human health or the environment at the mine site.

The EAO has proposed two conditions that relate to this management plan: the CEMP, which includes a requirement to address spill prevention and response for hydrocarbon storage and leaks or other accidental emissions from machinery or equipment, and the Accidents and Malfunctions Administration and Communications Plan.

21.1.3 EMERGENCY AND SPILL PREPAREDNESS AND RESPONSE PLAN

The Emergency and Spill Preparedness and Response Plan (ESPRP) would describe the conceptual framework for responses to an emergency or a material spill. The objectives of the ESPRP are to protect employee and contractor health and safety, minimize environmental impact of an event, and ensure emergency responses are timely and effective. The ESPRP would set out the basic mechanisms, organizational structures, responsibilities, and procedures to guide staff responses to emergencies.

Under the ESPRP umbrella, New Gold would also develop a Wildfire Management Plan to detail the personnel, procedures, and equipment available specifically for prevention, detection, and suppression of forest fires within and around Blackwater.

A Fuel Management and Spill Control Plan and a Chemicals and Materials Storage and Handling Plan are *Mines Act* and EMA permit application requirements. The EAO recognizes that spills, hazardous materials and wildfire management are regulated by existing provincial and federal legislation, so does not propose a stand-alone plan. However, the EAO's proposed Construction and Environmental Management Plan does include a requirement to address spill prevention and response for hydrocarbon storage and leaks or other accidental emissions from machinery or equipment. Issues relating to communication and accidents or malfunction not addressed through permitting would be addressed by the EAO's proposed Accidents and Malfunctions Administration and Communication Plan.

21.1.4 WATER QUALITY AND LIQUID DISCHARGES MANAGEMENT PLAN

As proposed by New Gold, the Water Quality and Liquid Discharges Management Plan (WQLDMP) would describe New Gold's approach for managing domestic wastewater collection, treatment, conveyance, and disposal to service Blackwater work camps, mine plant site, and associated buildings for all project phases. This plan would describe strategic actions that are designed to manage wastewater such that there is no surface discharge of treated effluent to the adjacent streams.

The EAO does not propose a separate plan as an EAC condition, although the proposed Construction and Environmental Management Plan does include a requirement related to waste management.

21.1.5 FISHERIES MITIGATION AND OFFSETTING PLAN

As the construction and operation of Blackwater could result in serious harm to fish (including to rainbow trout), the Fisheries Mitigation and Offsetting Plan (FMOP) outlines actions to avoid, minimize and mitigate serious harm to fish.

Related to the Fisheries Mitigation and Offsetting Plan, New Gold would also develop a Fish Salvage Plan and an Adaptive Management and Monitoring Program to address potential disruptions for salmonid homing.

The Fish Salvage Plan would promote fish survival within the mine footprint, including by removing and relocating fish from the affected Davidson Creek and Creek 661 and adaptive management measures regarding effects of Blackwater on salmonid populations in Davidson Creek. The plan would also outline New Gold's approach to developing restoration options to restore baseline numbers and distributions of spawners to portions of Davidson Creek that remain unaffected by Blackwater.

New Gold would require a Section 35(2) *Fisheries Act* authorization from DFO and a MDMER Schedule 2 Amendment. As well, the EAO is aware the federal Decision Statement issued on April 15, 2019, included a fish offsetting condition. As a result, the EAO is not proposing a requirement in the EAC for the development of a fish offsetting plan but has included a proposed an Aquatic Effects Monitoring Plan.

21.1.6 LANDSCAPE, SOILS, AND VEGETATION MANAGEMENT AND RESTORATION PLAN

As proposed by New Gold, the Landscape, Soils, and Vegetation Management and Restoration Plan would describe measures to minimize the effect of Blackwater on the landscape, soils, and vegetation. This plan would include strategies for maximizing progressive reclamation, in accordance with the Reclamation and Closure Plan (RCP). The plan would focus on mitigating potential effects to plant species at risk, including whitebark pine.

A *Mines Act* permit application requires a Reclamation Plan, and the EAO is aware that federal Decision Statement includes a condition for whitebark pine management. As a result, the EAO is not proposing this plan as an EAC condition. However, the EAO is proposing some conditions that address aspects of this plan, including the CEMP (which is proposed to require invasive plants management, geological and terrain hazards, and vegetation management), and an End Land Use Plan to address the objectives of reclamation activities.

21.1.7 INVASIVE SPECIES MANAGEMENT PLAN

As proposed by New Gold, the Invasive Species Management Plan would describe strategies for the prevention, monitoring and control of the growth and spread of invasive plants. This plan would provide details relating to conducting invasive plant surveys, applying appropriate treatments to control infestations of invasive plants, and for monitoring treatment effectiveness.

A *Mines Act* permit application requires either a Vegetation Management Plan, or an Invasive Plant Management Plan. Therefore, the EAO is not proposing a stand-alone Invasive Plant Management Plan as a stand-alone EAC condition, however, the EAO is proposing a CEMP, which would require invasive plants management.

21.1.8 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLAN

As proposed by New Gold, the Occupational Health and Safety Management Plan (OHSMP) would describe monitoring and mitigation practices to ensure the protection, health, safety, and well-being of all workers in and near Blackwater during all project phases. The purpose of the OHSMP would be to fulfill New Gold's health and safety policies, and all requirements and provisions of the Health Safety and Reclamation Code for Mines in BC.

This plan is a requirement of a *Mines Act* permit application, specific to the mine site. In consideration of the nature of the issues in this EA and the subsequent permitting process, the EAO is not proposing this plan as an EAC condition.

21.1.9 RECRUITMENT, TRAINING AND EMPLOYMENT PLAN

As proposed by New Gold, the objectives of this plan are to promote employment for local and Indigenous workers, develop ongoing and collaborative working relationships in the region, and to foster a diverse, safe and respectful work environment.

The EAO has proposed a CLC and CEMMP condition that addresses the issues of maintaining collaborative working relationships in the region and include a requirement that the plan must address measures to facilitate hiring of employees and contractors for the SERSA, including skills training and recruitment approaches for hiring members of Indigenous groups and population groups who are typically under-represented in mine employment.

21.1.10 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

As proposed by New Gold, this plan describes the processes by which New Gold would ensure that the ongoing development and construction of Blackwater implements BMPs.

A CEMP is a standard requirement in an EAC and is proposed for Blackwater.

21.1.11 EROSION AND SEDIMENT CONTROL PLAN

The purpose this plan is to minimize the potential for the mobilization of sediment, the destabilization of slopes, and associated impacts to surface water quality and aquatic habitat resulting from mining activities throughout the life of Blackwater. The plan would include prescriptions for event-based erosion control strategies.

A ESCP is a requirement of *Mines Act* and EMA permit applications. In addition, sediment and erosion control is a common requirement in an EAC-required CEMP. In response to information from CSFNs of waterbodies of particular importance to those communities, the EAO has also proposed an additional condition, Condition 29: Transmission Line Sedimentation and Monitoring Plan to further focus on

avoiding sedimentation into the waterbodies along the proposed transmission line routing during transmission line construction and maintenance.

21.1.12 TRANSPORTATION AND ACCESS MANAGEMENT PLAN

As proposed by New Gold, this plan would outline planning and control practices for all movement of personnel and materials into and out of Blackwater. The Transportation and Access Management Plan would describe the applicable legislation and standards relevant to transportation by air and by motor vehicle (including support facilities) and BMPs.

The provisions in this plan that are related to the mine site would be addressed by a *Mines Act* permit. The EAO also has proposed several conditions that are related to transportation and access management, including requirements in the proposed CEMP, the Wildlife Management Plan (which includes specific mitigations related to roads), and the CLC and CEMMP (which includes the management of traffic along the FSRs and dealing with related complaints from local communities and other road users).

21.1.13 VISUAL RESOURCES MANAGEMENT PLAN

As proposed by New Gold, this plan would outline New Gold's approach for avoiding, minimizing, or mitigating the effects of Blackwater on Visual Resources and scenic values. The plan would include addressing policy objectives for the scenic values outlined in the Vanderhoof Access Management Plan, and specific mitigation measures for the 12 sites that New Gold identified as having priority importance.

The EAO has captured the specific mitigation measures, including the development of a plan to address effects to visual resources, in its proposed Final Transmission Line Routing Plan condition.

21.2 PLANS PROPOSED BY THE EAO

This section provides a brief summary of each Management Plan that is proposed by the EAO that would be legally-binding as part of the EAO's proposed TOC.

21.2.1 DOCUMENT SUBMISSION PLAN (PROPOSED CONDITION 10)

The Document Submission Plan would identify proposed dates or timelines for submission of every document, plan or program required by the Certificate. The Document Submission Plan must demonstrate how the proposed dates or timelines align with any similar requirements in other provincial processes. The objective of this plan it to ensure that timing of the development and review of management plans is coordinated with subsequent permitting requirements and allows sufficient time for the EAO, provincial agencies and Indigenous groups to review the plans and have their comments addressed, prior to the activities occurring that are governed by the plan.

21.2.2 CARE AND MAINTENANCE PLAN (PROPOSED CONDITION 11)

The Care and Maintenance Plan would, among other things, describe how New Gold would manage the environmental risks identified during an extended closure period (60 days or more). The Plan, among other things, would include the means by which New Gold would address spill prevention and response for hydrocarbons; sediment and erosion control: management of tailings and waste rock, managing and mitigating adverse effects to wildlife and receiving waters, and managing surplus water.

21.2.3 CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN (PROPOSED CONDITION 13)

This is a standard EA condition to address BMPs during construction. For Blackwater, it includes several requirements specific to this project as described in sections above.

21.2.4 ABORIGINAL GROUP ENGAGEMENT PLAN (PROPOSED CONDITION 16)

This plan would, among other things, set out how New Gold will engage with each of the Indigenous groups on the development and implementation of the requirements of this Certificate (if issued) for all phases of Blackwater. The Plan, among other things, would include the means by which to engage with each Indigenous group, including how New Gold will address any engagement customs or protocols identified by Indigenous groups.

21.2.5 ABORIGINAL GROUP MONITOR AND MONITORING PLAN (PROPOSED CONDITION 17)

This purpose of this plan is to have New Gold retain or fund an Aboriginal monitor for each Indigenous group consulted at the deeper end of the Haida spectrum, with the scope of activities commensurate with the potential effects on that Indigenous group's Aboriginal Interests. Among other things, the plan would require New Gold would develop a Terms of Engagement in consultation with Indigenous groups outlining the roles and responsibilities of the monitor and identifying, training, equipment and support that will be provided to the monitors to support the monitoring activities, as well as other items.

21.2.6 CULTURAL AND SPIRITUAL RESOURCES MANAGEMENT PLAN (PROPOSED CONDITION 18)

This plan would, among other things, address how cultural and spiritual sites important to Indigenous groups would be identified, and how impacts to those resources would be addressed. It includes consideration of the means by which New Gold will keep confidential any sensitive site-specific information considered confidential by the Indigenous groups and how New Gold would provide written reports to Indigenous groups.

21.2.7 AIR QUALITY AND DUST MANAGEMENT PLAN (PROPOSED CONDITION 20)

This plan, among other things. would set out how New Gold would address air quality effects, particularly fugitive dust and air quality impact outside of the mine site. The plan would identify and provide detail descriptions of dust-emitting sources from Blackwater, the environmental receptors to be monitored and develop a compliance monitoring program. The plan includes requirements for notification of interested or potentially affected parties in the event that contaminant concentration thresholds identified are exceeded.

21.2.8 NOISE AND VIBRATION EFFECTS MONITORING AND MITIGATION PLAN (PROPOSED CONDITION 21)

This plan, among other things, would address mitigations to reduce noise and vibration, including impacts related to operation of equipment and aircraft. The plan would set out a monitoring plan for identified noise receptor locations. The Plan would develop the process, including timelines, for receiving and responding to noise complaints.

21.2.9 CARIBOU MITIGATION AND MONITORING PLAN (PROPOSED CONDITION 22)

This plan, among other things, would identify the means by which the mitigation measures identified in the Application for the Caribou will be implemented. It includes specific mitigations identified during the EA (for example, decommissioning and restoring the existing exploration access road) and includes a requirement for an offsetting plan. It also includes a requirement for New Gold to contribute to provincial initiatives that are addressing the broader management and recovery of caribou

21.2.10 WILDLIFE MANAGEMENT AND MONITORING PLAN (PROPOSED CONDITION 23)

This plan would, among other things, identify means by which the mitigation measures identified in the Application for the VCs: Amphibians, Bats, Forest and Grassland Birds, Fur Bearers, Grizzly Bears, Invertebrates, Moose, and Water-birds will be implemented, and sets out specific mitigation measures by project component. The plan includes requirements for pre-construction surveys for wildlife features and establishing sensitive life stages and related management measures for wildlife. The plan includes a requirement for New Gold to contribute to provincial regional initiatives related to moose and grizzly, which were species identified by Indigenous groups as being of specific concern, and a requirement to "ground-truth" information about the use of habitat overlapping the mine site by moose and grizzly bears, and update mitigation measures if needed, in response to specific concerns from Indigenous groups.

21.2.11 WETLAND MANAGEMENT AND OFFSETTING PLAN (PROPOSED CONDITION 24)

This plan would, among other things, mitigate and offset losses of wetland functions caused by Blackwater. Offsetting is required to be developed consistent with the hierarchy of measures set out in the Environmental Mitigation Policy for B.C, and takes into consideration opportunities to also address

Blackwater's impacts on grizzly bear and moose, as well as considering the offset locations relate to the effects to Indigenous groups.

21.2.12 END LAND USE PLAN (PROPOSED CONDITION 25)

This plan recognizes that under the *Mines Act*, EMPR undertakes a detailed review of requirements for reclamation of the mine site, but that the objectives of the reclamation is often an important objective through the EA. The Plan would provide a definition and description of the pre-mining and post-closure land and water capability and land and water use conditions and how the those, as well as consideration of how the Caribou Mitigation and Monitoring Plan, Wildlife Management and Monitoring Plan, Water Quality Management Plan, and Wetlands Management and Offsetting Plan would result in end land use objectives that will guide reclamation measures.

21.2.13 CHEDAKUZ CREEK AND TATELKUZ LAKE SURFACE WATER QUALITY MONITORING PLAN (PROPOSED CONDITION 28)

This plan would, among other things, require New Gold to develop a surface water quality monitoring plan for Tatelkuz Lake and Chedakuz Creek (upstream of the Nechako Reservoir). The objective is to determine if there are adverse effects to these waterbodies, which were identified as of importance to Indigenous groups, and adaptively manage to avoid adverse effects.

21.2.14 TRANSMISSION LINE SEDIMENTATION MONITORING PLAN (PROPOSED CONDITION 29)

This plan would, among other things, describe how New Gold would avoid potential adverse effects from sedimentation in waterbodies of importance to CSFNs as a result of construction and maintenance on the transmission line. The Plan would develop site specific erosion and sediment control prescriptions and monitoring for all transmission line construction and maintenance works that have the potential to impact waterbodies identified of particular importance to CSFNs and other Indigenous groups.

21.2.15 AQUATICS EFFECT MONITORING PLAN (PROPOSED CONDITION 30)

This plan would, among other things, require monitoring and adaptive management related to aquatic effects from Blackwater. The Plan would also identify the process and timing for sharing monitoring and study results.

21.2.16 TATELKUZ LAKE PROTECTION PLAN (PROPOSED CONDITION 31)

This plan would, among other things, describe how New Gold would consider trade-offs between impacts on fish and fish habitat in Davidson Creek and impacts on fish and fish habitat in Chedakuz Creek when determining water withdrawals for Tatelkuz Lake. The plan would include how New Gold would monitor

and mitigate the effects of lake level drawdown on fish and fish habitat in the littoral zone, and how winter withdrawals of water will be managed to avoid creating unsafe ice conditions for those who use the lake in winter months.

21.2.17 CYANIDE MANAGEMENT PLAN (PROPOSED CONDITION 32)

This plan would, among other things, provide a description of New Gold's handling and management of cyanide is consistent with the Principles and Standards of Practice in the International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold. The Plan would also outline the means by which cyanide-containing effluent will be monitored and treated prior to discharge, and identification of cyanide concentrations that would trigger the need for additional mitigation.

21.2.18 MINE WASTE AND WATER MANAGEMENT PLAN (PROPOSED CONDITION 33)

This plan would, among other things, describe New Gold's approach to manage mine waste and water in a manner that is protective of the receiving environment. The main interest from Indigenous groups that resulted in this proposed plan is ensuring that water surplus to addressing metal leaching and acid rock drainage, as well as the needs of the mill is not accumulating in the TSF, and that key water quality mitigations identified in the EA to address water quality during Operations are implemented.

21.2.19 CLOSURE AND POST CLOSURE WATER QUALITY MANAGEMENT PLAN (PROPOSED CONDITION 34)

This plan's primary focus is to ensure that New Gold is planning for the appropriate water treatment required to treat water in preparation for discharge in the Post-Closure phase, as well preparing to implement related mitigation measures that were identified through the EA as a continuation of mitigation measures identified in the MWWMP. The Plan would outline whether and how the water treatment technology differs from the technology proposed in the Application and the proposed water treatment technology New Gold intends to employ for treating water at Closure and Post-Closure.

21.2.20 TAILINGS DAM SAFETY TRANSPARENCY PLAN (PROPOSED CONDITION 35)

This plan is to address concerns expressed by Indigenous groups around the potential for TSF failures. To address those concerns, this plan requires the sharing of information related to reports, reviews, inspections and meetings pertaining to tailings dam safety. The plan includes provision of information for a lay audience.

21.2.21 ACCIDENTS AND MALFUNCTIONS ADMINISTRATION AND COMMUNICATION PLAN (PROPOSED CONDITION 36)

This plan would, among other things, identify and maintain a current list of land users in the area that may be affected by an accident or malfunction from Blackwater. The plan would include the types of accidents and malfunctions requiring notification and the timeframe and method notifications must be notified by New Gold of an accident or malfunction. The plan includes identification and provision of any opportunities for Indigenous groups, local communities and other users of the area to assist in response to the accident or malfunction.

21.2.22 COMMUNITY LIAISON COMMITTEE AND COMMUNITY EFFECTS MONITORING AND MANAGEMENT PLAN (PROPOSED CONDITION 37)

This plan would, among other things, ensure communities had a mechanism to provide information, concerns or advice to New Gold. The Plan would identify the communities likely to experience social or economic effects and establish a monitoring program for the potential adverse effects. The plan includes mitigation measures related to skills training, housing for employees, transportation for Employees and the hiring of and support for Employees. The Plan will outline the means by which New Gold will provide information to Indigenous groups, land users and tenure holders on the potential impact of Blackwater activities on their use of an area affected by Blackwater and the process by which members of the public may submit feedback regarding Blackwater.

21.2.23 TENURE HOLDER COMMUNICATION AND MITIGATION PLAN (PROPOSED CONDITION 38)

This plan would address the adverse effects of the Blackwater on the guide outfitter whose license overlaps with Blackwater. The Plan would outline mitigation measures to reduce effects on the license holder's guiding operations and the means by which New Gold will consult with the guide outfitter as to the potential effects of Blackwater and the mitigations employed to address those effects.

21.2.24 FINAL TRANSMISSION LINE ROUTING PLAN (PROPOSED CONDITION 39)

This plan would be divided into two phases. Phase one would outline the means by which New Gold would notify and consult with Indigenous groups, existing tenure holders, permit holders, property owners, recreationalists and other land users potentially impacted by the transmission line routing options on the potential effects to those parties. The second phase would focus on the plan that New Gold proposes to address effects based on that consultation, plus identifying the final route selection. It will identify how New Gold will avoid impacts to recreational sites and specific mitigation measures developed to address issues with respect to the Stellako River WMA and impacts to visual quality among other things.

21.2.25 HEALTH AND MEDICAL SERVICES PLAN (PROPOSED CONDITION 40)

This plan would, among other topics, outline how the guidance from “Health and Medical Services Plan Best Management Guide for Industrial Camps” has been incorporated into this plan. The Plan would include identification of how New Gold monitors drinking water quality at the construction and operations camps

21.2.26 COUNTRY FOODS MONITORING PLAN (PROPOSED CONDITION 41)

This plan would, among other things, identify all COPCs and related human health thresholds. The Plan would outline how a Qualified Professional will work with the Indigenous groups to identify the specific country foods to be sampled and the methods and locations for sampling. The Plan would include quality assurance, quality control measures and sampling frequency along with consultation from Indigenous groups to incorporate specific measures to ensure that the sampling plan is culturally appropriate.

APPENDIX A: ENVIRONMENTAL ASSESSMENT METHODOLOGY AND OVERVIEW OF POTENTIAL EFFECTS

ENVIRONMENTAL ASSESSMENT METHODS

In this Report, the EAO assessed whether Blackwater is likely to have significant adverse environmental, economic, social, heritage and health effects, including cumulative effects. The EAO's assessment included contemplation of the mitigation measures proposed in the Application or otherwise developed through the provincial and federal EA processes, in addition to conditions proposed by the EAO.

To conduct this assessment, the EAO followed the methods outlined in its Guideline for the Assessment of Valued Components and Assessment of Potential Effects (2013). This section provides a brief summary of the methodology followed. The methodological steps in BC's EA process are shown in Figure 20.

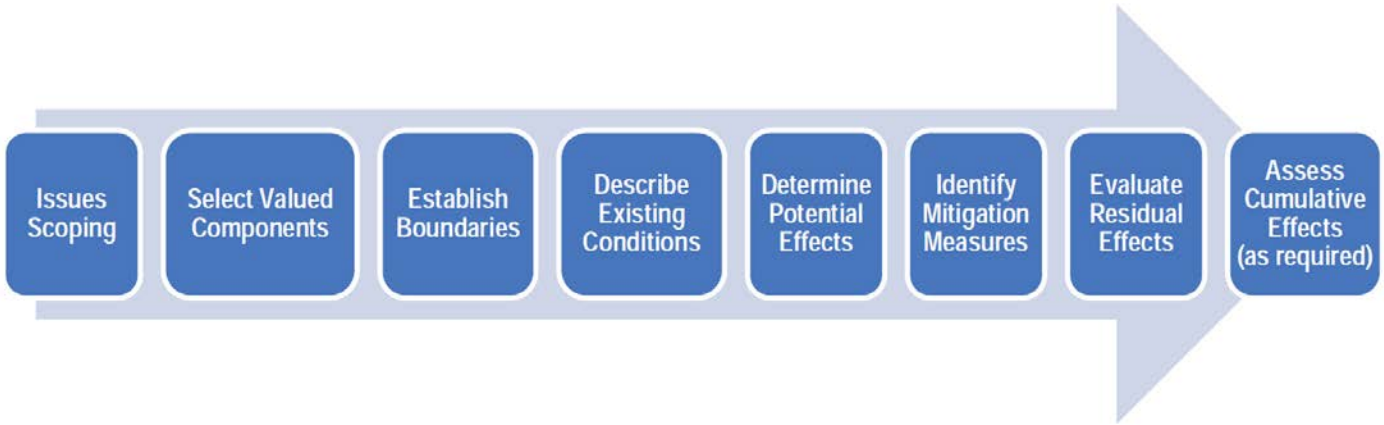

Figure 20: The EAO's Environmental Assessment Methods

EA in BC uses a values-based framework to promote a comprehensive, yet focused, understandable, and accessible assessment of the potential effects of proposed projects. This framework relies on the use of VCs as a foundation for the assessment. VCs are components of the natural and human environment that are considered by the Proponent, public, Indigenous groups, scientists and other technical specialists, and government agencies involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical or other importance.

Appropriate VCs are identified and selected during the Pre-Application phase of the EA. Ultimately, the VCs required to be in the Application are established by the EAO upon finalization of the AIR. The early part of the Pre-Application phase is focused on consultation on the VCs (receptor or pathway), key indicators, study area boundaries and technical requirements with Working Group members (including Indigenous groups) and the public.

RECEPTOR AND PATHWAY COMPONENTS

Pathway Components are part of the pathway between a proposed project and the receptor components, which are the ultimate receptor for effects from a proposed project.

For example, sediment-laden discharge from a project to a stream may adversely affect water quality and benthic habitat and these changes may consequently affect the health and survival of fish that depend on those habitat attributes. In this example, water quality and benthic habitat would be pathway VCs and fish health and survival would be the receptor VC.

EAO considered the potential effects of the changes to both pathway and receptor components through the assessment of VCs in this Report.

The EAO took assessed the Physiography and Topography, Surficial Geology and Soil Cover, Soil Quality, Sediment Quality, Surface Water Quantity and Groundwater Quality and Quantity as pathway components because potential changes to landforms, soil and overburden and changes to surface water flow, groundwater and sediment may result in effects to VCs in the following categories:

- Wildlife and Ecosystems (Section 9 of this Report);
- Water (Section 10 of this Report); and
- Fish and Fish Habitat (Section 11 of this Report).

STUDY BOUNDARIES

Study boundaries serve to define the scope or limits of the assessment and encompass the areas within which Blackwater is expected to have potential effects on the selected VCs. The study areas generally include the:

- Project area or Project footprint – the area directly disturbed by Blackwater's physical works and activities;
- LSA – varies by VC, the area surrounding and including the Project area, where there would be reasonable potential for Blackwater-related activities to interact with and potentially have an adverse effect on the VC; and
- RSA – varies by VC, provides the regional context for the assessment of potential Blackwater-related effects within the LSA, in most cases encompassing the area within which potential residual adverse effects of Blackwater would likely to cumulate with effects of other project and activities. The cumulative effects assessment area may include the RSA as well as areas outside of the RSA.

The temporal boundary is defined as the life of the project, from Construction through Post Closure (phases described below). For the effects assessments within this report, the temporal boundaries are as follows:

- Construction phase: Years -2 and -1;
- Operation phase: Years 1 to 17;
- Closure phase: Years 18 to 41; and

- Post-closure phase: Years 42+.

Construction: The phase of Blackwater during which physical alteration of land, vegetation or any other aspect of the natural environment, occurs.

Operations: The phase of Blackwater beginning with the commercial operation date, which is the date on which commercial mill production is achieved and ending when commercial mill production permanently ceases, and the Closure phase begins. Operational water treatment begins during this phase.

Closure: The phase of the Project where all development and production ceases. Mining facilities and infrastructure, except for the transmission line, mine access road and water treatment and related infrastructure required for ongoing monitoring and maintenance, are decommissioned and/or removed from the Project Site. Reclamation activities continue to be conducted.

Post-Closure: The phase of the Project which begins following the closure phase, when mine contact water is discharged to the environment and during which water treatment, maintenance and monitoring of the Project Site occurs. The phase ends when water treatment is no longer needed, remaining mine facilities and infrastructure are decommissioned and/or removed from the Project Site, and final reclamation activities are conducted. The phase ends when water treatment is no longer needed, remaining Blackwater infrastructure is decommissioned and/or removed, and final reclamation activities are complete and ongoing monitoring for reclamation measures and/or water quality is no longer needed.

ASSESSMENT OF VALUED COMPONENTS

For each selected VC (or grouping of VCs), the Application describes the existing conditions within the study area in sufficient detail to enable potential Project-VC interactions to be identified, understood and assessed. The description of existing conditions includes, as relevant, natural and/or human-caused trends that may alter the environmental or socio-economic setting irrespective of the changes that may be caused by the project or other projects and activities in the local area.

The assessment then considers the potential interactions of the project with the VC, and the potential effects that could arise. These potential effects are identified and described, and an analysis is presented of the potential adverse effects resulting from the project.

The assessment then describes the mitigation measures that would be incorporated into the Project, including: site and route selection; project scheduling; project design; and construction and operation procedures and practices.

Consistent with ENV's Mitigation Policy and Procedures, the EAO considers mitigation to be any practical means or measures taken to avoid, minimize, restore on-site, compensate or offset potential adverse effects. Also described are standard mitigation, BMP, EMPs, contingency plans, ERPS, and other practices proposed to be implemented.

The residual effects on each VC (or grouping of VCs) are then identified. Residual effects are those effects remaining after the implementation of all mitigation measures, and are, therefore, the expected consequences of Blackwater for the selected VCs. To inform the determination of the significance of a residual (adverse) effect, it is necessary to characterize the residual effect.

Residual effects are usually described using standard criteria: context, magnitude, extent, duration, reversibility and frequency. These criteria, as well as likelihood, are summarized in the following box.

Summary of Criteria for Characterizing Residual Effects

Context refers primarily to the current and future sensitivity and resilience of the VCs to change caused by the Project. Consideration of context draws heavily on the description of existing conditions of the VC, which reflect cumulative effects of other projects, and activities that have been carried out, and especially information about the impact of natural and human-caused trends in the condition of the VC.

Magnitude refers to the expected size or severity of the residual effect. When evaluating magnitude of residual effects, consider the proportion of the VC affected within the spatial boundaries and the relative effect (for example, relative to natural annual variation in the magnitude of the VC or other relevant characteristic).

Extent refers to the spatial scale over which the residual effect is expected to occur.

Duration refers to the length of time the residual effect persists (which may be longer than the duration of the physical work or activity that gave rise to the residual effect).

Reversibility pertains to whether or not the residual effect on the VC can be reversed once the physical work or activity causing the disturbance ceases.

Frequency refers to how often the residual effect occurs and is usually closely related to the frequency of the physical work or activity causing the residual effect.

Likelihood refers to whether or not a residual effect is likely to occur. It may be influenced by a variety of factors, such as the likelihood of a causal disturbance, occurring or the likelihood of mitigation being successful. Generally speaking, the residual effects described in the assessment comprise the best prediction of what is likely to occur as a result of a proposed Project, assuming a suite of proposed mitigation is implemented.

Table 49: Residual Effects Characterization Definitions

		Assessment Chapters						
Characterization	**General Description**	Wildlife and Ecosystems	Air Quality GHGs Noise and Vibration Social Economic Cultural Resources Human Health	Water				Fish and Fish Habitat
				Groundwater flows[45]	Surface water flows[46]	Surface water Quality[47]	Sediment Quality[48]	
Context	The current and future sensitivity and resilience of the VC to change caused by the project. Context draws on the descriptions of the existing conditions for the VC, which reflect cumulative effects of other projects and activities that have been carried out, and especially information about the impact of natural and human-caused trends in the condition of the VC.	**Low:** The indicator has low resiliency or is acutely sensitive to existing conditions **Moderate:** The indicator has moderate resiliency or is mildly sensitive to existing conditions **High:** The indicator has high resiliency or is generally not sensitive to existing conditions						

[45] Indicator for magnitude rating: percent change in monthly mean total groundwater contribution to streamflow (the change in the sum of groundwater discharge to streamflow within a sub-catchment and all upstream sub-catchments, as a proportion of surface water flow, on a monthly basis).
[46] Indicator for magnitude rating: Indicator: percent change in mean monthly stream flow.
[47] Indicator for magnitude rating: modelled water quality parameter concentrations (at water quality modelling nodes).
[48] Indicator for magnitude rating: predicted sediment quality parameter values.

		Assessment Chapters						
Characterization	**General Description**	Wildlife and Ecosystems	Air Quality GHGs Noise and Vibration Social Economic Cultural Resources Human Health	Water				Fish and Fish Habitat
				Groundwater flows[45]	Surface water flows[46]	Surface water Quality[47]	Sediment Quality[48]	
Magnitude	The expected size or severity of the residual effect. Considers the proportion of the VC affected within the spatial boundaries and the relative effect (for example, relative to natural annual variation in the magnitude of the VC or other relevant characteristics).	**Negligible:** no detectable change from baseline conditions. **Low:** differs from the average value for baseline conditions but remains within the range of natural variation and below a guideline or threshold value. **Medium:** differs substantially from the average value for baseline conditions and approaches the limits of natural variation, but equal to or slightly above a guideline or threshold value. **High:** differs substantially from baseline conditions and is significantly beyond a guideline or	**Negligible:** Project would likely have no measurable change **Low**: Residual effect would likely not be distinguished from baseline case conditions (for GHG, <~2% of BC emissions) **Moderate:** Residual effect would likely result in demonstrable change, but remain within regulatory criteria or historic norms **High:** Residual effect would likely result in changes that are beyond regulatory criteria or historic norms	**Negligible:** <5% change from baseline conditions. Effects are not measurable; changes in flow are less than the inherent data and modelling uncertainty. **Low:** 5% to 10% change from baseline conditions. **Moderate:** 10% to 20% change from baseline conditions. **High:** >20% change from baseline conditions.	**Negligible:** <5% change in baseline conditions. Effects in streamflow are not measurable; changes in streamflow are less than the inherent data and modelling uncertainty in hydrologic studies. **Low:** 5% to 10% change from baseline conditions. **Moderate:** 10% to 20% change from baseline conditions. **High:** >20% change from baseline conditions.	**Negligible:** Project would likely have no measurable change in water quality. **Low:** Residual effects to water quality would likely be within range of variability of baseline conditions. **Moderate:** Residual effects would likely result in a change to baseline conditions (exceeding 95th percentile of baseline variability) but remain within BC WQGs. **High:** Residual effects would likely result in changes that exceed baseline variability and BC WQGs.	**Negligible**: Project would likely have no measurable change in sediment quality. **Low:** Residual effects to sediment quality would likely be within normal variability of baseline conditions. **Moderate:** Residual effects would likely result in a change to baseline conditions but remain within BC sediment quality guidelines. **High:** Residual effects would likely result in changes that exceed BC WQGs.	**Negligible:** Project would likely have no measurable change **Low:** Differs from mean baseline value, but is within range of natural variation, and below guideline or threshold **Moderate:** Differs from mean baseline value, approaches limits of natural variation, but is below or equal to guideline or threshold **High**: Differs from mean baseline value, is outside range of natural variation, and beyond guideline or threshold

Characterization	General Description	Assessment Chapters						
		Wildlife and Ecosystems	Air Quality GHGs Noise and Vibration Social Economic Cultural Resources Human Health	Water				Fish and Fish Habitat
				Groundwater flows[45]	Surface water flows[46]	Surface water Quality[47]	Sediment Quality[48]	
		threshold value, resulting in a detectable change beyond the range of natural variation.						
Extent	The spatial scale over which the residual effect is expected to occur.	**Project area/ Site-specific** – Residual effect is restricted to the Project area or a specific area of the LSA **Local** – Residual effect is restricted to the LSA **Regional:** Residual effect is restricted to the RSA **Beyond Regional:** Residual effect extends beyond the RSA **Global:** Residual effect extends globally (that is, greenhouse gas emissions)						
Duration	The length of time the residual effect persists (which may be longer than the duration of the physical work or activity that gave rise to the residual effect).	**Temporary:** Effect lasting only for a limited period of time **Short-term:** Residual effect lasts less than two years. **Medium-term:** Residual effect lasts less than 17 **Long-term:** Residual effect lasts less than 41 years. **Permanent/Chronic:**	**Temporary:** Effect lasting only for a limited period of time **Short-term:** Residual effect is restricted to the Construction, Decommissioning or Reclamation phases **Long-term:** Residual effect last throughout the Operational phase (and for GHG, several years thereafter, but not forever) **Permanent:** Residual effect is not likely to recover to baseline					

		Assessment Chapters						
Characterization	**General Description**	Wildlife and Ecosystems	Air Quality GHGs Noise and Vibration Social Economic Cultural Resources Human Health	Water				Fish and Fish Habitat
				Groundwater flows[45]	Surface water flows[46]	Surface water Quality[47]	Sediment Quality[48]	
		Residual effect lasts more than 41 years or is not likely to recover to baseline						
Frequency	How often the residual effect occurs and is usually closely related to the frequency of the physical work or activity causing the residual effect.	**Single/ Rare:** Residual effect occurs one time or rarely occurs **Infrequent:** Residual effect occurs infrequently at multiple times **Frequent/ Regular:** Residual effect occurs frequently, at regular intervals **Continuous:** Residual effect occurs continuously						
Reversibility	Whether or not the residual effect on the VC can be reversed once the physical work or the activity causing the disturbance ceases.	**Reversible:** Residual effect is reversible **Irreversible:** Residual effect is permanent						

The identification of significant adverse residual effects is a requirement of the Act. When determining significance for each VC, consideration should be given to how each of the criteria for characterizing residual effects informs the determination of significance. Significance may be determined based on a quantitative or qualitative threshold that describes the point beyond which a residual effect would be considered significant. In some instances, thresholds established for some VCs by legislation, regulation, or regulatory standard are used. Significance is critical for making an informed decision about the proposed Project; as it is important to understand the characteristics and significance of project-specific residual effects in order to also understand the relative contribution of the proposed Project to cumulative effects.

Once the residual effect prediction has been described in terms of significance and likelihood, it is important to explain the level of confidence in each prediction. The level of confidence, typically based on expert judgement, characterizes the level of uncertainty associated with both the significance and likelihood determinations. Specifying the level of confidence associated with these determinations allows the decision-maker to better evaluate the risk associated with Blackwater. The assessment of confidence also informs the need for and scope of monitoring or other follow-up programs, including adaptive management.

Significance was determined for the residual effects of Blackwater on receptor VCs, as well as for the cumulative effects.

CUMULATIVE EFFECTS ASSESSMENT

If a proposed project is expected to result in any residual adverse effects on the selected VC, there is a need to consider cumulative effects. It is important to note that this consideration must be made for all residual adverse effects, not only for those predicted to be significant.

Where there is a residual adverse effect, the assessment of cumulative effects for reviewable projects should consider other past, present and reasonably foreseeable projects and activities, which were identified in the AIR. The general steps for a cumulative effects assessment are shown in Figure 21 below. The likelihood of a cumulative interaction with other projects and activities, and the proposed Project's contribution to the overall cumulative effect, should together inform the cumulative effects assessment undertaken.

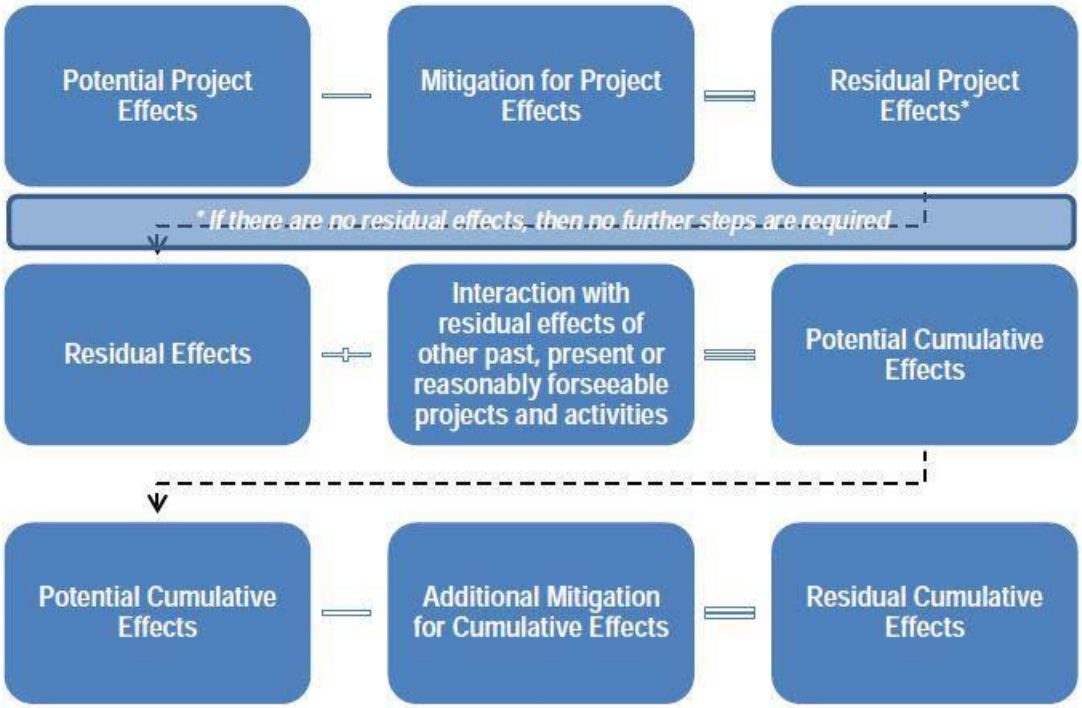

Figure 21: Steps to Determine Residual Effects and Cumulative Effects

The EAO evaluated cumulative effects for Blackwater by considering how residual effects associated with the Blackwater would be expected to interact with the residual effects of other past, present and reasonably foreseeable projects and/or activities included in New Gold's cumulative effects assessments, as described in Appendix 19A of the Application. These projects and activities are discussed where relevant under the cumulative effects section for each VC in this report.

APPENDIX B: SUMMARY CHARACTERIZATION OF RESIDUAL ADVERSE EFFECTS FOR VALUED COMPONENTS

Valued Components		Residual Effects	Context (Resilience)	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Confidence	Significance	Section of the Assessment Report	Proposed EA C Conditions
ENVIRONMENTAL EFFECTS													
Air Quality		Increase of CACs (TSP, $PM_{2.5}$, PM_{10}, NO_2, CO, and SO_2) above background levels.	High	Moderate	Local	Long-term	Continuous	Reversible	High	Moderate	Not Significant	5	20, 43
Climate Change		Increase in GHG emissions.	Low	Low	Global	Long-term	Continuous	Irreversible	High	High	Not Significant	6	None
Noise and Vibration		Increased noise and vibration levels in the area of the mine site and airstrip.	Low	Negligible to Moderate	Site Specific to Local	Short-Term to Long-Term	Infrequent to Continuous	Reversible to Permanent	High	Moderate	Not Significant	7	21, 43
Ecosystem VCs	Wetlands	Loss and degradation of wildlife habitat and ecosystems.	Low to High	Moderate to High	Local	Permanent	Frequent	Reversible to Irreversible	High	Likelihood: High Significance: Low to Moderate	Not significant	9	13, 24, 43
	Ecosystem composition												
	Plant species and ecosystems at risk												
Wildlife VCs	Amphibians	Increased risk of indirect wildlife mortality and impacts to wildlife movement patterns and populations for some species (associated with loss	Low to High	Low to High	Local	Long-term to Permanent	Continuous	Reversible to Irreversible	High	Likelihood: High Significance:	Not Significant	9	3, 11, 13, 22, 23, 24, 25, 30
	Water birds												
	Forest and												

Valued Components		Residual Effects	Context (Resilience)	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Confidence	Significance	Section of the Assessment Report	Proposed EA C Conditions
	grassland birds	and degradation of habitat and ecosystems).								Low to Moderate			
	Moose												
	Caribou												
	Grizzly bear												
	Furbearers												
	Bats												
	Invertebrates												
Groundwater Flows		Increase to groundwater flows in the headwaters of Creek 705 (resulting from the Site C Dam) during all project phases.	Neutral	Negligible to High	Regional	Permanent	Continuous	Irreversible	High	Moderate	N/A[i]	10	3, 19
Groundwater Quality		The information on groundwater seepage quality informed the assessment of potential impacts to surface water quality. Therefore a separate residual effects assessment for groundwater quality is not warranted.										10	26, 34
Surface Water Flow		Decrease in flows to Davidson Creek, Creek 661, Chedakuz Creek and Tatelkuz Lake levels.	Low	Negligible to High	Local to Regional	Permanent	Continuous	Irreversible	High	Moderate	N/A	10	3, 11, 30, 31
		Increase in flows in Creek 705.	Moderate										
Surface Water and Sediment Quality		Exceedances to WQGs of nitrate, total antimony and total zinc in Davidson Creek.	Unknown	Negligible to High	Local to Regional	Permanent	Continuous to Intermittent	Irreversible	High	Low to Moderate	Not Significant	10	3, 11, 19, 26, 27, 28, 29, 30, 33, 34
		Exceedances to WQGs of total											

Valued Components	Residual Effects	Context (Resilience)	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Confidence	Significance	Section of the Assessment Report	Proposed EA C Conditions
	chromium, dissolved aluminum and total zinc in Creek 661.											
Fish and Fish Habitat	Reduced fish habitat quantity and quality.	Low to High	Low to Moderate	Local	Permanent	Continuous	Irreversible	High	Moderate	Not Significant	11	3, 29, 30, 31
	Changes in health, growth, reproduction, and behavior of fish.		Low to Moderate	Local	Permanent	Frequent to Continuous	Irreversible	High	Moderate	Not Significant	11	
	Mortality or injury to fish.		Low	Local	Permanent	Continuous	Irreversible	High	Moderate	Not Significant	11	
	CULTURAL RESOURCES EFFECTS											
Archaeological Sites Historic Heritage Sites Paleontological Resources	Loss or alteration of known, and as yet-unknown, archaeological, historic heritage and paleontological sites.	Moderate	Low	Local	Permanent	Once	Irreversible	High	High	Not Significant	12	15, 18
	SOCIAL EFFECTS											
Family and Community Well-being	Direct contribution to potential social issues, or exacerbation of existing issues, including but not being limited to crime, drug and alcohol misuse, impacts to vulnerable communities (including Indigenous groups, women and children), and impacts to families.	Low to Moderate	Low to Moderate	Local to Beyond Regional	Short-term to Permanent	Continuous	Reversible to Irreversible	Moderate	Low	Not Significant	14	37
Non-Traditional Land and Resource Use	Potential effects for tenured land holders (including mineral, forestry, trapping, guide outfitting and range tenure holders) and non-tenured land	Moderate to High	Low to Moderate	Local	Long-term to Permanent	Temporary to Continuous	Reversible	High	Moderate	Not Significant	14	38, 39, 43

Valued Components	Residual Effects	Context (Resilience)	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Confidence	Significance	Section of the Assessment Report	Proposed EA C Conditions
Regional and Local Services	holders (including those participating in recreation and tourism)											
	Existing constraints to RCMP and Health Services exacerbated by increased population growth.	Low	Low to Moderate	Local to Regional	Long-term	Continuous	Reversible	Moderate	Moderate	Not Significant	14	37
	Decreased road safety resulting from increased traffic on regional highways and FSRs in proximity to Blackwater.											
Visual Resources	Visibility of Blackwater infrastructure and/ or activities from various private properties, navigable waterways and recreational sites.	Moderate to High	Low to Moderate	Local	Permanent	Continuous	Reversible	High	Moderate	Not Significant	14	13, 39, 43
	HEALTH EFFECTS											
Environmental Exposures	Impacts from potential COPC exposures	Moderate	Low	Local	Permanent	Continuous	Reversible to Irreversible	Low	Moderate	Not Significant	15	3, 41

[i] The EAO has not provided a significance determination for changes to groundwater flows because significance can only be determined in the context of environmental receptors such as fish and other aquatic life, and because assumptions regarding changes to groundwater flows were inputs to predictions of effects to surface flows and surface water quality.

APPENDIX C: LIST OF ADVISORY WORKING GROUP MEMBERS

PROVINCIAL GOVERNMENT

British Columbia Centre for Disease Control
Ministry of Agriculture
Ministry of Energy, Mines and Petroleum Resources
Ministry of Environment and Climate Change Strategy –
Climate Change Secretariat
Ministry of Environment and Climate Change Strategy –
Environmental Sustainability and Strategic Policy Division
Ministry of Environment and Climate Change Strategy –
Mining Operations
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development –
Archaeology Branch
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development –
Integrated Resource Operations
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development –
Regional Operations Division (North Area)
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development –
Resource Stewardship Division
Ministry of Indigenous Relations and Reconciliation
Ministry of Jobs, Trade and Technology
Ministry of Transportation and Infrastructure
Northern Health Authority

FEDERAL GOVERNMENT

Canadian Wildlife Service
Environment and Climate Change Canada
Fisheries and Oceans Canada
Health Canada
Natural Resources Canada

LOCAL GOVERNMENT

Cariboo Regional District
District of Vanderhoof
District of Fort St. James

Regional District of Bulkley-Nechako
Village of Fraser Lake

INDIGENOUS GROUPS

Lhoozkuz Dené Nation
Nazko First Nation
Nadleh Whut'en First Nation
Saik'uz First Nation
Stellat'en First Nation
Ulkatcho First Nation

APPENDIX D: CORRESPONDENCE FROM CSFNS TO THE EAO REGARDING TRANSMISSION LINE RE-ALIGNMENT (MARCH 20, 2017)



March 20, 2017

Sent via E-mail and Courier

Kevin Jardine
Associate Deputy Minister and
Executive Director
BC Environmental Assessment Office
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Victoria, BC V8W 9V1
E-mail: kevin.jardine@gov.bc.ca

Heather Smith
Vice President, Operations
Canadian Environmental Assessment
Agency
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Ottawa, Ontario K1A 0H3
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Dear Mr. Jardine and Ms. Smith:

RE: Assessment of the proposed re-alignment of the transmission line for New Gold's Blackwater Project

Introduction and Summary

We write further to our September 23, 2016 letter to Mr. Jardine in which we respectfully requested his assistance to ensure that the assessment of the design change to the transmission line (i.e. the re-alignment being proposed by New Gold) is completed by the EAO during the current suspension.

We have since met with Mr. Jardine and your respective staff on this issue. Based on our conversations, it has become clear to us that the additional information set out in this letter would assist the Environmental Assessment Office ("EAO") and the Canadian Environmental Assessment Agency ("Agency") in your respective assessments of the design change to the transmission line.

Our letter is being submitted in support of New Gold's addendum to its Application in relation to the re-alignment of the transmission line and addresses the following issues:

- the background and rationale for re-aligning the transmission line;

- the principles that were used to design the re-alignment to avoid, and further reduce, the transmission line's environmental effects and impacts to our Aboriginal title, rights, and interests ("Rights");

- how the re-alignment avoids, and further reduces, the transmission line's environmental effects and impacts on our Rights; and

- why the re-alignment is as an important accommodation of our Rights.

Background and rationale for re-aligning the transmission line

The UFFCA Report entitled *Assessment of Impacts of New Gold's proposed Blackwater Gold Project on the Aboriginal title, rights, and interests of the Nadleh Whut'en, Saik'uz, and Stellat'en First Nations* reaches the following conclusions:

- our ability to exercise our Aboriginal Rights is, in many instances, impaired or not currently possible as a result of: (i) documented historical environmental effects; (ii) current levels of habitat disturbances within our Territories; and (iii) current status of key biological indicators;

- it is likely, given environmental trends and land use pressures, that the health or status of key biological indicators assessed in the Report, and our corresponding ability to meaningfully exercise our Rights, will worsen relative to existing conditions;

- given that current conditions already reflect significant adverse environmental effects and impacts on our Rights, the characterization of any Project effects and impacts should be qualified as highly significant; and

- construction and operation of the transmission line as proposed in the Application would have, in many cases, negative and highly significant impacts on our ability to exercise our Rights.[1]

The effects of the transmission line (as proposed in the Application) on the environment and on our Rights was enhanced because the right-of-way was located: (i) in some of the few remaining areas of undisturbed forest in our Territories; (ii) outside of the footprints of existing long-term linear infrastructure; and (iii) in areas of cultural importance to our Nations. In particular, building and operating the transmission line in those locations would have exacerbated the excessively high road densities and extensive cleared areas in our Territories, which would have increased predator/hunter access/mobility, increased

[1] UFFCA Report at pp. 8-11.

predator/hunter sightlines, and reduced amounts of "core or security" habitat in our Territories.

Principles that were used to design the re-alignment to avoid, and further reduce, the transmission line's environmental effects and impacts on our Rights

Our technicians and New Gold collaboratively (and iteratively) developed the proposed re-alignment of the transmission line as a *mitigation measure* to avoid, and further reduce, the transmission line's environmental effects and impacts on our Rights. They did so based on the following principles:

- the proposed re-alignment was designed to avoid increasing key disturbance indicators (such as road density) within remaining areas of primary forests (i.e. areas with low levels of landscape disturbance);

- the proposed re-alignment was located, to the extent possible, within or alongside the footprints of existing long-term linear infrastructure (roads and transmission lines);

- the proposed re-alignment was selected to reduce the amount of area that required logging/clearing;

- wherever possible, the proposed re-alignment was designed to avoid provincial parks and private lands; and

- traditional knowledge was directly and iteratively applied to design the transmission line re-alignment to avoid impacting important sites and/or reduce adverse impacts our Rights.

The re-alignment avoids, and further reduces, the transmission line's environmental effects and impacts on our Rights

The design change (i.e. the re-alignment of the transmission line) will be implemented to mitigate the following effects on the environment and impacts on our Rights:

- *Effects of the transmission line on species of concern to us, such as moose, grizzly bears, and plants that are harvested by CSFN members for a variety of purposes*.

  The re-alignment right-of-way was selected to avoid, to the extent possible, areas of minimal/low disturbance as these areas are believed to be of heightened importance to key species of concern to our Nations. We have been advised by our expert, Brian Toth, as well as our traditional knowledge holders that building

and operating the transmission line in already disturbed areas will have a greatly reduced impact on species of concern to us (and ultimately on our Rights) than doing so in remaining “core or secure” areas in our Territories.

For example, species such as moose and grizzly bear have experienced severe declines coincidental with salvage logging. Maintaining key features and attributes of/on the landscape which support these species is integral to our continued ability to meaningfully exercise our Rights. Further, maintaining remaining areas of low-disturbance is also key to preserving other CSFN traditional values.

- *Effects of the transmission line on increased access and mobility, and core intact habitat*.

  The re-alignment right-of-way has been paired with existing linear infrastructure within a common footprint wherever feasible to: (i) avoid increasing predator/hunter access/mobility and predator/hunter sightlines; and (ii) decrease impacts to “core or security” habitat that has not already been disturbed.

- *Effects on the current use of lands and resources for traditional purposes*.

  The re-alignment right-of-way was chosen to avoid sites of cultural importance to our Nations, as well as to reduce impacts on our ability to use land and resources for traditional purposes for the reasons outlined above.

- *Adverse impacts on our Rights*.

  Re-aligning the transmission line will significantly decrease adverse impacts on our Rights for the reasons described in this letter.

The re-alignment is also an important accommodation measure

Our Nations view the re-alignment as a critical accommodation measure. In considering this issue, it is helpful to have regard to the following passage from *Haida*:

> When the consultation process suggests amendment of Crown policy, we arrive at the stage of accommodation. Thus the effect of good faith consultation may be to reveal a duty to accommodate. Where a strong *prima facie* case exists for the claim, and the consequences of the government's proposed decision may adversely affect it in a significant way, addressing the Aboriginal concerns may require taking steps to avoid irreparable harm or to minimize the effects of infringement, pending final resolution of the underlying claim. Accommodation is achieved through consultation, as this Court recognized in *R. v. Marshall*, [1999] 3 S.C.R. 533, at para. 22: ". . . the process of accommodation of the treaty right may best be resolved by consultation and negotiation".[2]

Our collaboration with EAO, the Agency, and New Gold revealed that the transmission line right-of-way proposed in New Gold's Application would incrementally worsen factors contributing to serious adverse impacts to our Rights. In the words of the Supreme Court in *Haida*, we arrived at the point where steps needed to be taken to address our concerns by avoiding irreparable harm and minimizing the effects of infringement of our Rights. We developed those steps through collaboration and negotiation between our Nations and New Gold.

In that sense, the re-alignment accommodates our Rights in two important ways. First, it ensures that the transmission line will be built to avoid, and where that is not possible, to reduce adverse impacts to our Rights. Second, the re-alignment is a form of accommodation of the governance elements of our Aboriginal title and stewardship rights. Carrier law requires us to manage the lands and resources in our Territories in a sustainable way. That involves taking steps to maintain healthy ecosystems in our Territories, with a view to maintaining our resources as a viable foundation for CSFN members' sustenance and culture, both today and for the benefit of future generations. New Gold accommodated our stewardship rights by working with us to jointly design the re-alignment. This assisted us in discharging our stewardship obligations in relation to the Project by ensuring that the transmission line was re-aligned to avoid or otherwise reduce adverse impacts to our Rights.

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[2] *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 SCR 511 at para. 47.

Conclusion

The proposed re-alignments are a mitigation and accommodation measure that significantly reduce the potential for the transmission line to adversely impact our Rights and should be assessed as such by the EAO and Agency.

Chief Larry Nooski Nadleh Whut'en	Chief Archie Patrick Stellat'en First Nation	Chief Jackie Thomas Saik'uz First Nation

c: The Honourable John Rustad, Minister of Aboriginal Relations and Reconciliation

Peter Robb, ADM, Ministry of Energy and Mines

Tavis MacDonald, Project Assessment Manager, EAO

Christal Nieman, Project Manager, Canadian Environmental Assessment Agency

APPENDIX E: JOINT CORRESPONDENCE FROM ENV AND EMPR TO UFN, LDN AND CSFNS (APRIL 16, 2019)

BRITISH COLUMBIA

Ref: 106514

April 16, 2019

Chief Liliane Squinas
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Dear Chief Squinas, Chief Cahoose, Chief Patrick, Chief Noozki and Chief Mueller:

On behalf of the Province of British Columbia (Ministry of Energy, Mines and Petroleum Resources, the Ministry of Environment and Climate Change Strategy and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, we are providing this letter as written commitment to the Lhoosk'uz Dené Nation (LDN), Ulkatcho First Nation (UFN), and the Carrier Sekani First Nations Saik'uz First Nation, Nadleh Whut'en First Nation and Stellat'en First Nation (collectively, the CSFN).

As you are aware, New Gold Inc. (New Gold) is proposing the Blackwater Gold Project (Blackwater), an open pit gold mine approximately 110 kilometres southwest of Vanderhoof, BC, within the traditional territories of the LDN, UFN and CSFN (the Nations). We understand that the Environmental Assessment Office and Provincial agencies have worked collaboratively

.../2

with the Nations through the review of New Gold's application for an Environmental Assessment (EA) Certificate for Blackwater (Application) to understand and seek to address the Nations' interests and concerns and in particular the terms and conditions that would be attached to a such Certificate, if issued.

With the Blackwater EA process coming to a close, the Province understands that the Nations have expressed a key concern of ensuring that collaboration continues through initial permitting and over the Life of Mine (LOM), should New Gold advance its plans to develop Blackwater and apply for Provincial authorizations (Blackwater Authorizations). We are writing to confirm that the Province intends to continue to take a collaborative approach with the Nations throughout initial permitting and over the life of Blackwater (from construction through post closure if developed). The details of this ongoing collaboration will be addressed through an initial Permitting Collaboration Plan and an LOM Collaboration Framework (LOM Framework).

Initial Permitting

The Province intends to take a collaborative approach with the Nations during initial permitting through a Permitting Collaboration Plan (Plan) that will cover the review and recommendations for decisions on initial Blackwater Authorizations (including terms and conditions and relevant plans). The Plan includes commitments to carry forward issues raised during the EA to further address during permitting (these issues are captured at a high level in the attached and in greater detail in an Issues Tracking Table). We understand that a draft Plan was provided to the Nations on February 27, 2019 for your consideration which is based on previous, successful collaboration with Indigenous Nations, including one or more of the CSFN, on major mines. The Province understands that we share an interest in finalizing this Plan as soon as practical, with a target for early May 2019.

Life of Mine

In the spirit of reconciliation and in accordance with commitments by the Province to collaborate with Indigenous Nations in all decisions affecting their Title, rights and interests, the Province will collaborate with the Nations over the LOM for Blackwater, including regarding on-going opportunities for the Nations (i) to actively engage on the review of future Blackwater Authorizations and amendments, (ii) to participate in decision-making regarding the Blackwater Authorizations, (iii) in developing and implementing the conditions of Blackwater Authorizations (should they be issued), and (iv) to participate in compliance oversight activities.

The details on the scope, manner and process of LOM collaboration will be set out in LOM Framework to be developed by the Nations and the Province. A key principle of the LOM Framework will be "calibration" and scalability of collaboration. Accordingly, we will seek to determine the appropriate scope of engagement in accordance with: (i) the attendant circumstances, ii) the nature and significance of possible impacts on the Nations' Title, rights and interests, (iii) the nature of the subject matter at hand, and (iv) the stage in the regulatory process the matter is being considered.

.../3

It is expected that the LOM Framework will identify venue(s) for engagement and processes for collaboration, "seeking consensus", timelines and to address areas of disagreement on matters subject to the LOM Framework. Through the development of the LOM Framework, the Parties will explore opportunities for engagement in compliance oversight, reports and plans required in relation to Blackwater Authorizations. The LOM Framework will identify the means to cover topics of key interest to the Nations, such as, but not limited to:

- effluent management;
- transmission line construction and maintenance;
- road maintenance and any construction and/or decommissioning activities;
- water balance modelling and annual reconciliation of life of mine water balance;
- source term updates and water quality modelling;
- 5-year closure plan reviews;
- care and maintenance plan reviews; and
- site wide mitigation plans.

The Province proposes the adoption of a single LOM Framework for Blackwater applicable to the various Provincial agencies and decision-makers with jurisdiction along the mining regulatory continuum. The Province is committed to finalizing a LOM Framework for Blackwater as soon as practical and wishes to work with the Nations to determine an achievable date for completion.

The Province remains committed to continuing the collaborative relationship that our respective governments have established and we look forward to continuing our work with each of the Nations.

Sincerely,

Andrew Rollo
Deputy Chief Inspector and Executive Director
Major Mines Office, Ministry of Energy Mines and Petroleum Resources

Tessa Graham
Executive Director, Regional Operations
Ministry of Environment and Climate Change Strategy

Greg Rawling
Regional Executive Director, Regional Operations - Omineca Region
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

.../4

Permitting topics identified during the Blackwater EA review

- Final route alignment and detailed design of the transmission line and access roads
- Wildlife monitoring and management plan details
- Reclamation planning and effective mine closure plan
- Aquatic Effects Monitoring Program (AEMP), including ecological receptors and constituents of concern identified during the EA
- Surface water, groundwater and sediment quality monitoring programs, including baseline data collection, sampling and reporting frequencies
- Benchmarks for constituents of concern that are site-specific and protective of the aquatic receiving environment
- Water management, treatment and discharge throughout all mine phases (including care and maintenance periods)
- Temporary closure care and maintenance and monitoring
- Long-term and Post-closure Monitoring
- Water quality
    - Thresholds
    - Trigger Action Response Plan
- Tailing storage facility design, including core thickness and periodic dam raises
- Pit dewatering contingency plan
- Low-grade ore stockpile
- Surface water balancing, including with respect to withdrawals from Tatelkuz Lake

APPENDIX F: CORRESPONDENCE FROM DEPUTY MINISTER DOUG CAUL (MIRR) TO CSFNS (APRIL 17, 2019)

April 17, 2019 Ref. 47353

Chief Larry Nooski
Nadleh Whut'en First Nation
Po Box 36
Fort Fraser BC V0J 1N0

Chief Archie Patrick
Stellat'en First Nation
Po Box 670
Fraser Lake BC V0J 1S0

Chief Priscilla Mueller
Saik'uz First Nation
135 Joseph Street
Vanderhoof BC V0J 3A1

Dear Chief Larry Nooski, Chief Archie Patrick and Chief Priscilla Mueller:

On behalf of the Ministry of Indigenous Relations and Reconciliation, and Ministry of Energy, Mines and Petroleum Resources, I would like to thank Chief Priscilla Mueller, Chief Archie Patrick, and Chief Larry Nooski and your representatives for meeting with me, Assistant Deputy Minister Simon Coley, and Chief Negotiator Cory Waters on April 9, 2019, in Victoria.

The Province and your Nations have worked collaboratively with the Environmental Assessment Office to achieve consensus terms and conditions for imminent referral of the Blackwater Mine Project (Project) environmental assessment to Ministers for decision. We share your positive sentiment about this collaborative outcome and see it is an example of our relationships in action.

…/2

Ministry of Indigenous Relations and Reconciliation **Office of the Deputy Minister** **Mailing Address:** Box 9100 Stn Prov Govt Victoria BC V8W 9B1 **Website:** www.gov.bc.ca/arr

It was also helpful to discuss our common interests in seeing the Project proceed to decision in a way that would provide opportunities to your Nations, the region, and the Province. In particular, we discussed how the Project can act as an enabler of regional economic development in your territories and facilitate other major projects that are of interest to your Nations. I agree with you that the Project, if approved, could provide many opportunities for us to work collaboratively together towards some of the economic reconciliation goals set out in our Pathway Forward 2.0 Agreement.

I would like to personally reiterate the Province's commitment to continue working with your Nations on an economic benefits package in relation to the Project, should it proceed.

In that regard, we discussed the importance of continuing our collaboration to advance economic and other benefits for your Nations and for the region as a whole, specifically relating to the Project, should it proceed. I described the challenges relating to individual elements of your proposed accommodations, how a feasibility study must clearly frame specific economic benefit opportunities, strategic considerations relating to the timing of new mandate requests, and how the study results need to inform a future mandate request.

The Province proposes to do that work at a Project-specific government-to-government (G2G) table regarding economic benefits and development opportunities related to the proposed Project. I understand $120,000 is being provided to your Nations to offset your costs of participating in this G2G table.

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The intent of the G2G table is to:

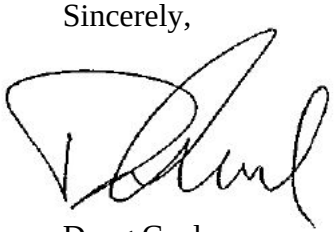
- carry out a feasibility study to identify economic benefits and development opportunities for your Nations in connection with the proposed construction and operation of Project-related infrastructure, with a focus on the transmission line given its proposed realignment and permanency;
- consider the results of the feasibility study and ways the Province could support economic benefits and development opportunities identified in the study;
- consider ways the Province can support economic development opportunities associated with restoration and environmental stewardship work relating to the Project that can be undertaken by your Nations;
- explore equity ownership options relating to the Project transmission line for your Nations; and
- discuss the CSFNs proposals for other forms of accommodation outlined in the "one-pager" you provided to me.

Once we have completed that collaborative work, the Province will then seek a mandate to provide your Nations with an economic benefits package in relation to the Project. I look forward to working together to develop a future mandate request to address your interest in economic accommodation, informed by the results of the feasibility study and whether the project proceeds.

I recognize that the federal government's participation in the G2G table would be of value, and I suggest we jointly approach federal representatives to seek their participation. I look forward to seeing our Pathways 2.0 Agreement signed and implemented – this agreement is a great example of supporting economic growth in the region.

I look forward to continuing to support this important work with your communities.

Sincerely,



Doug Caul
Deputy Minister
Ministry of Indigenous Relations and Reconciliation

…/4

pc: Scott A. Smith

Shelley Murphy
Executive Project Director
Environmental Assessment Office

Peter Robb
Assistant Deputy Minister
Ministry of Energy, Mines and Petroleum Resources

Simon Coley
Assistant Deputy Minister
Ministry of Energy, Mines and Petroleum Resources

Cory Waters
Chief Negotiator
Ministry of Indigenous Relations and Reconciliation

APPENDIX G: ULKATCHO FIRST NATION AND LHOOSK'UZ DENÉ NATION: PART C, BLACKWATER GOLD MINE PROJECT

Lhoosk’uz Dené Nation and Ulkatcho First Nation

Part C

Blackwater Gold Mine Project (Blackwater)

May 10, 2019

Written and compiled by Keefer Ecological Services Ltd.

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Acknowledgements

Our team would like to acknowledge that this Part C document would not have been possible without the contributions of a wide number of individuals and organizations. Community members of both LDN and UFN have been very patient in their attempts to understand the intricacies of this major mining project's impacts on the environment, wildlife and their communities, both in terms of social and economic impacts. This interaction with the community allowed the technical review team to speak with the authoritative voices of the community in the development of this document, Working Group meetings, as well as throughout the condition development process. The political leadership of both Nations have also been highly engaged and have been subjected to numerous highly technical discussions with the Working Groups, allowing them to appreciate the complexities of this Project and to understand the significance of their potential support of the Project. Technical staff in both communities have been dedicated to the work and have provided critical insight, helped organize many meetings, and despite this process ending close to 2 years longer than the anticipated 180-day review period, made it to the end. Staff and contractors with Keefer Ecological Services have had to put other projects to the side in order to ensure that this project maintained focus and that the vast array of technical issues were brought to light and addressed as best as possible.

We would also like to acknowledge the work of staff from the BC Environmental Assessment Office, other BC Ministries, the Canadian Environmental Assessment Agency, Canadian Wildlife Service, and others within government. This collaborative process has strengthened the voices of our communities and has provided our Nations with a new ability to govern the natural resources within our traditional territories. Leadership, staff and contractors associated with the Carrier Sekani Frist Nation have also helped to produce a better project.

Jessica Lowey, MSc, AAg, of Keefer Ecological Services has worked tirelessly on drafting this document with key assistance from Michael Keefer, Neil Gauthreau, Daryl Sulin, Laurie Vaughan, Nadine Charlieboy, June Baptiste, Aaron Bruce, Jason Murray, among others. Our Nations are grateful for the opportunity to express our views on the impacts associated with the proposed Blackwater Gold project.

Executive Summary

The Dakelh people are the original inhabitants of the north-central region of British Columbia; they occupy the areas between the Coast Mountains in the west and the Rocky Mountains in the east, from Takla Lake in the north, south to the Chilcotin plateau (Furniss, 1993a). The Dakelh people organize their way of life to fit the local environment which is rich with fish, animals and plant foods through the development of a mobile hunting, fishing and gathering lifestyle (Furniss, 1993a). The language spoken by the Dakelh people, despite regional dialect differences, is part of the Athabascan language group which includes cultures stretching from Alaska to Nevada (Furniss, 1993a). The Dakelh people are often referred to as Carrier, although this non-traditional name only became widespread after the arrival of the Europeans in this area (Furniss, 1993a). The Ulkatcho First Nation (UFN) and Lhoosk'uz Dené Nation (LDN) are considered southern Dakelh bands (Furniss, 1993a).

Both of our Nations traditionally govern our respective territories using the same system that existed before contact with the European settlers and fur traders in the early 1700s. The *keyoh* system (or *keyah* in Ulkatcho dialect) is synonymous with a family territory or trapline (Dewhirst, 2013). Each family group, or *sadeku*, has its own *keyoh* that not only acted as a source of commercial furs in the 19th century and to a lesser extent today, but also acts as the main source of food for the *sadeku* (Dewhirst, 2013). Members of our communities still actively practice and depend on the hunting and gathering lifestyle refined by our ancestors, acquiring many important resources from the land within our traditional territories (personal communication, UFN Band member, April, 2017). The health of the land, water and wildlife are of paramount importance in preserving and maintaining this way of life and traditional land use. The southern Dakelh people understand the importance of respecting the spirits of the animals, trees, water, rocks and all other things that inhabit the land; respect which is shown by living according to traditional standards (Furniss, 1993a). The members of our communities understand the importance of acting as caretakers of the land from Elder teachings, and to not over-harvest or waste the resources needed for our survival (personal communication, UFN Band member, April, 2017).

Mount Davidson, the location of the proposed mine site, is one of many sacred sites identified by our community members. Not only does Mount Davidson hold traditional healing powers (personal communication, LDN Band member, April, 2017), but it is also an important hunting and berry picking site (personal communications, LDN and UFN Band members, April and May, 2017). The potential impacts on our health values are both actual and perceived, as varying opinions exist as to whether the New Gold's (the Proponent) mitigation measures will be sufficient to ensure the lasting health of the

land, water, wildlife and people within our traditional territories. Each of our community health values are interconnected, and as a result, an impact to one value results in resounding impacts throughout each of our values. Our Nations expressed that Aboriginal rights are often framed as a stand-alone activity or a practice in a standard EA process. Although this is an element of what the Project may impact, it is not necessarily the whole story. While hunting, fishing, and gathering are integral to our members' sustenance, the overall health of the people is dependent on many different factors that are both tangible and intangible in nature.

Our Nations, the Canadian Environmental Assessment Agency (CEAA), and BC's Environmental Assessment Office (EAO) worked collaboratively to develop a methodology for the assessment of impacts of the Project on Aboriginal interests, including rights and title as defined under section 35 of the *Constitution Act, 1982*.

In evaluating the severity of impact to health values of a biophysical nature (health of land, water, aquatic life, air, and wildlife) we used a framework that utilized a variety of indicators: extent, duration/frequency/reversibility, cultural integrity, regional/historic/cumulative effects, stewardship/nationhood, impact inequity, and mitigation/accommodation measures (including Federal and Provincial conditions). Using this framework, our Nations reached our conclusions on a scale from low, moderate, high (but acceptable), to extreme (not acceptable) impact on the health of land, water, aquatic life, air, and wildlife. For the non-biophysical health values (culture and language, spirituality, economy and governance), a general conclusion was reached on whether the effects of the Project would be positive or negative for our Nations.

1. Collaborative Assessment of the Project

1.1. Who we are: Lhoosk'uz Dené Nation & Ulkatcho First Nation

The Dakelh people are the original inhabitants of the north-central region of British Columbia; they occupy the areas between the Coast Mountains in the west and the Rocky Mountains in the east, from Takla Lake in the north, south to the Chilcotin plateau (Furniss, 1993a). The Dakelh people organize their way of life to fit the local environment which was rich with fish, animals and plant foods through the development of a mobile hunting, fishing and gathering lifestyle (Furniss, 1993a). The language spoken by the Dakelh people, despite regional dialect differences, is part of the Athabascan language group which includes cultures stretching from Alaska to Nevada (Furniss, 1993a). The Dakelh people are often referred to as Carrier, although this non-traditional name only became widespread after the arrival of the Europeans in this area (Furniss, 1993a). The Ulkatcho First Nation (UFN) and Lhoosk'uz Dené Nation (LDN) are considered southern Dakelh bands (Furniss, 1993a).

The Ulkatcho people, or "people of Gatcho Lake", occupy the far western end of the southern Dakelh territory. Ulkatcho means "fat of the land" in reference to the fact that all the animals and fish in this area are fat and healthy (Furniss, 1993a). The Ulkatcho people are historically referred to as *Nechowt'en* meaning "Dakelh people mixed with Chilcotin" by the Lhoosk'uz Dené Nation and other neighbours (Birchwater, 1993). The Ulkatcho speak both Carrier and Chilcotin languages. In the early 1800s the area around Anahim Lake was considered to be Chilcotin territory, with a large Chilcotin trading village, *Nagwuntl'oo*, situated on the shore of Little Anahim Lake (Furniss, 1993a). The Ulkatcho band is composed of both Dakelh and Chilcotin families as historically our two cultures intermarried after the smallpox epidemic and other diseases that occurred at *Nagwuntl'oo* (Furniss, 1993a).

The Lhoosk'uz Dené people, or "people of Kluskus Lake", comes from the Dakelh word *lhoos* which means "whitefish" and *k'uz* meaning "lake" (Furniss, 1993a). The Lhoosk'uz Dené people still reside east of the Ulkatcho people, with their territory centered around the Kluskus Lakes.

As of April 2016, the registered population of UFN was 1,050 (Statistics Canada, 2016b; British Columbia Statistics, 2016). Most of the population lives on their own reserve with 639 members residing on UFN reserve land, while 46 live on another reserve and the remaining 365 members live off-reserve (Statistics Canada, 2016b). As of August 2016, LDN had a registered population of 205 (LDN Band, personal communication, October, 2016). Much of the population lives off reserve, including individuals who live

on another reserve (e.g., Nazko, Lhatko and Ulkatcho). Thirty-five Nation members live on reserve year-round (LDN staff member, personal communication, October, 2016).

There are 21 UFN reserve areas, which total 3,245.7 hectares (INAC, 2012). Many of these reserves are located along Highway 20 (the Chilcotin Highway) and north of Anahim Lake. These reserve areas are inhabited by 66% of the UFN population with Squinas 2 the most populous UFN reserve (INAC, 2012). There are seventeen LDN reserves, totaling 1,647.5 hectares (INAC, 2016). Many of these reserves are located along the West Road (Blackwater) River, west of Quesnel. Of the seventeen LDN reserve areas, Kluskus IR1 with a population of 39, and Sundayman's Meadow 3 with a population of five were included in the Baseline Study Area for the Project (ERM, 2015). It should be noted that the data used by ERM is outdated as Sundayman's Meadow 3 has not been inhabited for some time. The data used also did not include three people living in Tatelkus Lake IR28 (personal communication, LDN staff member, February, 2017).

Both of our Nations govern our respective territories using the same system that existed before contact with the European settlers and fur traders in the early 1700s. The *keyoh* system (or *keyah* in Ulkatcho dialect) is synonymous with a family territory or trapline (Dewhirst, 2013). Each family group, or *sadeku*, has its own *keyoh* that not only acted as a source of commercial furs in the 19th century and to a lesser extent today, but also acts as the main source of food for the *sadeku* (Dewhirst, 2013). Use of the *keyoh* outside of the *sadeku* is by permission or invitation only; trespass and poaching are serious matters (Dewhirst, 2013). Many *keyoh* boundaries are defined by geographical landmarks such as rivers, lakes and mountains (Dewhirst, 2013). Many resources provided by our *keyohs* were traded between interior and coastal groups along the Nuxalk-Carrier Grease Trail (Section 164.1.1) which runs along the Blackwater River towards the coast. This trail is still of significant importance to our communities as it links many family *keyohs* and homesteads (personal communications, UFN Band members, April, 2017). The Nuxalk-Carrier Grease Trail network has been so central to the cultures of our communities throughout our history that it also has several sacred sites, culturally-modified trees and unmarked burial sites along its length (personal communications, UFN Band member, LDN staff member, April, 2017).

Mount Davidson, the location of the proposed mine site, is one of many sacred sites identified by our community members. Not only does Mount Davidson hold traditional healing powers (personal communication, LDN Band member, April, 2017), but it is also an important hunting and berry picking site (personal communications, LDN and UFN Band members, April and May, 2017). Members of our

communities still actively practice and depend on the hunting and gathering lifestyle refined by our ancestors, acquiring many important resources from the land within our traditional territories (personal communication, UFN Band member, April, 2017). The health of the land, water and wildlife are of paramount importance in preserving and maintaining this way of life and traditional land use. The southern Dakelh people understand the importance of respecting the spirits of the animals, trees, water, rocks and all other things that inhabit the land; respect which is shown by living according to traditional standards (Furniss, 1993a). The members of our communities understand the importance of acting as caretakers of the land from Elder teachings, and to not over-harvest or waste the resources needed for our survival (personal communication, UFN Band member, April, 2017).

With deviations from the traditional diet, culture and language evident within the younger generations of both of our communities, there is a strong desire for a "cultural revival" (personal communication, community meeting notes, March, 2017). There is a need to reinstate the traditional ways of communicating through teaching the traditional Dakelh and Tsilhqot'in language and through sharing information between community knowledge keepers and the younger generations. Our communities feel that getting families back out to their traditional family homes would be a major step in the cultural revival process and would help in lifting members' spirits (personal communications, LDN and UFN Band members, March, April and May, 2017). Time spent together out on the traditional family *keyoh* has been described by a number of community members as a "happier time" (personal communications, UFN Band members, March, April and May, 2017).

The perceived environmental effects of the Blackwater Gold Project are that the health of the land, water and wildlife, and consequently people, their culture, language and spirituality will be compromised, and essentially degraded through the development of the mine (personal communications, community meeting notes, LDN and UFN Band member interviews, March, April and May, 2017). For this reason, our Nations retained a third-party to complete a thorough review of the Environmental Assessment (EA) and have entered into a Memorandum of Understanding (MOU) with both federal and provincial governments, to ensure that these values, rights, and interests are thoroughly considered. Through extensive community input and consultation about these perceived and potential impacts, this document was able to be drafted on behalf of each of our communities.

2. Collaborative Assessment Process Overview

2.1. Memorandum of Understanding (MOU): How we got here

On November 5, 2012 the EAO issued an Order under section 10 (1)(c) of the *Environmental Assessment Act* requiring an EA of the Blackwater Gold Project (the Project). On April 5, 2013 the EAO offered to consult our Nations at the deeper end of the consultation spectrum in the EA process, which exceeded EAO's initial assessment of the legal duty to consult. The section 11 Order that set out the EAO's First Nation engagement process and New Gold's (the Proponent) consultation plan was provided to our Nations with the opportunity to comment on the engagement plans. Consultation with our Nations proceeded in accordance with the consultation process set out under the section 11 Order.

In January of 2016, our Nations met with the EAO and CEAA (or the Agency) to discuss their respective concerns with the Project and more importantly, the consultation process developed to assess our Aboriginal interests, including our respective Aboriginal rights and title, as recognized and affirmed under section 35 of the *Constitution Act*, 1983, that could be impacted by the Project. From our Nation's perspectives, very little meaningful engagement occurred at key decision points in the early stages of the EA process. Such decision points could have included collaboratively developing a government-to-government process before the EAO issued its section 11 Order and collaboratively deciding on whether New Gold's Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS) was complete and contained appropriate information.

Our Nations made clear that the valued components developed for the EA process were not reflective of our respective views. Our Nations wanted to actively participate in the assessment of our Aboriginal interests rather than make comments on the work that the Proponent, EAO and the Agency had done in assessing Aboriginal interests, including determinations of what the significance of impacts may be on those interests and what potential mitigation or accommodation may address those impacts. In general, from the perspective of our Nations, the process developed for the EA was not done so in collaboration with our Nations and therefore did not respect our governance over the lands and resources within our traditional territories that the Project would potentially impact.

In February of 2016, follow up letters were sent to EAO, the Agency and New Gold to formally register concerns with the EA consultation process to date. A series of meetings were held following these letters where EAO, the Agency and our Nations agreed that a collaborative process to assess Aboriginal interests should be developed for the Project. The parties then negotiated and came to agreement on

the principles upon which the collaborative process would be based. Finally, on October 3, 2016 the EAO, the Agency and our Nations entered into a MOU setting out the principles for collaboration throughout the EA process (Appendix 1).

2.2. What does the Memorandum of Understanding (MOU) mean?

From the perspective of our Nations, the MOU is an assertion of our governance over the lands and resources within our respective traditional territories. The MOU provides an opportunity for our Nations to collaborate with the provincial and federal governments in making decisions on how the Project will be assessed, what values should be assessed, and how potential impacts on these values should be addressed. The MOU also establishes that the collaboration process does not end once the Project is approved, if it is approved. The MOU provides for the ongoing participation of our Nations in the management and monitoring of the Project.

Some key elements of the MOU are: the parties collaboratively drafted the section of the draft EA Report and the Assessment Report related to the impacts of the Project on LDN and UFN Aboriginal interests; the parties work together on proposed conditions and the development of consensus conclusions on the potential Project-related impacts on LDN and UFN rights; and, the parties work together on the adequacy of consultation and accommodation. To achieve the goals of the MOU, the parties participated in bi-weekly conference calls, community meetings, and technical meetings on specific issues such as water quality, wildlife, and cumulative effects.

The Nations' participation in the EA does not, on its own, satisfy the Crown's duty to consult and accommodate LDN or UFN in respect of the Project, and the Nations' participation in the EA process, on its own, should not be construed as endorsement of, or support for, the Project.

3. Ulkatcho and Lhoosk'uz Dené Assessment Methodology

UFN and LDN retained Keefer Ecological Services (KES) early in the EA process to supplement the capacity of our Nations in the technical review of the EA and to help represent our interests. The KES team's role as our third-party technical review team was to carefully assess the work New Gold presented in their Application (e.g., baseline studies, predictive models) to ensure that the science used to inform the Project design was sound; making culturally-appropriate recommendations where applicable throughout the process. These recommendations were identified through their consultation and collaboration with our Nations and as a result, significant improvements were made to the Project that relate specifically to our community's concerns, as presented within this document.

In order to accurately reflect our community's perspectives and concerns, the KES team worked diligently with our Nations, the provincial, and federal governments to develop an appropriate assessment methodology that included the collection of community knowledge from Elders, Band members and staff. The KES team held community meetings and information sessions, conducted community interviews, circulated newsletters and met with both Chiefs and Councils numerous times throughout the entire process. The KES team's involvement in this process gave them the knowledge to draft this Part C document on behalf of our communities.

3.1. Ulkatcho and Lhoosk'uz Dené perspectives on health values

Our Nations, the Agency, and the EAO worked collaboratively to develop a methodology for the assessment of impacts of the Project on Aboriginal interests, including Aboriginal rights and title as recognized and affirmed under section 35 of the *Constitution Act, 1982* (Figure 1).

Our Nations expressed that Aboriginal rights are often framed as a stand-alone activity or a practice in a standard EA process. Although this is an element of what the Project may impact, it is not necessarily the whole story. While hunting, fishing, and gathering are integral to our members' sustenance, the overall health of the people is dependent on many different factors that are both tangible and intangible in nature. As such, our Nations identified key health values that would be used to evaluate the impacts of the Project on the overall health of the people:

- Health of land (including landscape level impacts to Nuxalk-Carrier Grease Trail, sacred sites, traditional land use, and food and medicinal plant harvesting),
- Health of water,
- Health of aquatic life (including impacts to fish and waterfowl),
- Health of wildlife (including trapping and hunting activities),
- Health of air,
- Health of culture and language,
- Health of spirituality,
- Health of economy, and

- Health of governance (includes existing impacts and potential cumulative impacts from the Project to the *keyoh*/*keyah* governance systems of land and resource management within the territory of each Nation).

Following this methodology, our Nations determined our members' perspectives on different values related to land, water, resources, and people, and the interconnectedness of these values, and then discussed the potential changes to the environment caused by the Project. We then gathered baseline information on the health values by using existing information, community interviews, traditional knowledge, and/or traditional use studies, where available. The baseline data used to inform each of the health values was collected over a period of three years. Existing information was collected from such sources as Statistics Canada, Indigenous and Northern Affairs Canada and Northern Health Authority. Community interviews were conducted via teleconference hosted by KES with both LDN and UFN Elders, Band members and staff. During the interviews, our community members shared stories of berry picking and hunting at Mount Davidson, of legends and spirituality, of the importance of water and fish and their ability to live off the land within their traditional territories. They also shared their concerns with the proposed Project, including the potential impacts to *duni* (moose), berries and water and the fear that the land won't be usable for our future generations. Further information was collected from traditional knowledge and land use studies completed for the communities by such authors as Terry Tobias, Elizabeth Furniss and Sage Birchwater.

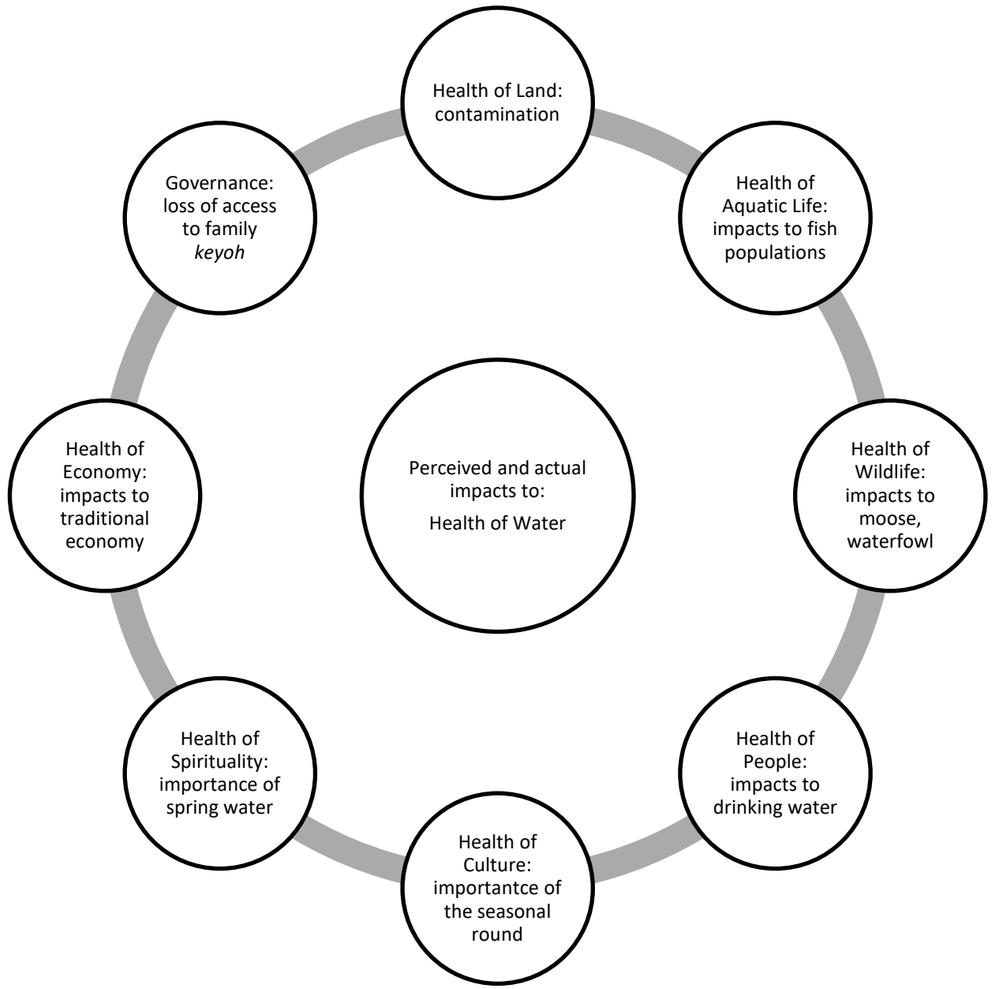

Figure 1 Diagram demonstrating the methodology for understanding potential impacts to Aboriginal interests.

Process Overview:
Each of the community health values are interconnected, and as a result, an impact to one value results in compounding impacts throughout each of the remaining health values. An example of this connectivity is presented within this figure, used to demonstrate the relationship between the central health value and the other health values. Where impacts to one health value exist, compounding impacts to other health values may also occur.

Health Value Under Consideration: e.g., Health of Water
Perceived and actual impacts based on community concerns:
- Contamination (i.e., heavy metals)
- Changes in flow in lakes, rivers and creeks
- Impacts to water resources (i.e., spring and drinking water)

Compounding Impacts to other Health Values based on Community Concerns:

A. Health of Land
   - Contamination from surface and groundwater
   - Impacts from tailings dam breach
   - Loss of access to traditional family *keyohs*

B. Health of Aquatic Life
   - Impacts to fish and fish habitat, invertebrates

C. Health of Wildlife
   - Impacts to moose, forage species and habitat
   - Impacts to grizzly bears
   - Impacts to waterfowl (i.e., muskrat, beaver)
   - Impacts to wetlands

D. Health of People
   - Impacts to drinking water
   - Impacts to cultural heritage, loss of access to sustenance wildlife
   - Positive effects of education, training, employment opportunities

E. Health of Culture and Language
   - Impacts to seasonal round, traditional gathering, hunting and fishing practices
   - Loss of heritage sites at Mount Davidson (e.g., caribou hunting features)

F. Health of Spirituality
   - Loss of sacred sites at Mount Davidson
   - Impacts to spring water

G. Health of Economy
   - Impacts to traditional non-monetary economy
   - Increased access to economic opportunities (i.e., joint ventures)

H. Governance
   - Impacts to traditional governance structure, *keyoh* system of resource management

Consideration of Mitigation Measures:
The Proponent proposed mitigation measures (Appendix 2) to address effects that may adversely impact health values. Upon review of the proposed mitigation measures, UFN and LDN identified a number of gaps in protections.

Condition Development and Residual Effects:
LDN, UFN and the provincial and federal governments undertook a collaborative condition drafting process that looked to address the community's concerns about the Project. Following the development of Project conditions, residual impacts were identified by the communities.

Conclusions:
Identification of the severity of impacts to Aboriginal interests after consideration of mitigation measures and conditions.

3.2. How the methodology was applied

In evaluating the severity of impact to health values of a biophysical nature (health of land, water, aquatic life, air, and wildlife) we used a framework that utilized a variety of indicators: extent, duration/frequency/reversibility, cultural integrity, regional/historic/cumulative effects, stewardship/nationhood, impact inequity, and mitigation/accommodation measures (including federal and provincial conditions). Using this framework, our Nations reached our conclusions on a scale from low, moderate, high (but acceptable), to extreme (not acceptable) impact on the health of land, water, aquatic life, air, and wildlife (Figure 2). For the non-biophysical health values (culture and language, spirituality, economy and governance), a general conclusion was reached on whether the effects of the Project would be positive or negative for our Nations.

LOW: impacts could occur over a small spatial extent, lasts less than 5 years or is confined to one discrete period over the life of the Project, little or no indication of impacts to culturally important areas, the Project is not likely to have cumulative effects, the Nations are supportive of the Project and acknowledges that risks are acceptable or have been accommodated

MODERATE: impacts could occur over a moderate spatial extent, in areas of preferred use, lasts up to 1 generation, impacts may be reversed, impact to cultural areas of importance, may impede or alter access, may be habitat loss, the Project adds to cumulative effects, the Nations have expressed concern about impacts, some impacts remain after mitigation

HIGH: impacts could occur over a large spatial extent, in areas of preferred use or high value, persists over multiple generations, beyond the life of the Project, cannot be reversed beyond a certain threshold or for a long time, impact to cultural areas of importance, loss of habitat/availability of culturally important species, access to practice cultural activities disrupted/limited, Project will interact with the only area where a particular right can be practiced, effects to species at risk, rights impacted by the Project are not currently practiced in the preferred manner because of conservation issues

EXTREME: Nations do not support the Project, Project will prevent/restrict use of areas of claimed title

Figure 2 Criteria for determining the severity of impacts to Aboriginal rights and title.

4. Lhoosk'uz Dené and Ulkatcho Health Values

4.1. Health of Land

The health and safety of the land is of paramount importance to both of our Nations as it is a key component that is interconnected with other integral pieces in our traditional cultural practices. The health of the land dictates the health of the wildlife and of our traditional and medicinal plants. Our ancestors refined our cultural heritage using the resources that the land provided, and our current generation is committed to protecting it for our future generations.

4.1.1. Nuxalk-Carrier Grease Trail (Alexander Mackenzie Heritage Trail)

The region has an extensive trail network, often referred to as the Grease Trails which were made famous by Alexander Mackenzie during his first recorded crossing of continental North America in 1793 (Deeg, 2014); however, despite this acclaim, this trail and many other Grease Trails were predominantly traveled by local First Nation groups. Alexander Mackenzie made first contact with members of the Lhoosk'uz Dené Nation on July 10, 1793 at the head of the eastern and lowest Kluskus Lake (Dewhirst, 2013). The Grease Trail network to the coast served as an important artery to the Aboriginal fur trading network and provided access to many community ceremonies including marriages and cremation (Dewhirst, 2013). Locally known as the Nuxalk-Carrier Grease Trail, or the "Great Road" between the Fraser River and the Pacific Ocean (Birchwater, 1993), the trail runs along the north side of the Kluskus Lakes and remains a heavily used travel corridor from the coast to the interior plateau. The Nuxalk-Carrier Grease Trail is still widely utilized today as an important access point to a number of family *keyohs* (*keyahs* in Ulkatcho dialect), and as a trail connecting several sacred sites including fishing and hunting spots as well as crematory and spiritual sites (personal communication, UFN Band member, LDN staff member, April, 2017). The history of this trail, and the network of trails, is rich and varied with its use going back thousands of years (Birchwater, 1993). The Ulkatcho people have many stories and legends that document the historical importance of the Nuxalk-Carrier Grease Trail that spans many generations and feel slighted that the trail has been named after a European explorer (Birchwater, 1993; personal communication, UFN Band member, April, 2017). Ancestors of the Ulkatcho, Lhoosk'uz Dené, Nazko, Red Bluff and Nuxalk band members developed and used this trail system thousands of years before Alexander Mackenzie arrived in their territory and consider the trail networks an important part of their culture today (Birchwater, 1993). The Nuxalk-Carrier Grease Trail, running inland from the coast, has special significance because it is the predominant route where oolichan grease (or *tl'enaghe* in our

traditional language), which was a central part of the Aboriginal economy, was transported from the coast to the interior, and traded among many groups (Birchwater, 1993).

4.1.2. Sacred sites

Both of our communities have several unmarked sacred sites within each of our respective traditional territories, at mountain tops, along the length of the Grease Trails and around nearby lakes and rivers as well as places where human activity was generally focused. At one point along the Nuxalk-Carrier Trail, Alexander Mackenzie recorded an elderly woman clearing a circular spot in the grass which contained the graves of two family members. Whenever she passed this way, she always stopped to pay this sacred tribute of affection (Hakluyt Society, 1970). Our communities are in the best position to protect these sites as many community Elders hold knowledge about where these sites are located. For example, unmarked burial sites exist at *Taintezli* (Tanya Lakes) for victims of smallpox and the Spanish Flu (influenza), and are not to be visited (personal communication, community meeting notes, April, 2017).

K'ai k'uz (Kuyakuz Mountain), just east of the proposed mine site, is a sacred crematory mountain for LDN and is a "no-go" zone with respect to industrial development and other public land use. Along the south and eastern flanks of *K'ai k'uz* (Kuyakuz Mountain) lies Kuyakuz Lake, where a number of sacred sites and burials, in addition to a historical fishing site and a fish weir, exist along the shore (Dewhirst, 1995; Tobias, 2012). There are a number of other "very powerful" sacred sites along the Grease Trail and throughout our traditional territories. These sites range from absolutely do not enter, to ones that you can enter, but only after a set of protocols have been followed. The sites also have limitations on what can occur on them. For instance, there are sites where you can enter and sleep within the areas as long as the respectful protocol was followed before entering. There are other sites where you can cross over the area after the respective protocol was followed, but you are not allowed to sleep on the site (personal communication, LDN community members, April, 2013; Dewhirst, 1995).

Mount Davidson is highly respected by our communities for the food it provides and the healing ceremonies that occur at the mountain. Members of the Baptiste family (with rights to the Baptiste-Cassam *keyoh*; Figure 4) recount times when an Elder would guide them to a place on the mountain to sit for 3-4 days under a *ts'oo* (spruce) tree to fast. There is concern within our communities that the protocols for visiting these sacred places will not be followed by newcomers (personal communication, community meeting notes, March, 2017). Mount Davidson is also an important gathering area for certain higher-elevation medicinal plants (personal communication, community meeting notes, April,

2017). Mount Davidson and Tsacha Mountain, which is found just south of Mount Davidson, are collectively referred to as *Ts'oodenla*; meaning "sounds like two mountains together" or "something piled up like a mountain" as there is not a separate traditional name for each individual mountain (personal communication, LDN Band member, May, 2017; Dewhirst, 1995). An LDN community member recounts times when his family would camp at Mount Davidson to hunt and gather food and medicinal plants. When asked about the potential environmental effects of the mine, he indicated that his family is unlikely to return to Mount Davidson, Salmon House Falls, Takia Creek, or Dean River to participate in these traditional practices following the development of the Project (LDN Band member, personal communication, May, 2017).

4.1.3. Traditional land use

The traditional way of life of both of our Nations was based on the seasonal round, where small extended family groups, or *sadekus*, harvested animals, food and medicinal plants, and fish during different seasons mostly within their respective *keyohs* (Dewhirst, 2013; Furniss, 1993a).

Dewhirst (2013) reported that each *sadeku* followed a seasonal round within its *keyoh* based on intimate knowledge of its environment and resources. This traditional knowledge enabled each *sadeku* to thrive in a tough climate by seasonally harvesting key resources in a manner that allowed for long-term sustainability. While varying resources and circumstances have been observed within each family group and its use and ownership of the land, the seasonal round followed a general pattern. In late winter and early spring, most families living at their traditional village sites and trapping cabins were faced with exhausted supplies of dried meat and other provisions. With the thawing of lakes and creeks, traditional spring practices began including *tsa* (beaver) and *tes'ket* (muskrat) hunting, fishing, collecting plant foods, and burning of large areas to promote new vegetation, attract ungulate populations and to ease hunting from horseback practices (Dewhirst, 2013). The widespread use of fire clearly demonstrates that our communities actively managed our traditional territories and that it was not a wilderness at first contact as widely believed by the greater society.

Elders communicated that spring was a time when the Dakelh diet took on a cleansing aspect, and it was focused on fresh greens such as nettles, fiddleheads, and other green plants. These plants and the spring diet provide an opportunity to clean the blood after a winter diet of dried fish, meat and plants. The greens, including fresh grass, were eaten in copious amounts (interviews with Dakelh Elders, 2013 as cited in AMEC, 2015). Spring spawning fish were trapped and dried extensively at this time of year.

Summer was traditionally devoted to intensive food collection and preparation for the winter months (Dewhirst, 2013). Families generally remained close to home, where they practiced traditional fishing, hunting, food collection and haying. When the weather was too poor for haying, hunters would travel to meadows and swamps to hunt *whudzih* (caribou), *duni* (moose) and *yests'e* (deer). In the summer months, *ges* or *tah look* (spring salmon) became more available than in the spring and were harvested in large quantities wherever available. During face-to-face interviews with Dakelh Elders, it was noted that berry gathering in the summer continues to be an important activity, as well as fishing (AMEC, 2015). *'Ilhtsul* (blueberries) and *nawus* (soapberries) continue to be of utmost importance to our communities and are still harvested today (personal communication, community meeting notes, April, 2017). Other important berries and plants of note include what is described as being similar to rhubarb, known as *'ut'an ches*, and is most likely cow parsnip. This plant was picked in May when the grass begins to grow. The above-ground portion of the plant was gathered, boiled, sweetened and eaten (Dewhirst, 1996). There was also a root vegetable that was long and skinny and tasted like potatoes (likely to be Hemlock water parsnip; Dewhirst, 1996).

In late summer and early fall, families returned to their fishing stations at the outlets of lakes to catch spawning *lhuyul* (kokanee salmon), *lhoos* (whitefish), *tsa bai* (dolly varden) and *dulgi yaz* (suckers). These fish were trapped in large quantities and dried for the winter. During the fall, families completed their winter preparations (i.e., drying meats) and stocked up on winter hunting and trapping supplies (Dewhirst, 2013). Hunting focused primarily on *whudzih* (caribou) until the early 1900s when *duni* (moose) became the primary meat source for our Nations (Dewhirst, 2013; Furniss, 1993a). Camps were assembled in the valleys near *Ts'oodenla,* Itcha, Ilgatchuz and other mountains where meat would be dried following a successful hunt at higher elevations where the animals are most often abundant in the autumn. W*hudzih* (caribou) has been a very important and valuable animal, providing food but also materials for clothing, tent coverings, cooling and hunting implements, and many other items (Furniss, 1993a). When the cold of late fall arrived and animals' coats began to turn white, trapping practices began (Dewhirst, 2013). Traplines were very productive for small furbearers such as *chunih* (marten), *tsa* (beaver), mink, tes'ket (muskrat) and *dluk* (squirrel; Dewhirst, 2013).

Winter activity was more limited, with some hunting, trapping, and ice fishing occurring. Mid-winter was a good time to hunt larger *whudzih* (caribou) and *duni* (moose) for fresh meat as they moved into lower elevations, making them more accessible to hunters (Dewhirst, 2013). In spring, the seasonal round began again.

4.1.4. Food & medicinal plant harvesting

Plants play a crucial role in our traditional cultures. Both of our Nation's maintain a deep appreciation of the plants that grow in our traditional territories and a knowledge that ties the people to the land. Both LDN and UFN are known for our extensive traditional knowledge of plants which we use for food, materials and medicines (Dewhirst, 2013; Furniss, 1993a). A number of culturally significant plant species have been identified by community members. For example, in spring when the sap begins to flow, families collected cambium from lodgepole pines, known as *chundoo dzeh*. A number of tree species including the *chundoo* (lodgepole pine) have traditionally served as a source of sweetener for our communities. People also collected *dugoos* (cow parsnip), *tl'otsun* (nodding onion), fireweed shoots and a host of other plants. As berries ripened throughout the summer months, members of our Nations would gather *'ilhtsul* (blueberries), raspberries, *mai cho* or *mai dunulk'un* (huckleberries), Saskatoon berries, *'indzi* (strawberries), *nawus* (soapberry) and *dunih* (kinnikinnick berries (Dewhirst, 2013)).

The land is our pharmacy and we depend on a wide number of plants for our medicines. Though our usage of traditional medicines has declined since the advent of Western Medicine in our region, many people still depend on a wide number of plants for their medicine. Due to colonisation, much of this knowledge is now imperiled and we treasure what remains and are highly protective of this knowledge. A small number of our medicinal plants are: *whuscho* (Devil's club), *dunih* (kinnikinnick), *k'idlih* (willows), *gagistl'ah che* (yarrow), *chundoo* (lodgepole pine), *k'en dulk'un* (red osier dogwood/red willow), *nawus* (soapberry), and there are many others. As plants are not distributed evenly across the land we rely on information from our Elders on where the best places to gather the plants are based on abundance, medicinal qualities and other factors. Places such as Mount Davidson are relied on by our membership for the collection of higher elevation plants. Our communities have expressed concern about the loss of this area as well as the potential for air and water borne contaminants to damage our medicines stemming from the Project.

Plants remain an important and highly cherished part of our traditional diets. Though many plants continue to have high value to us, it is the berries that are perhaps most widely used in current times. Plants such as the *nawus t'an chun* (soopolallie bush), from which *nawus* (soapberry) are harvested, are known to almost everyone in our communities and are harvested in large volumes on a yearly basis and often used as a cleanser in the form of a tea. *Nawus t'an chun* (soopolallie bush) continues to be traded to our coastal neighbours the Nuxalk in exchange for fish and sold and traded at cultural events for a high value as part of our informal economy. There is widespread concern about the negative health

effects, related to the epidemic of diabetes and obesity, caused by the increasing difficulty to access many of our food plants. As with our medicinal plants, there is also concern about potential contamination of these plants from the Project.

Historically we also harvested many different plants as part of our technology. Roots of the *ts'oo* (spruce), *k'idlih* (willow) branches and other plants were all used in our basketry. *K'idlih* (willow), *nawus t'an chun* (soopolallie bush) and *k'en dulk'un* (red osier dogwood/red willow) were used in the production of fish traps. Along with pitches known uses for medicine they are also the old equivalent of caulking and were used widely. The bark of a number of shrubs was used as cordage and the list goes on of plants that were highly important for thriving on our lands in our traditional economy.

The extent of past *benidzo* (pine mushroom) and morel harvesting is unclear, however, in contemporary times they play a crucial role in the economy of both our communities and form part of the modern traditional round; with morels fruiting in abundance after fires in the spring to early summer and *benidzo* (pine mushroom) fruiting from mid to late summer. Mushroom harvesting also works to remove the economic boundary of people getting out on the land, as depending on prices it can be a profitable activity. Mushroom harvesting members also take part in a diversity of traditional practices including the harvesting of other plants and hunting.

In September 1993, the Pine Mushroom Task Force undertook a comprehensive study of the mushroom industry in British Columbia (Ministry of Forests and Range, 1995). The purpose of the study was to develop and maintain a sustainable *benidzo* (pine mushroom) industry while consulting with First Nations and respecting their rights. Large proportions of our traditional territories have site and stand conditions suitable for *benidzo* (pine mushroom) production; however, only a relatively small proportion of the landscape produces mushrooms. Unless potential producing areas are specifically identified and managed, it is likely that future *benidzo* (pine mushroom) production will be exceedingly small (Ministry of Forests and Range, 2009). Logging of beetle-impacted stands can greatly decrease or eliminate *benidzo* (pine mushroom) for years. With the logging also having major effects on wildlife use this industry substantially contributes to the cumulative effects being felt by our communities. Collaborating with our communities' leadership and our knowledgeable pickers to address overlaps between timber planning areas and predicted *benidzo* (pine mushroom) areas aids in stand-level management of *benidzo* (pine mushroom) and the preservation of good *benidzo* (pine mushroom) producing areas.

4.2. Health of Water

The health of water resources has been an overwhelmingly important topic at all community meetings as our memberships feel it should be a priority concern given the environmental effects that have occurred as a result of mining and other industry elsewhere in the province (personal communication, community meeting notes, March and April, 2017).

The Blackwater River (also known as the West Road River) is a British Columbia Heritage River and is home to a number of important fish species including *duk'ai* (bull and rainbow trout), *tsin'tel* (freshwater lingcod), *tsa bai* (dolly varden), *dulgi yaz* (suckers) and *tah look* (salmon; personal communication, UFN Band member, April, 2017; Ministry of Environment, n.d.). The Blackwater River is an extremely important resource since this one river contains all of the fish found within our traditional territories (personal communication, LDN staff member, June, 2017; Ministry of Environment, n.d.). Fishing has been important in shaping each Nation's identity and continues to be an important part of our livelihoods. We have relied on the use of clean water from nearby freshwater lakes throughout our Nation's histories. Our band members are concerned about the potential contamination of these waterbodies and the effects on water quality resulting from New Gold's proposed Blackwater Mine. Contamination and deteriorating water quality could have negative impacts on fish species, which are essential in many of the member's diets. A predominant perception among our communities is that the tailings water will be toxic and will poison fish and important waterfowl food sources such as *khoh* (geese), *dut'ai* (ducks) and *tes'ket* (muskrat; personal communication, UFN Band member, April, 2017) as well as *duni* (moose; personal communication, LDN Band member, April, 2017).

Several community members also identified '*Utut* as an important gathering and fishing location (personal communications, UFN and LDN Band members, April and May, 2017; Dewhirst, 1996). This small chain of lakes located approximately 15 kilometers southwest of the proposed Project, is a traditional fishing camp at which our members have installed fish traps (personal communications, UFN and LDN Band members, April and May, 2017). According to a member of the Cassam family, and relative of Kluskus Tommy, '*Utut*, also known as Tommy Lake, is named after Kluskus Tommy and his adopted daughter Elina Tommy who held a trapline in the area (personal communication, LDN staff member, June, 2017; Dewhirst, 1996; Dewhirst, 2013). The Baptiste and Cassam families (with rights to the Baptiste-Cassam *keyoh*; Figure 4) utilized four fishing stations at various points along the creeks that joined *'Utut* and would catch both *duk'ai* (bull and rainbow trout) and *dulgi yaz* (suckers). In addition to the four fishing stations that were set up in the creeks that connected the chain of lakes, the middle lake

was an important *shus* (grizzly bear) hunting spot. The Cassam family would hunt bears in May as they were attracted to the area during the *duk'ai* (bull and rainbow trout) spawning season (Dewhirst, 1996).

The Baptiste family (with rights to the Baptiste-Cassam *keyoh*; Figure 4) had their house at the head of Tsacha Lake. While they spent most of the spring hunting around their territory, they would also go to their fishing camp located between two spawning creeks at the head of Squirrel Lake where they caught *dulgi yaz* (suckers) and *duk'ai* (bull and rainbow trout).

The Cassam family (with rights to the Baptiste-Cassam *keyoh*; Figure 4) made their home at *Tanilhtl'us* (Blue Lake) which is located approximately 22 kilometers southwest of the proposed Project. They had relied on a number of resources from this lake, such as the *tsa* (beaver) and *chunih* (marten) that were trapped, consumed and furs sold while the market was good. They had a fishing station at the outlet of *Tanilhtl'us* where they would catch *duk'ai* (bull and rainbow trout) and *dulgi yaz* (suckers) in both a net as well as a cylindrical trap made of *chundoo* (lodgepole pine) and *ts'oo* (spruce) branches (Dewhirst, 1996). Large numbers of these fish were dried for winter use.

The Jimmie family (with rights to the Mashu *keyoh*; Figure 4) has homes at *Tl'oko'wacho* (Big Meadow) and at *Delhke'z* (Tatelkuz Lake). Tatelkus Lake IR28 is located approximately 12 kilometers east of the proposed Project and is directly downstream of the tailings pond, as Davidson Creek flows into *Delhke'z* (Tatelkuz Lake) and then into Cheddakuz Creek. There are a number of use sites identified around the *Delhke'z* (Tatelkuz Lake) area. A fishing station was located on the north end of the lake where it lets out into a stream. The station was comprised of a V-shaped weir and a basket trap, known as *te'ts'utih*. The *te'ts'utih* was made of *k'idlih* (willow) branches or small *chundoo* (lodgepole pine) branches, measuring about ten feet long by two and a half feet wide. It was submerged in the water and left overnight to catch *tsin'tel* (freshwater lingcod). Approximately three and a half kilometers southwest of Tatelkus Lake IR28, near Davidson Creek, is an area that was used to pick large *'ilhtsul* (blueberries; Dewhirst, 1996). Furthermore, there is a camp and a hay meadow known as *Talhughun ts'ih hoyai'a* along Cheddakuz Creek, about four kilometers northwest of Tatelkus Lake IR28. The camp was used when the Jimmie family was haying (Dewhirst, 1996). Approximately 500 meters from the camp and meadow, the Jimmie family would collect *k'unih* (lodgepole pine sap) in late May (Dewhirst, 1996).

A number of our community members have expressed the traditional and continuing importance of water resources (i.e., springs, fish and waterfowl). A variety of lakes throughout each of our Nation's traditional territories have and continue to serve as reliable fishing spots for community members and

their families as they set nets and camp, historically for weeks at a time. The fish that was caught would be smoked, dried and otherwise preserved for the winter months. These memories of healthy water and fish brought many of the interviewees back to a happier time when their families lived off the land. Despite a weakened cultural connection with the environment, with which our Nation's consider ourselves inseparable, there is a strong desire for our memberships to return to their family traditional territories; promoting a cultural revival and renewing our sovereignty through strengthening our cultural ties to the land.

The traditional management of water resources by the UFN community continues today, although to a lesser extent given certain access issues now in place (personal communication, UFN Band member, April, 2017). In the past, our community members would actively manage the water in the tributaries flowing into the Blackwater River for the fish; a vital cold-water source feeding the Blackwater River. The management of these creeks included the removal of *tsa* (beaver) dams to improve fish flow and water temperature in the Blackwater River, ensuring the preservation of several important fish species harvested from the Blackwater River (personal communication, UFN Band member, April, 2017). The act of pulling *tsa* (beaver) dams as a means to prepare rivers for spring fishing practices continues throughout our traditional territory today as our membership still actively manage a number of creeks this way (personal communication, community meeting notes, April, 2017). Furthermore, our Nations have historically protected the locations of a number of freshwater springs within our respective territories as these springs provide life-sustaining cold, freshwater to the community, particularly during the dry months (personal communication, UFN Band members, April, 2017). One family indicated they did not collect surface water for drinking or cooking, rather they travelled further to a natural freshwater spring and carried the water back to their home. The spring water has been noted to be clean, cold, fresh, and better tasting. Spring water is highly regarded and valued as healing water, and consequently, protected by those who rely on it (personal communication, Alexis family members, April, 2017; personal communication, community meeting notes, April, 2017).

Water quality is a persistent issue on our reserves. Members are no longer advised to obtain their water from groundwater wells, as many of have been experiencing issues with elevated concentrations of bacteria, fluoride, chloride, iron, magnesium, sodium, and various dissolved solids, often at concentrations exceeding the Canadian Drinking Water Quality Guideline thresholds (UFN Band member, personal communication, July, 2016). These geological contaminants have contributed to increased water turbidity and pH, which has made the water unpalatable and, in some cases, not fit for

consumption. This water quality issue exacerbates our Nations' concern of possible contamination of surface water and springs from the proposed Project as these natural freshwater sources are critical for community members to have access to clean freshwater.

4.3. Health of Aquatic Life

4.3.1. Fish

Water resources were, and remain, vital to our Nation's. Most of our members continue to harvest fish from within our traditional territories, and fishing remains an important part of our culture. Many band names and other Dakelh words exemplify their connection with water resources (AMEC, 2015). The Blackwater River runs east through LDN territory and into the Fraser River while the Dean River running north from Anahim Lake and west through the Coast Mountains is important to Ulkatcho (Furniss, 1993a). The majority of our membership continue to rely heavily on seasonally available anadromous fish (salmonids) that spawn in major rivers. Summer and fall are the seasons where all Dakelh groups (families, clans, and villages) would come together at traditional spots/villages/fishing locales where they harvested large numbers of fish in traps, weirs and nets (Dewhirst, 2013). Fish were eaten fresh and large quantities were dried as winter provisions.

There are a number of programs that monitor *tah look* (salmon) stock in and around the Bella Coola area, including rivers such as the Atnarko and Dean Rivers (Fisheries and Oceans Canada, 2014; Fisheries and Oceans Canada, 2016). The programs are designed to determine the number of fishes released from the fisheries each year such that the river resources are not exceeded. As mentioned, a number of other fish species are important to our Nations, including *duk'ai* (bull and rainbow trout), *tsin'tel* (freshwater lingcod), *dulgi yaz* (suckers), *tsa bai* (dolly varden), and *lhoos* (whitefish), all of which have been, and continue to be, harvested from the lakes and rivers within our traditional territories and around the proposed Project site. Historically, some of the lakes were stocked by community members transplanting fish from one lake, along a trail to another lake. The members would carry a bark backpack which they would dunk in the creeks and rivers along the trail, allowing the fish a chance to revive itself before carrying on along the trail to the next lake (personal communication, LDN staff member, April, 2017). Many lakes throughout the traditional territory were historically stocked this way (personal communication, LDN staff member, April, 2017). Fish species exist where they do today because of this traditional practice of managing water resources.

4.3.2. Waterfowl

Our memberships continue to trap and hunt a number of waterfowl species including *dut'ai* (ducks), *ts'incho* (swans) and *tes'ket* (muskrat), predominantly for their meat. Community members are concerned that the meat of the waterfowl will be contaminated if the animals are landing in and drinking from the tailing storage facility (personal communication, community meeting notes, April, 2017). T*es'ket* (muskrat) in particular is very popular and highly sought after for its meat (personal communication, UFN Band member, April, 2017).

4.4. Health of Wildlife

4.4.1. Trapping

The most important small animals used by the southern Dakelh people were rabbits and *tsa* (beaver; Furniss, 1993a). Rabbits were a reliable food source year-round, especially in winter when other animals were scarce. *Tsa* (beaver) were hunted and trapped for their fur and meat (Furniss, 1993a). A variety of other small animals were plentiful and captured by snare, including *dluk* (squirrel) and *jatsun* (porcupine), and birds including, *dut'ai* (ducks), *khoh* (geese), *ts'incho* (swans) and *dih* (grouse; Furniss, 1993a). In 1821, the North West Company (also known as the Hudson's Bay Company) established a fur trading post, Fort Alexandria, in southern Dakelh territory, along the east side of the Fraser River, allowing direct trade with the southern Dakelh, Chilcotin and Shuswap people (Furniss, 1993b). The Fort was built beside a traditional *tah look* (salmon) fishing site of the Lhatko Dené Nation and adjacent to good grazing land, allowing traders to collect a food supply and feed their horses (Furniss, 1993b). The southern Dakelh people (excluding Ulkatcho people who traded with the Nuxalk and coastal trade ships) brought a variety of furs to the Fort including, *tsa* (beaver), *sus* (bear), *wasi* (lynx), *nulhdzook* (otter), *nanguz* (fox), *chunihcho* (fisher), *chunih* (marten), *tes'ket* (muskrat), *yus* (wolf) and *noolh'utughih* (wolverine; Furniss, 1993b). In exchange, the Dakelh obtained many European goods including, guns and ammunition, kettles, axes, blankets, cloth, clothing and tobacco (Furniss, 1993b). With the onset of the European fur trade, families began to exert rights to specific trapping areas within the overall Band territory where they regularly trapped (Furniss, 1993b). Trapping continues to be an important traditional practice of both communities despite the decline in the fur trading industry, as trapping is a subsistence practice for our communities. While the furs may provide a source of income, the meat is of equal importance.

4.4.2. Hunting

Traditionally, the Dakelh people trapped animals using snares and deadfalls, and hunted larger game using surrounds or fences, while sometimes utilizing spears or bows and arrows (Furniss, 2004 as cited in AMEC, 2015). These traditional trapping and hunting practices continue to be important components of the seasonal round. Interviews with Elders (AMEC, 2015) revealed that trapping is currently not as commercially viable as it was in the 19th century, although it is still an economically significant traditional practice for many. It was also noted that *duni* (moose) and *whudzih* (caribou) populations have declined compared to historical population densities (personal communication, UFN and LDN Band members, April, 2017). Furniss (1993a) describes how *whudzih* (caribou) herds were found both in the eastern and western mountains of the territory before *duni* (moose) took over much of their range, forcing the *whudzih* (caribou) further west and higher into the mountains. The recent decline in *whudzih* (caribou) is believed to be a result of habitat changes that favour increased *duni* (moose) and *yus* (wolf) populations and subsequently alter the predator-prey system, subjecting *whudzih* (caribou) to higher predation (Ministry of Environment, 2013). These habitat changes coincide with increased industrial landscape changes at lower elevations, which have resulted in herds taking refuge from predation in higher elevation areas. However, industrial projects are threatening higher elevation habitats which forces herds from higher elevation sanctuaries to lower elevations and consequently exposes them to higher levels of predation (Ministry of Environment, 2013).

The province of British Columbia manages *whudzih* (caribou) habitat from the impacts associated with industrial resource development through imposing limitations on the acquisitions of new tenures in certain designated areas and through preventing and/or prohibiting certain work activities (Ministry of Environment, 2013). Furthermore, standardized management practices are implemented within identified high elevation winter habitat with the intention of managing the industrial footprint and restoring, reducing or prohibiting disturbance and reducing the potential for future disturbance and/or displacement of the *whudzih* (caribou) to lower elevations in the winter (Ministry of Environment, 2013). In the low elevation habitat, management practices including restoration and road deactivations are adopted when possible to address the effects of habitat fragmentation and support long term sustainable habitat conditions for the *whudzih* (caribou) population (Ministry of Environment, 2013). In circumstances where development will occur in high elevation habitats, Proponents are required to develop detailed mitigation and reclamation programs and monitoring plans such that habitat impacts are avoided, mitigated and/or fully restored (Ministry of Environment, 2013).

Hunting *whudzih* (caribou) was especially important to the traditional seasonal round of our Nations in the fall and winter. Many families would work together to harvest *whudzih* (caribou) by driving them along fence lines into corrals or by attracting the *whudzih* (caribou) to the foothills with smoke from their fires (Furniss, 1993a). In order to manage the declining *whudzih* (caribou) population within their traditional territories, community members have effectively halted all *whudzih* (caribou) hunts, demonstrating a conscious effort to carefully mitigate the potential effects of proposed industrial development within their traditional territories. In a letter to the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (MFLNRORD) dated August 2016, UFN expressed concern regarding current *whudzih* (caribou) population statistics which are not indicative of a sustainable population and as such, many UFN members have ceased to exercise their right to harvest *whudzih* (caribou) for food, social and ceremonial purposes (personal communication, Chief Betty Cahoose, Ulkatcho First Nation, 2016). UFN has identified the severe effects of the MPB epidemic throughout their traditional territory and causal links between MPB stands, timber salvage, road development and wildfire with reduced *whudzih* (caribou) habitat and increased predation. UFN is actively seeking a working relationship with MFLNRORD and other stakeholders to stop the declining *whudzih* (caribou) population and calf recruitment levels and allow for population recovery and long-term sustainability of the herd (personal communication, Chief Betty Cahoose, Ulkatcho First Nation, 2016).

The notable decline in the *duni* (moose) population has not been effectively addressed as noted in a personal communication with a UFN band member (April, 2017). *Duni* (moose) is an equally important food source to these Nations (Furniss, 1993a); however, recent ground counts indicate that *duni* (moose) numbers are extremely low and that calf recruitment levels indicate an unsustainable population (personal communication, UFN Band member, April, 2016). *Duni* (moose) is central to the cultures of both of our communities and there has been expressed concern about the impact of declining *duni* (moose) numbers on community members who are still reliant on *duni* (moose) meat; predominantly those who cannot afford to shop at the grocery store (personal communication, community meeting notes, April, 2017).

Mount Davidson and the surrounding area known as *Ts'oodenla*, including Tsacha Lake are traditionally important hunting grounds for *duni* (moose) and *whudzih* (caribou; personal communication, LDN Band member, May, 2017). A member of the Baptiste family (with rights to the Baptiste-Cassam *keyoh*; Figure 4) indicated that every year his and the Paul family would travel to Mount Davidson along a wagon road that they partially constructed from the eastern end of Tsacha Lake towards the proposed mine site on

Mount Davidson; the wagon road was never completed (personal communication, May, 2017). The families would camp out at Mount Davidson for weeks at a time while the men hunted and the women picked berries. Once the meat was dry, they would pack it back home. This same Band member also indicated that it has been a very long time since he has seen any *whudzih* (caribou) on Mount Davidson despite having once killed one there, more than 30 years ago (personal communication, May, 2017). The camp was set up near a lake from which the families would drink, less than two kilometers southeast of the proposed Project site (personal communication, LDN Band member, May, 2017). Another member of the Baptiste family has recounted stories of her family hunting *whudzih* (caribou) at Mount Davidson, describing a rock feature that was intentionally built to aid in the corralling of *whudzih* (caribou), as part of her family's hunting strategy. Her mother's knowledge of the location of this significant cultural feature within their *keyoh* (the Baptiste-Cassam *keyoh*; Figure 4) puts it close to the proposed pit location for the Project.

4.5. Health of Air

Members from both of our communities have expressed concerns about the potential effects of airborne contaminants from the proposed Project on their food and medicinal plants which continue to be extensively harvested from the Project area. Our two Nations continue to use the land as our pharmacy and highly value the remaining traditional knowledge surrounding the wide number of plants that are used for medicine. As these plants are not evenly distributed throughout the traditional territories of our Nations, community members rely heavily on the knowledge keepers of the communities to identify the best places for gathering in terms of abundance and medicinal qualities. Like many sacred sites located within the traditional territories of our Nations, many of these traditional gathering sites are unmarked. As with many of the Proponent's monitoring programs, our community members feel that they are in the best position to implement and ensure the continuous conduct of monitoring practices to ensure that the Proponent is meeting compliance requirements, especially for plants that are consumed regularly by our members.

Fugitive dust sources include the moving of material; crushing, screening, milling, and blasting operations; haul roads; and, increased wind erosion of exposed surfaces throughout the mine footprint (Arpacioglu and Er, 2003; US Army Corps of Engineers, 2013). It is these fugitive dust sources that are most difficult to control (Arpacioglu and Er, 2003). Fugitive mine dust can cause both nuisance and aesthetic deterioration of the environments surrounding a mine, although these impacts are generally confined to relatively small areas as a consequence of the relatively large emission particle sizes and

short release heights of other pollutants (Arpacioglu and Er, 2003; US Army Corps of Engineers, 2013). Larger dust particles are expected to settle out within the mine area, while fine particles are dispersed over much greater distances (US Army Corps of Engineers, 2013). Within the affected areas adjacent to the mine site, the fugitive dust may result in damaged vegetation as the settled dust may inhibit gas exchange through the leaves of the native vegetation (Environment Australia, 1988; as cited in Arpacioglu and Er, 2003).

4.6. Health of People

The health of our people is greatly influenced and affected by their environment and surroundings and is closely tied to their culture and language. Historical extractions from their cultures (i.e., the Indian Act, residential schools), and more recent deviations such as moving into town, have compounded a substantial loss of cultural connection for some members, which has been linked to a number of health problems in the communities. Reduced consumption of traditional foods and knowledge of traditional uses, for example, has resulted in health concerns such as diabetes, heart disease and cancer (personal communication, UFN Band members, July, 2016 and April, 2017).

Diabetes and gastroenterological diseases are common diseases among community members, specifically Type 2 diabetes (personal communication, community health personnel, October, 2016). The 2012 Aboriginal Peoples Survey (Statistics Canada, 2012a) found that 67% of off-reserve First Nation females aged 15 and older reported having at least one chronic condition, compared with 58% of males. The survey defines a chronic condition as being diagnosed by a health professional and lasts more than six months. Personal communications with community health personnel indicate that the members may be predisposed to Type 2 diabetes but that poor lifestyle decisions have also played a role in the disease's prevalence. The development of this predisposition begins in fetal life with poor nutrition, followed by a sedentary lifestyle and poor diet (Bloomgarden, 2004). Furthermore, if one parent has Type 2 diabetes, the child is substantially more likely to develop Type 2 diabetes than children born to parents without (Bloomgarden, 2004). Gastroenterological diseases, believed to be mostly related to long term alcohol consumption, are also prevalent within our communities and are most commonly displayed in the forms of irritable bowel syndrome and acid reflux diseases such as gastroesophageal reflux disease (personal communication, community health personnel, October, 2016).

Members of our communities were estimated to visit the hospital more than 15 times throughout the year, approximately half to three-quarters of which are related to alcohol consumption and intoxication

(personal communication, community health personnel, October, 2016). Alcohol consumption and intoxication have also contributed to a number of motor vehicle accidents (personal communication, community health personnel, October, 2016). Deaths related to alcohol stem from long term consumption, fetal alcohol syndrome and depression. In Canada, signs of fetal alcohol spectrum disorder (FASD) are estimated to be prevalent in nine out of every 1,000 births with three and a half out of every 1,000 being diagnosed with fetal alcohol syndrome (Northern Health, 2016). Fetal alcohol effects, which include cognitive, behavioural, facial dysmorphism and growth restriction, are entirely preventable and are the leading cause of developmental disabilities in Canada (Northern Health, 2016). For youth in the Northern Health region, the highest rates of unintended pregnancies occur in the age group with the highest binge drinking rates (Northern Health, 2016). In the 2012 Aboriginal Peoples Survey, 26% of First Nations people reported being heavy drinkers – defined as having five or more drinks on a single occasion at least once a month (Statistics Canada, 2016c), six percent higher than the total Canadian population.

4.7. Health of Culture and Language

The vast network of foot, horse and wagon and Grease Trails crisscrossing our traditional territories and those of neighbouring Nations were built and maintained by generations of Aboriginal people who occupied the land, as it was the lifeblood of the Aboriginal culture and economy (Birchwater, 1993). The trail system was used for trading with neighbours, visiting friends and family, getting to hunting, trapping, fishing, berry picking and resource gathering grounds and occasionally to engage in warfare (Birchwater, 1993). These trails made it quick and easy to travel throughout the land, a necessity given the harsh climate and short growing season of the Chilcotin Plateau region (Birchwater, 1993). People required a vast area of land to obtain the resources they needed to survive, making good travel routes essential (Birchwater, 1993). The movement of families throughout their territory represents the essence of the seasonal round, moving from Bella Coola at the peak of berry picking season to *Taintezli* (Tanya Lakes) in time for the *tah look* (salmon) run (Birchwater, 1993).

As European people settled closer to the traditional territories of our Nations, our people began to acquire a taste for European foods and trade goods, changing their diets and traditional tools and practices (Birchwater, 1993). Gradually some of the traditional practices such as making arrowheads and knives from obsidian or bows and arrows from local wood became lost as the knowledge of these skills was not passed down from one generation to the next (Birchwater, 1993). Changes in hunting practices through the use of firearms and metal traps increased the amount of time Aboriginal people spent

trapping and changed their relationship with the natural world, threatening animal populations through over hunting (Birchwater, 1993).

Many community members from our Nations have expressed the desire for a cultural revival, such that generational language barriers are lessened, and traditional cultural practices are promoted. Our community members have strong connections to the land which allows them the opportunity to disconnect from other aspects of day-to-day life. Our memberships have identified an onus of their respective leadership to invest in programs that would promote the cultural traditions and reconnect the knowledge keepers with the younger generations (personal communication, community meeting notes, May, 2017). There is an increasing desire for families to move back to their *keyohs* and areas where they were raised. There is concern that the Project will strip the area of its heritage and that younger generations will not know the area for what it was prior to the mine. A UFN Band member noted "there's no language and culture without the land" (2017).

Oral tradition is knowledge that is contained in stories that has been passed down from generation to generation and has always been vital to the survival of southern Dakelh culture. Instead of using a system of written language, the southern Dakelh people used an oral system for recording the knowledge that they have accumulated through centuries (Furniss, 1993a). Some stories explain the origin of the world and how humans, animals, plants and landforms were created while other stories serve as historical records of important events and people (Furniss, 1993a). Some stories contain clear messages of what will happen if people break codes of behaviour and act carelessly or irresponsibly while others explain the spiritual dimensions of life and the appropriate relations between humans and the world of spirits (Furniss, 1993a). All these traditional storytelling practices act to reinforce the values, beliefs and proper behaviours of our people (Furniss, 1993a).

4.8. Health of Spirituality

Historically, our people believed it was important to show respect for the spirits of the animals, trees, water, rocks and all other things that inhabited the land. Respect was shown by living according to certain standards of behaviour and by performing certain rituals (Furniss, 1993a). A person was expected to treat the foods and materials they relied on for survival with respect, and to not take them for granted (Furniss, 1993a). People were expected to act as caretakers of the land and not to overharvest or waste any of the animal or plant foods they harvested. Further, people performed rituals

of appreciation after a successful hunt in exchange for the good fortune of always having an abundance of food (Furniss, 1993a).

Through conversations with a number of community members, it is apparent that although spirituality manifests itself differently for each individual, the connection to the land and the memories of traditional family land use are strongly tied to community member's spirituality. The memories of having the whole family together on their land, working together and completing traditional chores such as haying, fishing, and gathering wood and water resonates strongly. This is a time they cherish, where family members are truly present, and sobriety is valued. The loss of this connection to the land and the traditional land uses has had resounding effects within both of our communities. A reduction in traditional practices is evident in the lifestyle changes observed in more recent generations; people have moved away from their land and away from using the resources the land provides them. Increasingly so, food is purchased in grocery stores which has contributed to increasing obesity and diabetes rates within community members.

Given the nature and sensitivity of spiritual sites, this report does not identify specific locations; rather it discusses general areas and highlights some of the uses or experiences people have described at various sites. The Dakelh people practiced ritual cremation after a person died. A number of crematory sites are located throughout our territories; be it along the Nuxalk-Carrier Grease Trail, on mountains or near lakes. Although a few people are still cremated today, the practice has shifted to funeral homes. There has also been a distinct transition towards burials and the construction of grave houses as markers, a transition that can be attributed to Russian influence during the fur trade. Many of these sites have descriptions of unusual occurrences such as seeing blue lights (referred to as *ne ihuna whutdzuk, hanuwhutdzuk, nelha whutdzuk, hanu whutdzuk*), hearing a loud old man's voice, drumming, laughing, singing, and talking (Dewhirst, 1996).

While all spiritual places have significant importance to our culture, the individual sites vary in terms of what can only be described as power. Community members have expressed concerns over the sites and have an interest in ranking each one on a scale based on its relative power. In some cases, people can enter/cross/sleep on the site with no ill effects as long as you are spiritually careful. There are sites where you can enter, but you are not allowed to sleep there. Finally, some sites have been identified as very powerful and have been designated as absolutely do not enter (personal communication, LDN Band members, April, 2017). The effects of the sites vary from people falling ill, to death within a year after

entering the site. In some instances, sites are said to be especially dangerous for children (Dewhirst, 1996).

The power of the sites within the culture is reflected in the teachings that Elders provide to their children. It is common for community members to recount their Elders telling them that they are not to go to a specific place because "the spirits might grab you" (Dewhirst, 1996, p.88). Or that a place "was possessed" and "if you go near it, it'll make you sick. And you need a medicine man or woman to fix you up" (Dewhirst, 1996, p. 98). Or that when they've gone to a spiritual place that "it kind of gives you a funny feeling at night when you go out, like somebody near you. An awful feeling when you go some place like that" (Dewhirst, 1996, p. 95). Community members have recounted times when they've stopped at a site where "the horse gets scared, and the dogs started brawling" (Dewhirst, 1996, p. 97). As a result, people try not to disturb the sites or avoid them altogether (personal communication, LDN staff member, June, 2017; Dewhirst, 1996).

Much like spiritual or sacred sites, legend sites also play a prominent role in our culture. For instance, there is a legend site located near one of the LDN reserves. The site is said to have been created after a strange man named *T'seina* had repeatedly tried to steal women from the Kluskus village. Upon growing tired of *T'seina* the people of Kluskus put a spell on him and he died on top of the hill. Since then, people picking berries in the area should neither look, nor point at the hill (Dewhirst, 1996). Other variations of the legend speak to Indian doctors fighting with a spirit power that had come to kill their children. Due to the events in the legend, people are told not to go into the area, no matter what, or else they may get sick and become unconscious (personal communication, LDN staff member, June, 2017; Dewhirst, 1996).

Other legends such as the one around *Delhke'z* (Tatelkuz Lake) speak about *Ya tahonquz*, a louse that dragged somebody into the lake. Or *Neyi*, a man-eater that had a terrible smell, like rotting flesh, which could cause sickness and even unconsciousness (Dewhirst, 1996). *Shus* (grizzly bear) is of particular importance to the LDN as it is a protector animal in the spiritual realm (personal communication, LDN Band member, June, 2017). A few legend sites have been identified that are associated with *shus* (grizzly bear); both of which feature *shus* (grizzly bear) tracks in stone that were formed through a series of events that had taken place at the site (personal communication, LDN staff member, June, 2017).

4.9. Health of Economy

Until recently, much of the land west of Quesnel had not been impacted by logging or mining and as a result, the southern Dakelh remained in control of their lands and were able to maintain an independent, self-sufficient lifestyle based on hunting, trapping and fishing. The economic base that has supported our Nations' self-reliant way of life for centuries depends on access to and use of our traditional lands and resources. The bond between the Dakelh people and their land is cultural and spiritual, and also economic (Brown, 2002). However, the expanding logging and other industries in the area is disrupting this self-reliance and few jobs have opened up for the Dakelh people within these industries. Consequently, many southern Dakelh people have been forced into unemployment and economic dependence (Furniss, 1993a).

Both of our Nations suffer from unemployment rates that are approximately 30% higher than the unemployment rate of the general BC population. Skill surveys conducted for each of our Nations indicate that the majority of participants are currently unemployed and do not have a valid BC driver's license (HCS, 2015; New Gold, 2016). The average income for members of our Nations is upwards of two to ten times less than the average BC income (Statistics Canada, 2012b; Statistics Canada, 2016a; New Gold, 2016), and as such, many community members are forced to seek social assistance.

4.9.1. Ulkatcho First Nation

Yun Ka Whu'ten Holdings Ltd. is a UFN company that co-owns West Chilcotin Forest Products with two other partners, ensuring UFN interests and rights are considered during forestry operations and planning (Veit & Gilbert, 2006). However, the company is currently non-operational (personal communication, UFN Band member, August, 2016). Issues with forest management and control have resulted from this competition for forest resources and are currently being solved through a tactical harvesting plan for the Anahim Lake supply block (personal communication, UFN Band member, August, 2016).

Economic development opportunities include increasing available rangeland for cattle and other animal farming as well as collecting and selling valuable natural resources such as wild mushrooms and medicinal plants (UFN, 2013). Activities such as mushroom harvesting fluctuate given that wild mushroom 'crops' vary from year to year and prices change which can increase or decrease the motivation for community members to become involved. Our members have traditionally used a non-monetary economy of barter and trade, which is still heavily used today (personal communication, UFN

Band member, April, 2017) despite the declining worth of products from the land (i.e., *nawus* (soapberry), fish, and ungulates).

4.9.2. Lhoosk'uz Dené Nation

Our Nation operates a number of joint ventures and forestry licenses, although community employment is not heavily supported by these business opportunities. The forest licenses held by Kluskus Management Holdings Ltd. expired in 2017 and 2018 and were managed by West Fraser Mills as our Nation does not have the capacity or ability (i.e., equipment or staff) to manage the licenses itself (personal communication, LDN staff member, October, 2016). In 2014, our Band signed a three-year Forest and Range Consultation and Revenue Sharing Agreement with the Province of BC to supplement the economic position of our Nation with funds derived from harvest activities within our traditional territory (Province of BC, 2014). The area's economy has historically been driven by forestry, but the mountain pine beetle (MPB) epidemic, the overall downturn in the forest industry, and the closure of local sawmills has resulted in negative economic effects in the region (AMEC, 2012). Our joint venture with Tahtsa Nation started as a small company and is currently building for the future, allowing time to work out the bugs and gain experience prior to competing for contracting opportunities associated with the proposed Project. We are also an investor in the Castle Mountain Hydro run-of-river project near McBride, BC, within the neighbouring Lhatko Dené Nation traditional territory. Chief Lilian Squinas and her council saw this as an excellent opportunity to work together with the Lhatko Dené Nation and consider themselves fortunate to be able to partner on the project (personal communication, LDN staff member, October, 2016).

4.10. Governance

Our Nations have occupied our respective territories since time immemorial and assert a right to self-government in relation to our internal and local affairs that is grounded in the exclusive use and occupation of our territories. Both of our Nations also assert our right to participate in decision-making matters which would affect our rights, and to be consulted in good faith in order to obtain our free, prior and informed consent before adopting changes that may affect us.

Although we have adopted some modern governance methods, we continue to manage and govern the resources within our traditional territories in ways consistent with previous generations. The *keyoh* system (*keyah* in Ulkatcho dialect) has been used to delineate land ownership amongst the membership, from which each family group would harvest resources to sustain their families throughout the year

(Dewhirst, 2013). Despite challenges with respect to monitoring traditional lands, our Nations have maintained a presence on our family *keyohs* throughout the generations. Furthermore, our Nations recognize the parameters of our extensive territories and have always controlled and enforced access to them; permission is required for outside groups seeking to access resources within our territories.

4.10.1. Lhoosk'uz Dené Nation

Since the 19th century, our Nation has been organized around four family descent groups or *sadekus*, each with its own exclusive hereditary territory or *keyoh*. Historically, a *sadeku* represented a subset of extended family of which all members have descended from a line through the grandfather, or have been "married in" (Dewhirst, 2013). Each *sadeku* operated as a social, economic, cultural and political unit under the leadership of the *detso*, the most senior male, whereby defending and protecting the *sadeku*s interests and effectively managing its exclusive territory (*keyoh*; Dewhirst, 2013). K*eyoh* is historically synonymous with trapline and family territory and is exclusively used by the owning *sadeku* unless permission or invitation has been extended to a member of another *sadeku*; as such, the *keyoh* acts as a system of land tenure (Dewhirst, 2013). Each *keyoh* provided the members of the *sadeku* with a round of traditional seasonal activities. Traditionally, families began trapping and hunting, fishing and gathering to replenish diminished winter provisions in the spring. They would travel to the trading posts on horseback and by wagon to sell their furs and stock up on supplies (Dewhirst, 2013). In summer, they would continue to hunt, fish and gather food for winter as well as harvest hay for their horses and cattle to overwinter. By fall, the final preparations for winter were made and trapping began again, lasting through the winter (Dewhirst, 2013). In more contemporary times, each *keyoh* serves more as a system of land tenure, and an indication of the strength of claim that the LDN has throughout their traditional territory.

Our Nation still follows election and governance by custom rather than the band elections introduced by the Department of Indian Affairs in 1952. Under LDN governance custom a Chief Councillor is retained for life, or until resignation, at which time members decide on a new Chief. The governing body consists of one Chief and four "Headmen or Clan Councillors" who represent each of the four "clans", or family descent groups (*sadeku*). Each clan elects its own Councillor who in turn represents the interests of his or her *keyoh* to the rest of the governing body (Dewhirst, 2013). In contrast to the Indigenous and Northern Affairs Canada (INAC) model that is based on a two-year cycle in which the newly elected Chief may decide to go in a new direction and discontinue plans that have been in the works for the previous

two years; the current Chief of the LDN has been in the position for the past 14 years which affords the LDN a tremendous level of stability, allowing the First Nation to move forward progressively.

In 2002, Liliane Squinas was elected Chief Councillor by custom, and maintains this position currently. Her four Councillors include Ella Stillas representing the Jimmie and Alexis Families, Rosa Chantyman representing the Chantyman Family, Violet Boyd representing the Boyd Family and June Baptiste representing the Cassam and Baptiste Families (Lhoosk'uz Dené Nation, 2018). The Chief and Councillors are currently working to develop an institution of well qualified individuals who will be able to exert greater control over what is said and done to the land within our traditional territory and gain control of the valuable resources that exist therein (personal communication, LDN Band member, November, 2016).

4.10.2. Ulkatcho First Nation

Our Nation traditionally implemented a family system of governance; however, in 2003 our electoral system was changed to the INAC model. Our current Chief and Council has developed ways in which the Band can effectively manage its land and resources (personal communication, UFN Band member, April, 2017) through the use of management plans and industry agreements (i.e., forest licenses). Consequently, the decision-making surrounding resources remains the responsibility of the Band.

Due to increasing pressures felt by both communities to move away from the *keyohs*, monitoring the proper use of these lands is an increasingly challenging task. Our Nations have, however, maintained a presence on our traditional lands, and assert our inherent right to govern our traditional territories. In order for an industrial project to proceed in our respective territories, both of our Nations will require the federal and provincial governments to obtain the free, prior and informed consent. In this time of reconciliation, provincial and federal decision-makers should be working in partnership with First Nation governments in making decisions on whether industrial projects should be approved and what measures are required to avoid, mitigate and accommodate their Aboriginal interests.

5. Potential Impacts on Lhoosk'uz Dené and Ulkatcho Values

The potential impacts on our community health values are both actual and perceived, as varying opinions exist as to whether or not the Proponent's mitigation measures will be sufficient to ensure the lasting health of the land, water, wildlife and people within our traditional territories. New Gold has proposed a set of measures that include monitoring, management and mitigation plans (Appendix 2), which represents their effort to ensure that the traditional territories of our Nations are protected.

Despite these proposed mitigation measures, the members of our communities remain concerned that the damage will extend beyond the physical environment, as the land, water and wildlife are so closely tied to the health of our people and our culture (personal communications, UFN and LDN Band members, April, 2017 and December, 2018). Furthermore, there has been expressed concern that the proposed Project will destroy the land, water and wildlife and that the Proponent will leave without ensuring the proper restoration of the environment; leaving this area of the LDN traditional territory and additional areas downstream, unusable (personal communication, UFN Band member, April, 2017). This perceived fate of the area around the mine and the creeks and lakes it could affect, has the potential to result in the loss of heritage tied to this land (personal communications, UFN and LDN Band members, April and May, 2017). The loss of the use of this land directly affects the culture of our Nations through the loss of traditional and current land use practices that occur in this area and have for generations (i.e., hunting at Mount Davidson by LDN Band members).

Each of the key health values are interconnected, and as a result, an impact to one value results in compounding impacts throughout each of our health values. For example, potential (actual and/or perceived) impacts to water include contamination, loss of access to traditional and current fishing areas, loss of access to healthy fish and waterfowl populations for harvesting, loss of use of traditional family *keyoh* lands, and so forth. It is clear to see that an impact to water has the potential to impact other health values such as health of aquatic life, wildlife, people, culture, spirituality, governance and economy (Figure 1). If community members are afraid to access their traditional family *keyohs* to harvest food, then our right to govern the resources within our traditional territories is compromised and these families are no longer able to participate in the non-monetary economy of barter and trade. Impacts that have such compounding effects for individuals and their communities inevitably contribute to the degradation of cultural ties that have been experienced for decades, as people spend less time on their land. This example was extrapolated for each of our health values during the determination of severity of impacts from the Project and is not specific to the health of water alone.

Our communities recognize that our traditional territories have been extensively altered by industry in recent history. The prevalence of forest service roads and cutblocks have fragmented our territories and substantially increased the access for all people as a result. The proposed Project will compound these impacts by creating new roads, clearing more land, and bringing more people (i.e., employees and their families) to the area. The lasting cumulative effects that this combination of mineral exploration and forest harvesting practices has within our traditional territories has recently been amplified by the

extensive losses from wildfire, with more than 1 million hectares burned in the Caribou Timber Supply Region in 2017 (Ministry of Forests, Lands, Natural Resource Operations and Rural Development, 2018). Our community members have expressed their concerns about the mounting pressures on the land and its resources, as reflected herein.

5.1. Landscape Level Disturbances: Forestry, Mountain Pine Beetle Epidemic and Wildfire

Provincial government forest health surveys show that over 50% of the forested land in our traditional territories was impacted by moderate to high levels of MPB mortality, primarily between 1999 and 2005 (iMapBC, 2017). The annual allowable cut in the timber supply areas was increased significantly for a temporary period of time to promote salvage of dead and dying pine as a result of the MPB epidemic. With the beetle infestation having ended in approximately 2005, the last of the dead salvageable timber is currently being harvested. After 15 years, the dead trees are assumed to fall over and are no longer viable for harvest (Province of BC, 2016); suggesting that the salvage harvesting of MPB-infested stands is reaching its end, which was estimated MFLNRORD to occur in 2020, 15 years following the peak of the epidemic in 2005 (personal communication, LDN staff member, June, 2016; Province of BC, 2016). The young seral forest stands that are replacing the *chundoo* (lodgepole pine) stands in the traditional territories of our Nations has caused a notable transition of both plant and animal species in addition to a number of other cumulative effects. *Chundoo* (lodgepole pine), was a prominent characteristic of the traditional territories of our Nations that "when you were in the jack pine country up top, you respected the Ulkatcho, Kluskus and Nazko people" (the late Ulkatcho Chief Jimmy Sillas as cited in Birchwater, 1993).

Large-scale timber harvesting has the potential to substantially alter the local water regimes as snowmelt occurs earlier and faster, which may cause extensive dry conditions through the summer months. In contrast, the removal of timber from the land may also cause the local water table to rise, as trees are no longer drawing it down. Furthermore, road building projects, which have greatly increased within our traditional territories, are generally associated with increased sediment load in creeks and rivers where crossings are constructed and contribute to landscape fragmentation. Such road building projects have also greatly increased within our traditional territories. Our territories used to be exclusively travelled by foot, or horse and wagon along the Grease Trails; a stark contrast to the ease of access that the extensive network of new logging roads has allowed.

Further fragmentation and associated cumulative effects have occurred in recent history with the increasing size of wildfires, as depicted in Figure 3. For the Lhoosk'uz Dené territory, by the year 2000, fire size and total hectares burned began increasing exponentially when compared with previous fire-season data acquired from DataBC. This is not just a local trend, rather a trend that can be seen at the National scale, when considering data from Canada and the United States (Moritz et al., 2014).

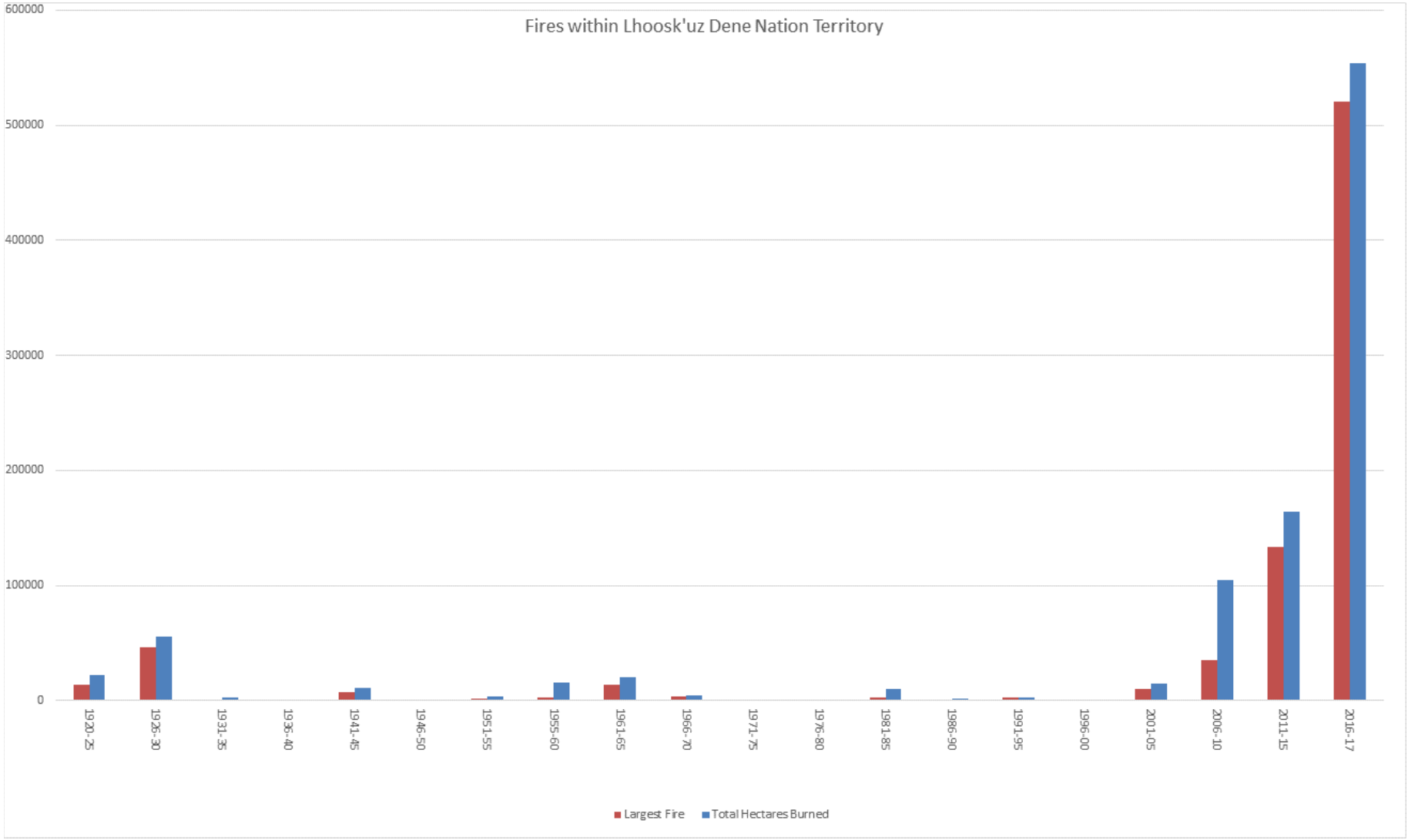

Figure 3 Wildfire size and total hectares burned within the LDN territory from 1920 to 2017 (personal communication, Neil Gauthreau, 2017).

5.2. Health of Land

The perceived and potential effects of the Project on the health of the land is that access to traditional and sacred sites and the continuation of traditional land use within and surrounding the Project footprint will be lost, further affecting the culture and heritage for our Nations' members. Furthermore, there will be cumulative effects on wildlife and water as habitats are increasingly fragmented and water resources are threatened by pollution (personal communication, UFN Band members, April, 2017). Further road building and land clearing must occur after thorough consultation with both communities, as LDN and UFN access protocols will apply, and will need to be adhered to should any of these industrial activities occur near our sacred sites (e.g., along the Grease Trail or at *Delhke'z* (Tatelkuz Lake)). Substantial concern exists around the mine's effect on the community's relationship and connection to the land (personal communication, community meeting notes, April, 2017). As stated by a UFN band member, "when you take away the land, it affects the Nation's ability to exercise sovereignty over it" (personal communication, community meeting notes, April, 2017). Our communities feel it is necessary to recognize the potential benefits associated with getting community members onto the land in monitoring positions and incorporating our traditional knowledge to inform decision making.

The spatial extent of the impacts, both actual and perceived, range from those derived from within the Project footprint to those that affect access to traditional family *keyohs* and other areas within the traditional territories of our Nations. Access to lands within the Project footprint will be lost for the duration of the life of the mine, although some of this land will be remediated post-closure and may be accessible again to our communities, if our community members choose to use this land in the future. However, numerous hectares of land on and around Mount Davidson will be unusable for many generations into the future, some of which are likely never to be useable again (i.e., area around the tailings storage facility, pit lake). While these areas comprise a small amount of our traditional territories and may be viewed as moderate in extent, this also results in the loss of land within traditional family *keyohs* that underly and border the Project footprint; thus, impacting a much greater extent on a local scale. The mine and associated infrastructure footprints fall within the Baptise-Cassam and Mashu *keyohs*, both of which are families of the Lhoosk'uz Dené Nation (Figure 4).

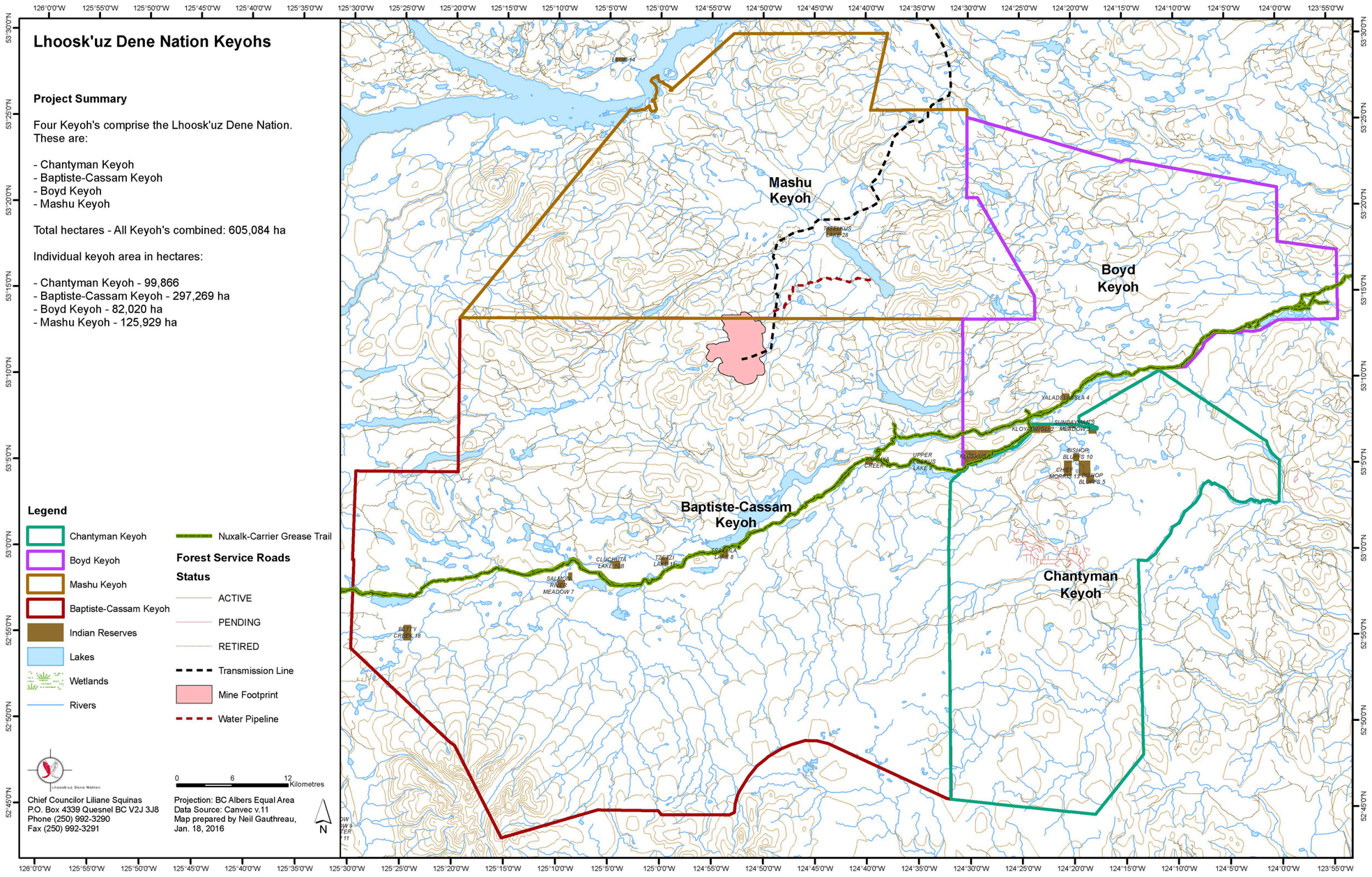

Figure 4 Map of LDN *keyohs* underlying the mine footprint (personal communication, Neil Gauthreau, 2016).

The impacts to the health of land are anticipated to persist throughout the life of the Project and beyond, as certain areas of the mine footprint remain closed to access. This means that future generations will continue to be affected by these impacts. Consequently, these impacts have negative implications to our cultural integrity as families, particularly those whose *keyoh* access will be lost, will be restricted from accessing traditional and current harvesting areas; thus, contributing the cumulative effects felt by our communities with increased industrial activity within our traditional territories. It is important to us that the Proponent have scientifically-defensible Care and Maintenance and Reclamation and Closure Plans. These plans need to be specific about how certain maintenance and emergency situations will be addressed (e.g., spill prevention and response, sediment and erosion control, management of tailings and waste rock, measures to monitor and mitigate adverse effects to wildlife).

Both of our Nations feel that work remains to be completed with respect to the health of the land prior to construction of the Project, specifically the collection and analysis of baseline toxicity levels in soil, plants and animals, as detailed in provincial Country Foods Monitoring Plan condition and in federal condition 6.11 (including subsection 1 through 3). A baseline risk assessment of this nature will provide our community members with a starting place from which to measure the true impacts to the health of land resulting from the operation of the mine. The continued monitoring (i.e., collection and analysis) of these parameters throughout the life of the mine may help ease some of the concerns that our community members have about the health of the land by quantifying changes, or lack there of, once the mine is in operation. Our Nations feel that the Proponent can play a role in supporting this project through funding and staffing contributions, as both of our Nations have limited resources to fill these roles.

5.3. Health of Water

The perceived and potential effects of the Project on the health of water include the quality of surface water, the protection of sacred spring water both within the Project area as well as throughout our territories, and the effects that polluted water will have on the people, wildlife and aquatic life. The community's concerns have been mirrored by the EA Review Team throughout the review process as additional analysis of water treatment options, cumulative effects and the development of a long-term robust water management plan have been recommended (personal communication, Rina Freed, Shannon Shaw and Stella Swanson (EA Review Team members), April, 2017). Although progress has been made to ensure the appropriate treatment and management of water at the Project site, these

plans give little comfort to community members as they have both a limited understanding of the scientifically complex plans and little trust of either government or New Gold and thus some remain skeptical (personal communication, community meeting notes, April, 2017). Both of our communities maintain concerns and fears about the fish in *Delhke'z* (Tatelkuz Lake), water levels in lakes and rivers/creeks in the area of the mine, and the future water quality in the area of the Project post-closure (personal communication, community meeting notes, April, 2017). Members from both of our communities have expressed the need for ongoing water testing and reliable access to the results (personal communication, community meeting notes, April, 2017).

The spatial extent of the impacts, both actual and perceived, is large, including not only the Davidson Creek and *Delhke'z* (Tatelkuz Lake) watershed, but also the sacred natural spring water that occurs throughout the traditional territories of our Nations and waterbodies that may be impacted by a tailings dam breach. Our communities have consistently voiced their concerns regarding water quality and the rippling effects that sudden and/or unforeseen changes in water quality could have on our health values. Furthermore, the fear of a tailings dam breach similar to that at Mount Polley has been expressed by UFN Chief and Council, some LDN councillors, as well as both UFN and LDN community members on a number of occasions. The extent of such an event has been proven to be high, with irreversible effects and other severe environmental impacts (Ministry of Energy and Mines, 2015). It will be imperative that the Proponent engages our community members to ensure that monitoring is conducted and that water quality parameters are reported back to the community to ease their concerns regarding the health of water, in addition to ensuring that all Project conditions are met.

The perceived effects of contaminated water may result in impacts to aquatic life, wildlife, people, culture, spirituality, economy and governance, similar to the examples discussed previously. If our community members believe that the water is contaminated, they may no longer harvest aquatic or terrestrial animals (i.e., fish, *tes'ket* (muskrat), *duni* (moose)) for fears that the contaminants would be passed on, thus impacting the health of the people. Further, such a belief would reduce a family's ability to manage and acquire resources within their traditional family *keyoh* and to participate in the non-monetary economy; consequently, impacting our cultural values. These impacts are anticipated to persist throughout the life of the mine and beyond, impacting future generations, with the risk of causing irreversible changes to the health of water in our traditional territories.

Our Nations have discussed the need for the development of Water Management Policies for the waterbodies within our traditional territories and believe that in doing so we may be able to alleviate

some of the concerns that persist within our communities regarding water quality. Another recurring issue that our Nations believe must be addressed by the Proponent is an Emergency Response Plan specific to a tailings dam breach that will ensure the safety of the family living at *Delhke'z* (Tatelkuz Lake). With the anticipated average water flow depth and arrival time of a flood associated with a tailings dam breach (Knight Piésold Ltd., 2016), it is imperative that a robust plan be put in place to protect this family. Suggestions that have been presented by community members include establishing permanent and reliable communications at Tatelkus Lake IR28 and should be included in the Accidents and Malfunctions Administration and Communications Plan. Should plan development be pushed to the permitting phase of the EA, then our Nations request the development of a collaboration agreement that ensures continued consultation throughout the permitting processes for this Project, thereby ensuring that our concerns are addressed.

5.4. Health of Aquatic Life

The perceived and potential effects of the Project on the health of aquatic life have been expressed through concerns about fish, waterfowl and *tes'ket* (muskrat) populations. The direct effects on Davidson Creek fish habitat and *Delhke'z* (Tatelkuz Lake) water levels may alter the ability for fish to return to these areas for spawning. Members of both communities have expressed fisheries concerns despite New Gold's findings that changes to habitat availability will be only five percent and therefore New Gold does not anticipate substantial effects to fish or fish habitat. The health of the water and the aquatic life, both of which are integral pieces to our Nation's culture and traditional practices, are dependent on proper management of water at and flowing from the mine site into our traditional territories. The *tes'ket* (muskrat), for example, is viewed as symbolic of the way that the community and waterways are interconnected and travel through the territory. It is also another important staple in the culture and diet of our Nations and is potentially threatened by polluted water in the tailings storage facility and throughout our traditional territories. *Tes'ket* (muskrat) is still trapped and eaten by community members today (personal communications, UFN Band member and community meeting notes, March and April, 2017).

The spatial extent of the impacts, both actual and perceived, is moderate, including loss of access to important fishing areas around the Project footprint and to fish and waterfowl populations that have been unaffected by the Project. Harvesting aquatic animals from our traditional territories has long been a part of our seasonal round and continues to be an important part of our daily lives. Since time immemorable our membership has thoroughly depended on aquatic resources including the

preparation and transportation of *tl'enaghe* (oolichan grease) along the Grease Trails, the use of fish traps on major rivers and streams throughout our traditional territories and annual trips to access *tah look* (salmon) runs within the greater Chilcotin plateau region.

As with the health of water, the perceived impacts to the health of aquatic life has the potential to impact health of people, culture, spirituality, economy and governance. These irreversible impacts are predicted to last throughout the life of the mine and beyond, affecting future generations. Our communities would like to see the Proponent mitigate these impacts through fish habitat offsetting projects (i.e., federal condition 3.11), by establishing flow and level requirements for Davidson Creek and *Delhke'z* (Tatelkuz Lake; i.e., federal conditions 3.8 and 3.9 and the Tatelkuz Lake Protection Plan provincial condition), as specific concerns have been raised about the impacts to the benthic environment in *Delhke'z* (Tatelkuz Lake).

5.5. Health of Wildlife

Prior to industrial development, the members of our Nations would rarely purchase food from a store. Instead, they would saddle up their horses and head into the mountains to hunt and trap. They would set up camp where they could smoke and dry the meat before transporting it home. As such, they were able to sustain their families through the resources provided within their traditional territory. This is no longer a reality for our Nations. Due to the cumulative impacts of industry, the health of our wildlife has suffered, and our members have no longer been able to sustain themselves by means of traditional hunting and gathering practices.

The perceived and potential effects of the Project on the health of wildlife are linked to existing cumulative effects to wildlife species, where community members have observed continual and accelerated population decline of important wildlife species like *duni* (moose) and *whudzih* (caribou), and consequently the loss of traditional hunting practices. Community members are concerned about offsetting for habitat fragmentation and loss associated with the Project. Members of both of our communities have requested to be included in the development of survey designs and building the wildlife management plan (i.e., provincial Wildlife Management Plan condition). Relevant studies conducted by UFN and LDN community members are believed to help inform these studies as members are aware of den locations and calving sites and are believed to be in the best position to carry out these studies (personal communication, community meeting notes, April, 2017).

The spatial extent of the impacts, both actual and perceived, is large; while direct impacts to preferred UFN and LDN harvesting areas appear moderate in their spatial extent, the landscape-level impacts will be much larger. Both of our communities are concerned about the impacts of the Project on *duni* (moose), *whudzih* (caribou), *shus* (grizzly bear) and other furbearer populations within our traditional territories and have expressed this concern throughout the EA process. There has been such a substantial decline in *whudzih* (caribou) populations within our traditional territories that members from both Nations have stopped exercising their right to hunt *whudzih* (caribou) for the sake of conservation and have reached out to the appropriate governments several times requesting that guide outfitters operating in our traditional territories do the same. While it is understood that such impacts are not solely the responsibility of the Proponent, there are fears that an already threatened population would only be further impacted by the Project.

The Southern Dakelh Nation Alliance (SDNA), of which our two Nations are a part, is working to develop an overarching strategic approach for *whudzih* (caribou) management within our traditional territories. The SDNA membership is committed to preserving and protecting the health and integrity of wildlife throughout our territories. Through our work with the SDNA, we have confirmed commitment from both the provincial and federal governments to work with us to collaborate on initiatives related to *duni* (moose) and *whudzih* (caribou) recovery and habitat restoration and protection. We are developing an effective engagement process with both levels of government to ensure that the SDNA is involved directly in decisions regarding wildlife in our territories, and specifically *whudzih* (caribou) and *duni* (moose). These strategies and processes will allow for our increased participation, management and stewardship across our traditional territories and allow for the recovery and mitigation of cumulative effects on the health of wildlife and will ensure our role in managing and protecting our territories in the future.

Duni (moose) is also an important part of our diet and is another ungulate that has seen substantial decline in our traditional territories, likely due to increased industrial activity, predation from wolves, road building and other forms of habitat fragmentation, including large-scale wildfires. And while the Proponent is not responsible for their recent decline, our community members fear that mounting pressures will only contribute to a weaker and smaller population in the future. Members have expressed that they have to travel farther than ever before to harvest a *duni* (moose) from within their traditional family *keyohs*. It is important that the Proponent understands that offsetting and mitigations for each of these important ungulate species must be separate and species-appropriate, and that the

use of traditional community knowledge should be considered when developing management, monitoring and mitigation plans that our communities will have confidence in.

There is consensus within our communities and our EA technical review team that several wildlife species were not sufficiently studied, including *whudzih* (caribou), *duni* (moose), *shus* (grizzly bear) and other furbearers. As such, our communities are struggling to quantify the potential impacts to the health of wildlife as we feel that appropriate baseline data have not been provided. Our Nations would like to see the Proponent support the development of a program that will result in the production of scientifically-defensible and culturally-appropriate baseline studies for these wildlife species, and the development of management, monitoring and mitigation strategies that are collaborative and incorporate traditional knowledge from community members (provincial Wildlife Management and Monitoring Plan condition). We feel that in doing so, the Proponent may contribute to alleviating some of the concerns that persist within our memberships. Another mitigation measure that the Proponent can support to reduce some of our communities' concerns and ensure a positive corporate legacy in our communities is to set up a wildlife fund, a commonplace non-habitat offsetting measure. This fund would subsequently be used to carry out surveys and studies not covered in the Project conditions.

Potential impacts and increases in cumulative effects on the health of wildlife are perceived to last for many generations and are irreversible; the loss of access to these important wildlife species has a significant impact on our culture integrity as future generations inherit limited access to these resources. As with all actual and/or perceived impacts related to the Project, and those related to other cumulative effects, the degradation of the health of wildlife will have resounding impacts throughout our communities.

5.6. Health of Air

Based on the perceived impacts of fugitive dust from the proposed Project, both LDN and UFN community members have expressed concern about the likelihood of returning to the Project area post-closure to hunt and gather. The perceived toxic effects that the mine will have on the plants and animals in the area have been identified as main reasons for not returning to this land for subsistence hunting and gathering as many families have done for years. Mount Davidson is highly respected by our communities for the food it provides and the healing ceremonies that occur at the mountain.

The effects of dust on other important cultural services that this land provides to our Nations includes the potential effects on actively utilized campsites throughout the traditional territories, in addition to

the potential effects of fugitive dust on the closest inhabited reserves, namely Tatelkus Lake IR28 and Kluskus IR1.

Many community members have expressed the desire for a cultural revival, such that generational language barriers are lessened, and traditional cultural practices are promoted. Our Nations have a strong connection to the land which allows our members the opportunity to disconnect from other aspects of day-to-day life. There is an increasing desire for families to move back to their *keyohs* and areas where they were raised. The connection to the land and the memories of traditional family land use are strongly tied to community members spirituality. If the impacts of fugitive dust on the areas adjacent to the Project are not appropriately mitigated, the loss of this connection to the land and the traditional land uses will have resounding effects within both communities. While the effects of fugitive dust are generally not expected to be permanent, they are long-term.

The impacts to the health of air are of small spatial extent and are expected to last throughout the life of the Project. Upon closure the impacts are anticipated to be substantially reduced as blasting and processing stops and the majority of travel around the Project footprint will be drastically reduced. Although, our community members have expressed concerns over eating contaminated resources from the areas around the mine and throughout our traditional territories even following mine closure. As mentioned in the Health of Land (Section 5.2), there is lacking baseline data on the current toxicity levels within the soil, plant and animal tissues throughout our traditional territories. Community fears could be reduced if the Proponent supported the development of an ongoing monitoring program that reported on the changes, or lack there of, relative to the operation of the mine as referenced in provincial Air Quality and Dust Management Plan and Country Foods Monitoring Plan conditions, and federal conditions 6.11 and 6.12.

5.7. Health of People

Concerns exist for those struggling with addiction as our community's fear that healthy people will be employed and the unhealthy will be left behind (personal communication, community meeting notes, March, 2017). A vicious cycle exists among community members which is linked to the health of the food our members are consuming and the way of life that has developed since many of our members have moved away from their traditional family land and into towns. The loss of knowledge of traditional food and consequently, the reduced consumption of food provided by the land has resulted in a number of the health problems discussed herein. The health of people is strongly influenced by their

surroundings (personal communication, UFN Band member, April, 2017). The transition from a traditional diet rich in animal foods and fresh, seasonal plants and berries to a diet of the European settlers of white flour, sugar, and other processed foods has contributed to the health epidemic facing the community (i.e., obesity, diabetes and alcoholism; Earle, 2013; Halseth, 2015). A trend which one community member feels will worsen with the introduction of high-paying mining jobs, as money has a way of negatively influencing people (personal communication, UFN Band member, April, 2017).

The health of the people is strongly connected to each of the other community heath values presented herein, and a negative impact on one is likely to have lasting negative impacts to our people, an interconnectedness that has been characterized throughout this report. Historically, our Nations have relied on the resources the land provides (i.e., access to fresh and cleansing spring water, harvesting fish, waterfowl and other wildlife resources, and gathering an abundance of native plant parts for consumption, cultural and spiritual needs), a tradition that continues, although to a lesser extent, today. The degradation of these resources has resulted in changes in our traditional hunting and gathering culture and the Project will contribute to the cumulative effects that our traditional territories are being impacted by. The Project will also further negatively impact the health of our people by altering the landscape at Mount Davidson, limiting access to traditional family *keyohs*, limiting access to sacred sites and by bringing a transient worker population into our traditional territories, an issue that has been reported as being a significant threat to the health of Indigenous populations, particularly women and children (Amnesty International, 2018). The results of this study are not precedent-setting, the impacts to the health of First Nation people associated with resource development have been described in a number of studies including one authored by the Pauktuutit Inuit Women of Canada (2016), the Firelight Group in collaboration with the Lake Babine Nation and the Nak'azdli Whut'en Nation (2017), and an earlier Amnesty International study (2016).

Both of our communities feel that the proposed mitigations for the health of people are insufficient. The Ulkatcho First Nation has requested that the Proponent contribute to the development of a permanent Treatment and Rehabilitation Centre for community members, thus creating a lasting positive legacy within the community. With support from the SDNA, the Lhoosk'uz Dené Nation has proposed the development of a Health Centre for First Nations in Quesnel. The goal is to construct a Nation Centre where members from the SDNA can gather and connect within the traditional territory of the SDNA. The Nation Centre would include educational, cultural, health and language components, as well as community recreation areas. The Nation Centre and the Treatment and Rehabilitation Centre are both

key projects that will positively offset the negative impacts that may be faced by our people should the Project be approved.

Beyond these projects our communities are uncertain as to what programs or policies may help improve the health of our people. Both of our Nations are requesting aid in gathering baseline human health data that may be used to inform the Proponent's Health and Wellness Strategies and future programs, as a substantial amount of work remains to be done to help our community members improve their health so that they can be trained and educated to fill the available job opportunities associated with the mine. For the small proportion of job-ready community members, there will likely be significant positive impacts.

Within LDN, our members are benefiting from the Proponent's contribution to the Quesnel-Dakelh Education and Employment Society, which was formed by us, Lhatko Dené Nation and Nazko First Nation in collaboration with UBC and industry partners to improve job-readiness in our communities. With the intention of developing and offering an adjusted standardized curriculum fine-tuned to community needs based on the outcomes of the Training and Employment Strategy, the Society is able to connect people with employment opportunities with the Proponent, Nation joint venture companies or as sub-contractors of the Nation. Our community members are hopeful that these positive impacts from the Project will initiate a trickle-down effect where those who are currently improving their education, skills and training to secure gainful employment will act as positive role-models for the next generation of LDN and UFN members.

5.8. Health of Culture and Language

Loss of heritage in the area of the proposed Project will be enhanced through the potential loss of sacred sites which exist throughout our Nation's territories. Mount Davidson in particular, is respected by community members for the food it provides as an important berry picking location, for hunting, and the traditional healing ceremonies that occur at the mountain. There is substantial concern that newcomers will not respect the protocols for visiting sacred sites and traditional hunting grounds, and that their access throughout the traditional territories of our Nations will not be carefully regulated or monitored.

We anticipate that the proposed SDNA Nation Centre will include components that will enhance the health of culture and language. The Nation Centre, located within the historic path of the Grease Trail will connect the communities, and will provide a space for healing, education and cultural revitalization.

The Nation Centre will include a repository for artifacts, classrooms for language revitalization and cultural activities, and gathering spaces. The Nation Centre is essential to the continued health of our culture and language. Our Nations feel that funding from New Gold will contribute to the realization of this vision for a Nation Centre and will subsequently offset some of the negative impacts to the health of our culture and language associated with the Project.

The impacts to the health of culture and language are perceived to be long-lasting, predominantly because of the cumulative impacts from other health values that will negatively affect the traditional ways of our Nations. Our culture and language are anticipated to be further negatively impacted by the influx of mine employees who choose to recreate (i.e., hunt and fish) in our traditional territories, inevitably leaving less resources for our community members. It is imperative that the Proponent ensure that all mine employees are educated about the traditional territories they are on, how they are governed and how they continue to support the traditional ways of our Nations. This should be done through signage around the mine and associated infrastructure (i.e., worker camp), as well as through site orientation/training exercises as detailed in the provincial Indigenous Cultural Awareness and Recognition condition. As with the Rainy River mine in Ontario, our community members have expressed interest in developing an offering site where newcomers can present gifts or tobacco, thus paying respect to the families and Nations whose land the mine overlaps. Our communities also feel that it is necessary to honour these families, specifically those belonging to the *keyohs* that will be impacted most severely, the Baptise-Cassam and Mashu families, by hosting a ceremony thanking them for sharing their *keyohs*.

5.9. Health of Spirituality

The perceived and potential effects of the Project on the health of culture, language and spirituality could be mitigated through a "cultural revival" as requested by a number of community members through programs which allow families to return to their traditional family land, promoting environmental stewardship among community members, and teaching the community youth to implement traditional practices such as harvesting, preparing and storing berries and meat from fish and other animals (personal communication, community members meeting notes, March, 2017). Support for the Nation Centre in Quesnel is an example of how the Proponent can attempt to offset the negative impacts of the Project on the health of spirituality.

5.10. Health of Economy

Members from both of our communities have expressed fears that their traditional economies will continue to be impacted by development, and that jobs will not flow into the community as promised (personal communication, community meeting notes, March, 2017). Similar to the effects felt by the community with respect to the forestry industry, there is concern that habitats will continue to be destroyed and access roads will increase hunting pressures further reducing *duni* (moose) and *whudzih* (caribou) populations while the community is granted no real benefits. UFN members have expressed the importance of the land and their traditional economy by stating that money doesn't equate to wealth; wealth is what the people can get from the land (personal communication, community meeting notes, April, 2017).

While there are negative impacts to the traditional economy that is still active in our communities, there will also be many entry-level employment opportunities for job-ready members, providing them with the opportunity to act as positive role-models for the next generation of LDN and UFN members, and giving them greater access to the monetary economy through negotiated contracts with potential business partners. The support and development of Nation-owned companies and joint ventures will offer further opportunities to a variety of community members, including those who may not qualify for jobs directly related to the proposed Project. Overall, our communities feel that the economic benefits will have the most positive impact of all Project impacts.

5.11. Governance

The perceived and potential effects of the Project on governance stem from ongoing mismanagement of traditional First Nation lands by the provincial and federal governments in the form of various industry tenures, park boundaries and associated rules (i.e., park use permits; personal communication, UFN Band members, April, 2017). When government rules and industry activities are imposed on First Nation lands, the First Nations feel disempowered and may ultimately abandon the land and are effectively forced to move into town if these new rules are not adhered by. For example, a UFN Elder with limited proficiency in English has been requested to file a Park Use Permit in order to continue trapping on his family's traditional lands, a document which he is incapable of completing and has therefore been told that he is no longer in compliance with the park use rules and no longer governs his own traditional land as a consequence (personal communication, UFN Band members, April, 2017). Furthermore, non-Aboriginal forestry representatives have restricted access to traditional family lands on which they are harvesting (personal communication, UFN Band member, April, 2017); another blatant violation of the

traditional *keyoh* governance system. There has been concern from community members that increased access throughout their traditional territories associated with the development of the Blackwater Gold Project will increase the degradation of the *keyoh* system as newcomers will not respect the First Nation rules about travelling and recreating on these lands (personal communication, UFN Band member, LDN staff member, April, 2017).

The impacts to governance may be mitigated by the Proponent through the establishment of cultural camps and the acknowledgement and promotion of the traditional *keyoh* system, whereby bringing community members back out onto the land. The *keyoh* system has been increasingly degraded since the first contact with early European settlers in the area and is a concern that our communities have voiced throughout the EA process. Our Nations feel that the health of the people, their culture and language, and their right to exert governance over their traditional family *keyohs* through exclusive use and occupancy can be improved by giving our people the opportunity to return to these lands and participate in the traditional seasonal round activities that occurred here for centuries.

The positive impacts that are anticipated to come form the development of the Project includes the emergence of a new method for exerting governance over the resources within our traditional territories, through positive and collaborative interactions with government agencies and industry. The Proponent can support these positive impacts and promote a positive legacy within our communities by supporting and encouraging the development of capacity within our Nations, business or otherwise.

6. Conclusions

Our Nations have occupied and governed our respective traditional territories since time immemorable and continue to do so in similar ways currently. The signing of the MOU provided for the collaborative drafting of this report. It has also provided our Nations with strong relationships between the federal and provincial government agencies and has given us the opportunity to strengthen our voices on issues that are important to us. This opportunity has given us the ability to exert governance over our land and its resources in a new way, marrying our traditional governance systems with government agreements and industry partnerships. In doing so, we can continue to promote and protect our community health values that were identified herein.

The interconnected health values that were identified by our community members include:

- Health of land,

- Health of water,
- Health of aquatic life,
- Health of wildlife,
- Health of air,
- Health of people,
- Health of culture and language,
- Health of spirituality,
- Health of economy and,
- Governance.

When attempting to assess the severity of impacts of the Project on these health values, our community members identified the importance of understanding the connections between each of the health values and how an impact to one often results in compounding impacts to many other health values, as shown in Figure 1. Our community members also assessed the Proponents proposed mitigation measures (Appendix 2) and provided feedback on alternative mitigation measures that the Proponent should consider to ease some of the persistent community fears surrounding the Project. These recommendations were considered and generally incorporated in the collaborative drafting process for the provincial and federal conditions. With all pertinent information considered, our Nations leaderships evaluated the severity of impacts (Figure 2) associated with the Project on each of the key health values.

6.1. Health of Land

Our Nations leaderships have reviewed and thoroughly considered the potential impacts, both actual and perceived; the suite of mitigation measures proposed by the Proponent; the provincial and federal conditions for the Project, and have identified impacts to the health of land as being high, but acceptable. The proposed mitigation measures and the Project conditions aim to ensure that the impacts to the health of land are minimized; however, there are permanent impacts that our future generations will inherit and that will contribute to the cumulative effects of resource extraction (i.e., logging and mining) in our traditional territories.

Many of our Nations' concerns were addressed through the collaborative condition development process, including the use of Aboriginal group monitors (Aboriginal Group Monitor and Monitoring Plan), and baseline toxicity assessments and monitoring (Country Foods Monitoring Plan). However, our Nations maintain concerns about the protection of the health of the land through issues identified and not resolved in the provincial conditions and assessment reports for the Project, including the effectiveness of the proposed mitigation measures. Many of these issues were flagged by EAO to be resolved in a post-EA certificate government-to-government collaboration agreement which was received by our Nations on April 9, 2019. Additional issues flagged for post-EA certificate resolution have been included in a permitting collaboration plan between our Nations and the Ministry of Energy, Mines and Petroleum Resources (EMPR), Ministry of Environment (MOE) and Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) which was received by our Nations on April 25, 2019. The contents of these agreements, although the expectation of LDN and UFN was that the collaborative permitting process would be a legally binding process to ensure the continued commitment of the province to work with our Nations in making collaborative decisions, the contents of these agreements have provided our Nations with comfort that our concerns will continue to be addressed throughout the collaborative drafting and review of management plans and permit applications, either for or by the EAO or other provincial ministries.

6.2. Health of Water

Our Nations leaderships have reviewed and thoroughly considered the potential impacts, both actual and perceived; the suite of mitigation measures proposed by the Proponent; the provincial and federal conditions for the Project and have identified impacts to the health of water as being high, but acceptable. The proposed mitigation measures and the Project conditions aim to ensure that the impacts to the health of water are minimized; however, there remains uncertainty in the effectiveness of the mitigation measures and a lack of trust in the water treatment and dam safety measures to be employed at the Project site.

Many of our Nations' concerns were addressed through the collaborative condition development process, including aspects of adaptive management and public communications. However, our Nations maintain concerns about the protection of the health of water through issues identified and not resolved in the provincial conditions and assessment reports for the Project, including the effectiveness of the proposed mitigation measures. Many of these outstanding concerns were flagged to be resolved through the aforementioned collaboration agreements with EAO, EMPR, MOE and FLNRORD.

6.3. Health of Aquatic Life

Our Nations leaderships have reviewed and thoroughly considered the potential impacts, both actual and perceived; the suite of mitigation measures proposed by the Proponent; the provincial and federal conditions for the Project and have identified impacts to the health of aquatic life as being moderate. The proposed mitigation measures and the Project conditions aim to ensure that the impacts to the health of aquatic life are minimized; however, there remains uncertainty in the effectiveness of the mitigation measures for ensuring water quality in the receiving environment and the results of the predictive models for water withdrawals from *Delhke'z* (Tatelkuz Lake), and the associated impacts to fish and fish habitat in the Lake will only be known once constructed and operated.

6.4. Health of Wildlife

Our Nations leaderships have reviewed and thoroughly considered the potential impacts, both actual and perceived; the suite of mitigation measures proposed by the Proponent; the provincial and federal conditions for the Project and have identified impacts to the health of wildlife as being high, but acceptable. The proposed mitigation measures and the Project conditions aim to ensure that the impacts to the health of wildlife are minimized; however, our Nations remain concerned about the impacts of habitat loss and alteration associated with the Project and the effectiveness of the proposed mitigation measures; in addition to the potential impacts to water quality and the compounding impacts poor water quality could have on wildlife.

Our Nations maintain concerns about the protection of the health of wildlife through issues identified and not resolved in the provincial conditions or assessment reports for the Project. For example, the Caribou Mitigation and Monitoring Plan condition does not identify the preferred location for the offsets, which UFN leadership and Band members have consistently requested be Capoose Mountain, or Capoose High Elevation Ungulate Winter Range. Capoose has been identified as the highest value habitat for caribou in the area not only by UFN but also by representatives of the BC government. The final location of the offsetting for caribou is of great importance to our Nations.

6.5. Health of Air

Our Nations leaderships have reviewed and thoroughly considered the potential impacts, both actual and perceived; the suite of mitigation measures proposed by the Proponent; the provincial and federal conditions for the Project and have identified impacts to the health of air as being low. Our Nations feel

that the proposed mitigation measures and Project conditions are likely to reduce the impacts associated with dust and noise from the Project.

6.6. Health of People, Culture, Language, Spirituality, Economy and Governance

Our Nations leaderships have reviewed and thoroughly considered the potential impacts, both actual and perceived; the suite of mitigation measures proposed by the Proponent; the provincial and federal conditions for the Project and have identified impacts to the health of people as being high, but acceptable. The proposed mitigation measures and Project conditions aim to ensure that the impacts to these non-biophysical health values are minimized; however, given the lingering uncertainty in the baseline data and the effectiveness of the proposed mitigation measures and the compounding impacts that could result, our Nations are not certain that negative impacts from the Project will be minimized effectively. However, the positive impacts from the Project will all aim to improve the status of these non-biophysical health values. Our Nations are hopeful that the positive contributions that the Proponent has made (e.g., the Quesnel-Dakelh Education and Employment Society) will help guide community members, present and future, to more gainful employment and better opportunities in general.

7. Outstanding Issues

Many of the issues raised by our Nations were proposed to be addressed in a post-EA certificate government-to-government collaborative agreement that will ensure our continued involvement in the development and review of management plans as required by EAO, in addition to initial and life-of-mine permitting processes as required by EMPR, MOE and FLNRORD. On April 9, 2019 the EAO delivered a letter to our Nations outlining the province's commitment to maintain a collaborative approach during the review of management plans and other post-EA certificate activities, should a certificate be issued for the proposed Project. Further, on April 25, 2019 EMPR, MOE and FLNRORD collectively delivered a letter to our Nations outlining their commitment to maintain a collaborative approach through initial and life-of-mine permitting for the proposed Project. While neither agreement is legally binding, it provides our Nations with some comfort in knowing that there is a process for addressing unresolved concerns that will carry forward from the EA review process.

8. Chief and Council Support

A community information session for UFN Band members was scheduled for March 4, 2019 but due to a death in the community, the meeting was rescheduled. The LDN community information session was held in Quesnel for LDN Band members on March 6, 2019, which UFN leadership attended. The UFN community meeting was rescheduled for March 13, 2019, but another community death cancelled the event. Given the recent tragedies in the UFN community, the meeting was not rescheduled, and the UFN leadership was thankful for the opportunity to be a part of the meeting in Quesnel. The information session provided those in attendance with an overview of the results of the EA process, including the results of the impacts assessment and condition development processes.

As of April 18, 2019, our Nations confirmed that New Gold had adequately consulted and accommodated our Nations with respect to our asserted Aboriginal rights and title in respect of the EA. Our Nations acknowledge that this precedent-setting process has been more effective than that of previous EAs and take satisfaction in having our concerns included in the conditions for this Project; however, the process is not complete at this time as not all of our Nations' concerns or interests regarding the Project have been addressed or resolved through the EA process. Before the Crown can be considered to have adequately satisfied its duty to consult and accommodate our Nations, we require that EAO ensure that all non-consensus views and outstanding issues are clearly and fairly articulated in the decision materials for statutory decision-makers, that British Columbia negotiate with our Nations an agreement to share the direct mineral tax revenue on the Project, and that British Columbia negotiate with our Nations a process to ensure that government-to-government collaboration in respect of the Project continues through initial and life-of-mine permitting.

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Appendix 1: Memorandum of Understanding (MOU)

ORIGINAL

FILE COPY

MEMORANDUM OF UNDERSTANDING ("MOU")

Regarding the Environmental Assessment for the proposed Blackwater Gold Project ("the Project")

between

Her Majesty the Queen in Right of the Province of British Columbia
as represented by the
Environmental Assessment Office ("EAO")

and

Her Majesty the Queen in Right of Canada
as represented by the
Canadian Environmental Assessment Agency ("the Agency")

and

Ulkatcho First Nation, as represented by Chief and Council **("Ulkatcho")**

and

Lhoosk'uz Dené Nation, as represented by Chief and Council **("Lhoosk'uz Dené")**

(each a "Party" and, collectively, the "Parties")

Purpose

1) The Parties have created this MOU in recognition of Ulkatcho and Lhoosk'uz Dené's asserted Aboriginal rights and interests, including title ("Aboriginal Interests") and to facilitate collaboration on the respective provincial and federal processes. The purpose of this MOU is to deliver an effective, transparent, and rigorous environmental assessment that, guided by the principles and commitments outlined below, effectively assesses the potential adverse effects of the Project on the interests of Ulkatcho and Lhoosk'uz Dené while meeting the respective statutory and legal obligations of EAO and the Agency.

Principles

2) ***Government-to-Government relationship*** – The Parties recognize the importance of their relationship and government-to-government basis for discussions, including their respective accountability to their constituents.

   a) Collaboration within the environmental assessment (the "EA") process for the Project can facilitate EAO and the Agency's constitutional duty to consult and accommodate Ulkatcho and Lhoosk'uz Dené's Aboriginal Interests". However, the focus of collaboration will be working together on a government-to-government basis.

b) Participation in the EA by Lhoosk'uz Dené and Ulkatcho should not be construed as endorsing or supporting the Project.

c) The Parties recognize that issues may arise that could exceed the scope of the EA, or the mandate of either the EAO or Agency. The Parties will be open to exploring approaches or discussions that may necessitate broader government-to-government involvement. Where other government-to-government processes are established, they will be informed by the activities of each, and feedback mechanisms will exist between them.

3) ***Living document*** – The Parties will treat the MOU as a living document. They may incorporate new collaboration ideas into the MOU if and as they arise and are agreed to by the Parties.

4) ***Mutual accountability*** – The Parties take responsibility to participate and advance decision-making in a timely fashion. The Parties agree that an assessment should be robust, rigorous, predictable, timely, credible, and support durable decisions. The Parties will respect and seek to inform mutual decisions and timelines recognizing each government has decisions to make and decision-making processes to follow relating to the Project. The EAO and Agency must operate within their existing policy and legislation frameworks.

5) ***Interest-based*** – The Parties will avoid taking positions and will attempt to resolve issues in an interest-based manner, where possible.

6) ***Transparency*** – The Parties value collaborative processes that are clear, neutrally administered, transparent and predictable; where information is shared and made publicly available; and where decision-makers consider a range of information, including traditional, cultural, economic and scientific knowledge.

7) ***Fairness*** – The Parties agree that the following matters will inform the process outlined in the MOU: constitutional obligations to Ulkatcho and Lhoosk'uz Dené, third party interests, sufficiency of information, and administrative fairness.

a) The Parties will ensure that the proponent of the Project, New Gold Inc., has access to and opportunity to respond to issues affecting the assessment of the Project.

b) Where additional information identified is not available in a timeframe to allow the information to be adequately considered during the EAO's Application review stage and the Agency's technical review stage, the Parties will work toward developing consensus recommendations on requests for timeline extensions or suspensions, or consensus recommendations for alternative approaches to address the limited information or analysis.

8) ***Collaboration and consensus-seeking*** – Different levels of collaboration may be required for the following steps in relation to the EA for the Project:

   a) The Parties collaboratively draft those sections of the EAO's Project Assessment Report (the "Assessment Report") and the Agency's Environmental Assessment Report ("EA Report") relating to the effects to Ulkatcho and Lhoosk'uz Dené's Aboriginal Interests;

   b) The Parties collaboratively draft and work toward consensus on proposed EA conditions (should they be issued) related to addressing impacts to Ulkatcho and Lhoosk'uz Dené's Aboriginal Interests. Subject to agreement, the Parties will include New Gold Inc., key working group members, and government agencies as appropriate and available to participate in discussions;

   c) Work toward development of consensus conclusions in the Assessment Report and EA Report on:

      i) Project-related impacts on Ulkatcho and Lhoosk'uz Dené's Aboriginal Interests; and
      ii) the adequacy of consultation and accommodation with Ulkatcho and Lhoosk'uz Dené;

   d) Where the Parties are unable to reach consensus, the Parties will ensure any non-consensus views are clearly and fairly articulated in decision materials for statutory decision makers;

   e) Other collaborative opportunities may include:

      i) regularly scheduled (bi-weekly) collaboration meetings;
      ii) community meetings;
      iii) specific working group or sub-working group structures, as needed; and
      iv) meetings with other First Nations involved in the EA.

9) ***Ongoing involvement*** – Effective, meaningful and ongoing participation of Ulkatcho and Lhoosk'uz Dene can be explored within EA decision-making, and opportunities appropriate to the nature of potential impacts to each of Ulkatcho and Lhoosk'uz Dene's Aboriginal Interests. The Parties will establish a work plan regarding such opportunities.

   a) The Parties will consider ongoing roles for Ulkatcho and Lhoosk'uz Dené in monitoring within Ulkatcho and Lhoosk'uz Dene's traditional territory.

Signed on 03 day of Oct, 2016

Chief Betty Cahoose

Ulkatcho First Nation

Signed on 3 day of Oct, 2016

Chief Liliane Squinas

Lhoosk'uz Dené Nation

Signed on 3rd day of Oct., 2016

Michelle Carr, Assistant Deputy Minister

Environmental Assessment Office

Signed on 3rd day of October, 2016

Lisa Walls, Regional Director

Canadian Environmental Assessment Agency

Appendix 2: New Gold's Proposed Mitigation Measures

BLACKWATER GOLD PROJECT: SUMMARY OF PROPOSED MITIGATION MEASURES (NOVEMBER 6, 2018)

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
1.0	**Noise and Vibration**		
	Change in ambient noise levels	**C, O**	• Select equipment with industry standard noise abatement technology (e.g., brakes, exhaust, sound hoods, mufflers, jackhammer jackets) • Minimize the height of material drops from the plant and machinery • House the pebble crusher and grinding circuits in insulated structures, and position equipment in sheltered or enclosed locations, to the extent possible • Locate construction and operations camps to minimize noise disturbance from road and air traffic, and mine equipment • Conduct regular vehicle and equipment inspections to check noise abatement devices • Turn off equipment when not in use, to the extent possible • Implement 60 km/hr speed limit on Project-controlled roads • Operate and maintain equipment within specifications and capacities, and to relevant standards and guidelines (e.g., Environment Canada's Environmental Code of Practice for Metal Mines) to the extent possible[1] • Adhere to Part 8 (Explosives) of the Health, Safety and Reclamation Code for Mines in British Columbia (BC MEM 2017)[2] • Use smaller aircraft (e.g., Dash 8-100) instead of larger aircraft whenever possible • Avoid low altitude flights except on final approach and take-off • Limit flights to daylight hours • Limit taxing time • Use low noise equipment (e.g., generator with muffler) • Develop and implement a Noise Management Plan (draft plan provided in Section 12.2.1.18.4.20 of the Application/EIS) prior to commencement of Construction, and consult with Indigenous groups and relevant government agencies on the plan • Develop and implement a noise complaint response and resolution process
2.0	**Climate Change**		
	Change in atmospheric levels (GHG)	**C, O**	• Use buses and/or airplanes, instead of personal transportation, to transport workers to the mine site during Construction and Operations to reduce emissions • Use low sulphur fuel for off-road vehicles (e.g., mine fleet) in compliance with the Off-Road Compression-Ignition Engine Emission Regulations (SOR/2005-32)[3] • Operate and maintain emission control equipment as per manufacturers requirements (e.g., refuse incinerator) • Manage vehicle and equipment emissions by conducting regular vehicle, machinery and equipment maintenance, restricting speeds, sizing of equipment and reducing idling • Implement an Air Quality and Emissions Management Plan (AQEMP; draft plan provided in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust
3.0	**Air Quality**		

[1] Environment Canada. 2009. *Environmental Code of Practice for Metal Mines*. Environment Canada. https://www.ec.gc.ca/lcpe-cepa/documents/codes/mm/mm-eng.pdf

[2] BC MEM. 2017. *Health, Safety and Reclamation Code of British Columbia*. British Columbia Ministry of Energy and Mines. http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health_safety_and_reclamation_code_2017.pdf

[3] Off-Road Compression-Ignition Engine Emission Regulations, SOR/2005-32. http://canlii.ca/t/lfgk

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
	Change in ambient air quality	**C, O**	• Manage fugitive dust during Construction and Operations through measures such as speed limits on Project-controlled gravel roads, wetting unpaved roads, revegetation of disturbed areas and/or using other materials, use of appropriately aggregate for road surfaces with low silt content, and progressive reclamation of disturbed areas as soon as possible during Operations, Closure and Post-closure • Implement an AQEMP (draft plan provided in Section 12.2.1.18.4.9 provided in the Application/EIS), including measures to manage fugitive dust such as revegetation of disturbed areas, a follow-up monitoring program to confirm air quality and air dispersion model predictions and to determine the effectiveness of any mitigation measures with regard to air issues, and consult Indigenous groups and relevant government authorities on the draft plan • Operate and maintain emission control equipment as per manufacturers requirements (e.g., refuse incinerator) • Manage vehicle and equipment emissions by conducting regular vehicle, machinery and equipment maintenance, restricting speeds, sizing of equipment and reducing idling • Use low sulphur fuel for off-road vehicles (e.g., mine fleet) in compliance with the Off-Road Compression-Ignition Engine Emission Regulations (SOR/2005-32)[3]
4.0	**Surface Water Quantity**		
4.1	Change to surface water flows (Davidson Creek, Creek 661, Creek 705 and Chedakuz Creek watersheds)	**C, O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment • Construct the Northern and Southern diversions during the Construction phase to supplement the Freshwater Supply System (FWSS) (i.e., Tatelkuz Lake water) to mitigate changes in flows in Davidson Creek and Chedakuz Creek, downstream of Tatelkuz Lake, and provide flexibility in apportionment of flow to Davidson Creek during Operations, Closure and Post-Closure • Construct and operate the pit water treatment plant during Operations to provide flexibility to minimize surplus water accumulation in the tailings storage facility (TSF) and apportion flow to Davidson Creek • Source process water from site contact water sources during Operations to reduce water withdrawal from Tatelkuz Lake and associated flow reduction in Chedakuz Creek • Flood open pit with TSF supernatant water and ECD flows during Closure to reduce water withdrawal from Tatelkuz Lake and associated flow reduction in Chedakuz Creek • Pump water from Tatelkuz Lake to meet Davidson Creek instream flow needs (IFN) until the end of Closure • Discharge treated pit water to Davidson Creek to reduce water withdrawal from Tatelkuz Lake during years 5-14 • Implement seepage control at TSF dams and pit lake • Construct the TSF D spillway in Year 10 to intercept additional unrecoverable seepage from the TSF to Davidson Creek and Creek 661, if monitoring determines there is unrecoverable seepage that needs to be captured • Implement a Mine Water Management Plan (draft plan provided in Section 12.2.1.18.4.18 of the Application/EIS), including plans for operation of the TSF, seepage monitoring plans and adaptive management plans and on-site water management • Adhere to the Environmental Code of Practice for Metal Mines (Environment Canada 2009), to the extent possible[1]
4.2	Change to Tatelkuz Lake levels	**O, CL**	• Minimize withdrawals from Tatelkuz Lake by maximizing on-site water recycling and reuse (e.g., sourcing process water from site contact water sources) and diverting non-contact water around the TSF to Davidson Creek
5.0	**Surface Water Quality**		

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
5.1	Change in anions, nutrients, total and dissolved metal concentrations in Davidson Creek (nitrate, antimony dissolved aluminum and total zinc)	**O** (nitrate and dissolved aluminum) **PC** (antimony, dissolved aluminum, total zinc)	• Use conventional SO_2/air treatment for cyanide destruction of tailings during Operations, prior to deposition in the TSF • Treat run-off and seepage from the low grade ore (LGO) stockpile during Operations, if monitoring determines necessary to meet permit conditions • Backfill the LGO in the pit if the LGO stockpile is not processed by the end of mill operations • Construct the TSF D spillway in Year 10 to intercept additional unrecoverable seepage from the TSF to Davidson Creek and Creek 661, if monitoring determines there is unrecoverable seepage that needs to be captured • Locate fuel storage and refuelling activities outside riparian areas • Active water treatment to treat low grade ore stockpile runoff, tailings, open pit surface and groundwater during Operations • Active water treatment to treat TSF supernatant and water treatment brine during Closure • Active water treatment to treat open pit water; water reporting to ECD, and TSF water and brine during Post-Closure • Implement a Mine Waste Management Plan (draft plan provided in Section 12.2.1.18.4.17 of the Application/EIS), including plan for prediction, monitoring, prevention and mitigation of metal leaching/acid rock drainage and management strategies for waste rock, tailings and LGO • Implement a Mine Water Management Plan (draft plan provided in Section. 12.2.1.18.4.18 of the Application/EIS), including plan for on-site water management • Follow the Environmental Code of Practice for Metal Mines to the extent possible and the International Cyanide Management Code (ICMC) • Implement an AQEMP (see draft plan in Section 12.2.1.18.4.9), including measures to manage fugitive dust
5.2	Change in total and dissolved metal concentrations in Creek 661 (dissolved aluminum, total chromium, total copper and total zinc)	**O** (dissolved aluminum, total chromium, total copper, total zinc) **PC** (dissolved aluminum, total zinc)	• Construct the TSF D spillway in Year 10 to intercept additional unrecoverable seepage from the TSF to Davidson Creek and Creek 661, if monitoring determines there is unrecoverable seepage that needs to be captured • Install pit lake seepage collection system to intercept seepage from the open pit lake to Creek 661 if monitoring determines there is unrecoverable seepage that needs to be captured during Post-closure • Implement a Mine Waste Management Plan (draft plan provided in Section 12.2.1.18.4.17 of the Application/EIS), including plan for prediction, monitoring, prevention and mitigation of metal leaching/acid rock drainage and management strategies for waste rock, tailings and LGO • Implement a Mine Water Management Plan (draft plan provided in Section 12.2.1.18.4.18 of the Application/EIS), including plan for on-site water management
5.3	Change in total and dissolved metal concentrations in Chedakuz Creek (dissolved aluminum)	**PC**(dissolved aluminum)	• Treat open pit water, including pit sumps and perimeter wells, during Operations for dissolved metals before discharge to Davidson Creek, if monitoring determines necessary to meet permit conditions • Treat for sulphate, ammonia and dissolved metals before discharge to Davidson Creek during Post-closure, if monitoring determines necessary to meet permit conditions • Implement a Mine Waste Management Plan (draft plan provided in Section 12.2.1.18.4.17 of the Application/EIS), including plan for prediction, monitoring, prevention and mitigation of metal leaching/acid rock drainage and management strategies for waste rock, tailings and LGO • Implement a Mine Water Management Plan (draft plan provided in Section. 12.2.1.18.4.18 of the Application/EIS), including plan for on-site water management
5.4	Change in total suspended solids and turbidity	**C, O, CL**	• Implement a Sediment and Erosion Control Plan (SECP; draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., diversion and runoff collection ditches, sediment control ponds, revegetation of disturbed areas and use of flocculants) • Adhere to BC Ministry of Environment (BC MOE) Technical Guidance 7: Assessing the Design, Size, and Operation of Sediment Ponds used in Mining (2015)[4]
6.0	**Sediment Quality**		
	Change to sediment quality due to changes in surface water quality	**O, CL, PC**	• Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion and sediment control measures (e.g., diversion and runoff collection ditches, sediment control ponds, revegetation of disturbed areas and use of flocculants) • Adhere to BC MOE Technical Guidance 7: Assessing the Design, Size, and Operation of Sediment Ponds used in Mining (2015)[4] • Implement a Mine Water Management Plan (draft plan provided in Section 12.2.1.18.4.18 of the Application/EIS) including plan for on-site water management
7.0	**Groundwater Quality and Quantity**		
7.1	Change to groundwater quantity	**O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment

[4] BC MOE. 2015. *Technical Guidance 7: Assessing the Design, Size, and Operation of Sediment Ponds used in Mining*. British Columbia Ministry of the Environment. http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/assessing_design_size_and_operation_of_sediment_ponds.pdf

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
7.2	Change to groundwater quality	**O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment • Implement a Mine Water Management Plan (draft plan provided in Section 12.2.1.18.4.18 of the Application/EIS), including plans for seepage collection from the TSF and open pit
8.0	**Wetlands** (Indicators: ecological, hydrological, biochemical and habitat functions)		
	Loss of wetland extent/degradation of wetland function	**C, O, CL,** PC	• Design linear features to avoid wetlands to the extent possible • Maintain existing drainage connections when designing and installing culverts for cross drainage, and avoid creating outlets that either drain wetlands or constrict the natural outlet during construction, where possible • Use low ground pressure equipment or tracked equipment for work in areas with saturated soils during Construction, to the extent possible • Use timber mats, driving mats, or log corduroys or other means of ground protection where needed to minimize disturbances to vegetation and reduce rutting during construction • Adhere to Fisheries and Oceans Canada's (DFO's) Guidance on Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2013)[5], Approved Work Practices for Managing Riparian Vegetation (BC Hydro et al. 2003)[6] • Implement applicable best management practices identified in Wetland Ways: Interim Guidelines for Wetland Protection and Conservation in British Columbia (Cox and Cullington 2009)[7], Riparian Management Area Guidebook (BC MOF 1995)[8], and Forested Wetlands-Functions, Benefits, and the Use of Best Management Practices (Welsch et al. 1995)[9] • Prior to construction, install sediment controls, including silt fences and containment structures, prior to and maintain them during construction activities • Protect natural drainages and watercourses by constructing appropriate on-site sediment control devices (such as collection and diversion ditches, sediment traps, sediment ponds) and use of flocculants • Place soil salvage stockpiles in locations where they will have no impact on natural drainages • Locate fuel storage and refuelling activities outside riparian areas • Direct all surface runoff from plant site grading, open pit development, TSF construction and waste rock storage area development to the TSF basin • Control metal leaching by separating contact and non-contact surface water through diversion dams and collection trenches; and • Collect all (except minimal) TSF seepage downstream of the TSF D Dam during operations and post-closure • Implement a Wetlands Management Plan (draft plan provided in Section 12.2.1.18.4.3 of the Application/EIS), including definition of wetland buffer zones and wetlands monitoring plan • Where possible, a 30 metre vegetation buffer will be used to protect wetland functions • Implement a Wetland Compensation Plan (WCP; draft plan provided in Appendix 5.3.7A) pursuant to the Federal Policy on Wetland Conservation, (Government of Canada 1991)[10], including on-site compensation (creation of wetlands within TSF) and off-site compensation
9.0	**Fish** (Indicators: rainbow trout and kokanee)		

[5] DFO. 2013. *Measures to Avoid Causing Harm to Fish and Fish Habitat*. Fisheries and Oceans Canada. http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html

[6] BC Hydro. 2003. *Approved Work Practices for Managing Riparian Vegetation, Guide to Incorporating Riparian Environmental Concerns into the Protocol Agreement for Work In and Around Water*. BC Hydro and Power Authority. https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/bctc_documents/work_practices_riparian.pdf

[7] Cox and Cullington. 2009. *Wetland Ways: Interim Guidelines for Wetland Protection and Conservation in British Columbia.* Wetland Stewardship Program. http://www.env.gov.bc.ca/wld/BMP/bmpintro.html and http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/Wetland%20Ways%20Ch%201%20Introduction.pdf

[8] BC MOF. 1995. *Riparian Management Area Guidebook.* British Columbia Ministry of Forests, Forest Practices Code: Victoria, BC.

[9] Welsch, D.J., Smart, D.L., Boyer, J.N., Minken, P., Smith, H.C. and McCandless, T.L., 1995. *Forested Wetlands: Functions, Benefits and the Use of Best Management Practices.*

[10] Government of Canada. 1991. *The Federal Policy on Wetland Conservation.* Ottawa, Ontario, Published by Authority of the Minister of Environment, 15 pp. http://publications.gc.ca/collections/Collection/CW66-116-1991E.pdf

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
9.1	Loss of fish in upper Davidson Creek and Creek 661 headwaters	**C, O, CL, PC** (mine site)	• Where instream construction is required, isolate work areas and complete fish salvage and relocation as detailed in a Fish Salvage Plan • Conduct instream construction during the lowest risk timing window for rainbow trout (15 July to 15 April of the following year) to avoid interruptions to spawning migrations and egg mortalities, to the extent possible[11] • Implement a Fisheries Mitigation and Offsetting Plan, as approved by Fisheries and Oceans Canada, to offset effects to fish, including offsetting measures and a monitoring plan • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats and use of flocculants) • Implement an Aquatic Resources Management Plan (draft plan in Section 12.2.1.18.4.1 of the Application/EIS), including identification of lowest risk timing windows, and measures related to handling of hydrocarbons, site re-vegetation and bridge and riparian area maintenance • Adhere to DFO *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (D.G. Wright and G.E. Hopky (1998))[12]
9.2	Disruption of salmonid homing to Davidson Creek	**O, CL**	• Minimize disturbance to the Davidson Creek watershed downstream of the mine site, to minimize changes to natural run off and flow to Davidson Creek • Construct the Northern and Southern diversions during the Construction phase to supplement the FWSS (i.e., Tatelkuz Lake water) to mitigate changes in flows, and provide flexibility in apportionment of flow to Davidson Creek
9.3	Mobilization of mercury in Lake 01682LNRS	**C, O, CL, PC**	• Strip vegetation and topsoil material above the existing high water line and up to the expected high water line in the enlarged Lake 01682LNRS, except in areas where vegetation and topsoil material are retained as part of fisheries offsetting or other habitat restoration initiatives • Monitor sediment quality in Lake 01682LNRS
9.4	Change in water temperature in Davidson Creek	**C, O, CL, PC**	• During the Construction phase, allow for the FWSS to discharge directly to Davidson Creek or a surface discharge from the freshwater reservoir (FWR), in addition to low level outlet in the FWR, until Post-closure • Construct the Northern and Southern diversions during the Construction phase to supplement the FWSS (i.e., Tatelkuz Lake water), to provide for better alignment of Davidson Creek temperatures with baseline conditions and temperature requirements of fish species in Davidson Creek • Install and operate a temperature and flow control system (TFCS) supported by a monitoring and adaptive management strategy to inform the operation of the TFCS • Prior to FWSS operation, locate the Tatelkuz Lake intake at an appropriate depth in Tatelkuz Lake, and install end of pipe fish screens as required by DFO (1995)[13]
9.5	Reduction of littoral fish habitat of Tatelkuz Lake or change in water surface elevation of Tatelkuz Lake	**O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment • Minimize withdrawals from Tatelkuz Lake by maximizing on-site water recycling and reuse (e.g., sourcing process water from site contact water sources), diverting non-contact water around the TSF to Davidson Creek and implementing an adaptive management strategy for instream flow needs in Davidson Creek • Utilise seasonal and/or life stage specific instream flow requirements to derive pumping volumes from Tatelkuz Lake to minimize withdrawals to what is necessary to meet the instream flow need in Davidson Creek • Prior to the commissioning of the FWSS, undertake studies on fish habitat in Tatelkuz Lake, and monitor fish habitat quantity and quality in the littoral zone in mid-summer • Consult with Indigenous groups on the Aquatic Effects Monitoring Plan, which would include the fish habitat studies referenced above, and incorporate culturally relevant biomagnification indicators

[11] BC MOE. 2004. *Reduced Risk Timing Windows and Measures for the Conservation of Fish and Fish Habitat for the Omineca Region*. http://www.env.gov.bc.ca/omineca/documents/fpc_omineca_twm_final_may04.pdf

[12] DFO.1998. *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*. http://www.dfo-mpo.gc.ca/Library/232046.pdf

[13] DFO. 1995. *Freshwater Intake End-of-Pipe Fish Screen Guideline. Fisheries and Oceans Canada.* http://www.dfo-mpo.gc.ca/library/223669.pdf

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
9.6	Change in aquatic health due to changes in surface water quality in Davidson Creek and Creek 661	**C, O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment • Minimize disturbance to the Davidson Creek watershed downstream of the mine site, to minimize changes to natural run off and flow to Davidson Creek • Locate fuel storage and refuelling activities outside riparian areas • Construct the Northern and Southern diversions during the Construction phase to supplement the FWSS (i.e., Tatelkuz Lake water) to mitigate changes in flows, and provide flexibility in apportionment of flow to Davidson Creek • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including measures to control erosion (e.g., diversion and runoff collection ditches, sediment control ponds, and use of flocculants) • Implement an AQEMP (see draft plan in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust
9.7	Change in nutrients in Davidson Creek, Creek 661, Chedakuz Creek	**C, O, CL, PC**	• Implement an AQEMP (see draft plan in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust • Implement a Hazardous Materials Management Plan (draft plan provided in Section 12.2.1.18.4.12 of the Application/EIS), including measures to manage explosives use • Locate fuel storage and refuelling activities outside riparian areas • Adhere to DFO *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (D.G. Wright and G.E. Hopky (1998))[13]
10.0	**Fish Habitat** (Indicators: rainbow trout and kokanee)		
10.1	Loss of fish habitat (Rainbow trout)	**C, O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment • Implement a Fisheries Mitigation and Offsetting Plan , as approved by DFO, to offset effects to fish habitat, including offsetting measures and monitoring plan
10.2	Change in surface water flow	**C, O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment • Minimize disturbance to the Davidson Creek watershed downstream of the mine site, to minimize changes to natural run off and flow to Davidson Creek • Construct the Northern and Southern diversions during the Construction phase to supplement the FWSS (i.e., Tatelkuz Lake water) to mitigate changes in flows, and provide flexibility in apportionment of flow to Davidson Creek • Minimize withdrawals from Tatelkuz Lake by maximizing on-site water recycling and reuse (e.g., sourcing process water from site contact water sources), diverting non-contact water around the TSF to Davidson Creek and implementing an adaptive management strategy for instream flow needs in Davidson Creek • Construct a fish passage barrier in Davidson Creek, at the mine access road, and in Creek 505659 upstream of Creek 661 within the area included in the Fisheries and Mitigation Offsetting Plan
10.3	Mobilization of mercury in Lake 01682LNRS	**C, O, CL, PC**	• Strip vegetation and topsoil material above the existing high water line and up to the expected high water line in the enlarged Lake 01682LNRS, except in areas where vegetation and topsoil material are retained as part of fisheries offsetting or other habitat restoration initiatives
10.4	Change in water temperature in Davidson Creek	**C, O, CL, PC**	• During Construction, allow for the FWSS to discharge directly to Davidson Creek or a surface discharge from the FWR, in addition to low level outlet in the FWR, until Post-closure when the open pit lake is allowed to discharge to Davidson Creek • Construct the Northern and Southern diversions during the construction phase to provide for better alignment of Davidson Creek temperatures with baseline conditions and temperature requirements of fish species in Davidson Creek • Install and operate a temperature and flow control system (TFCS) supported by a monitoring and adaptive management strategy to inform the operation of the TFCS • Locate the Tatelkuz Lake FWSS intake at an appropriate depth in Tatelkuz Lake, and install end of pipe fish screens as required by DFO (1995)[14]
10.5	Reduction in littoral fish habitat of Tatelkuz Lake change in water surface elevation of Tatelkuz Lake	**O, CL**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment and reduce flow impacts to Creek 661 and Tatelkuz lake further downstream • Minimize withdrawals from Tatelkuz Lake by maximizing on-site water recycling and reuse (e.g., sourcing process water from site contact water sources), diverting non-contact water around the TSF to Davidson Creek and implementing an adaptive management strategy for instream flow needs in Davidson Creek • Utilise seasonal and/or life stage specific instream flow requirements to derive pumping volumes from Tatelkuz Lake, supporting the minimizing of withdrawals to what is necessary to meet the instream flow need in Davidson Creek

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
10.6	Change in aquatic health due to changes in surface water quality in Davidson Creek and Creek 661	**C, O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance in the Creek 661 catchment and reduce flow impacts to Creek 661 and Tatelkuz Lake further downstream • Construct the Northern and Southern diversions during the Construction phase to provide flexibility in apportionment of flow to Davidson Creek during Operations, Closure and Post-closure • Locate fuel storage and refuelling activities outside riparian areas • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., diversion and runoff collection ditches, sediment control ponds and use of flocculants)
10.7	Change in nutrients in Davidson Creek, Chedakuz Creek and Creek 661	**C, O, CL, PC**	• Implement an AQEMP (draft plan in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust • Implement a Hazardous Materials Management Plan (draft plan provided in Section 12.2.1.18.4.12 of the Application/EIS), including measures to minimize residual explosives products • Adhere to DFO Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (D.G. Wright and G.E. Hopky 1998)[13]
11.0	**Physiography and Topography**		
	Alteration of baseline landscape	**C, O, CL, PC**	• Remove the East Dump and associated water management infrastructure (e.g., sediment pond, and diversion and collection ditches located in Creek 661 watershed) to reduce mine disturbance • Implement a Reclamation and Closure Plan (RCP: draft plan provided in Section 2.6 of the Application/EIS), including integration of mine features into the Post-closure landscape • Minimize roads constructed on-site to reduce mine disturbance
11.2	Terrain stability and accelerated erosion	**C, O, CL, PC**	• Avoid hazardous terrain, to the extent possible • Implement a Landscape, Soils, and Vegetation Management and Restoration Plan (LSVMRP; draft plan provided in Section 12.2.1.18.4.4 of the Application/EIS), including measures to mitigate adverse effects on landscape stability (e.g., slope gradients along road cuts and disturbed areas to gradients are or below the angle of repose of those disturbed areas, and using drainage control measures and water passage structures (e.g., culverts) to manage surface water run-off, where appropriate) • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats, and use of flocculants) • Implement a RCP (draft plan provided in Section 2.6 of the Application/EIS), including seeding and progressive reclamation of exposed slopes to improve slope stability • Minimize roads constructed on-site to reduce mine disturbance
12.0	**Surficial Geology and Soil Cover**		
12.1	Removal and relocation of overburden material	**C, O, CL**	• Implement a RCP (draft plan provided in Section 2.6 of the Application/EIS), including a plan for salvaging and stockpiling topsoil • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats and use of flocculants)
12.2	Soil disturbance	**C, O**	
12.3	Soil re-distribution	**PC**	
13.0	**Soil Quality**		
13.1	Soil contamination due to spills, leaks	**C, O, CL, PC**	• Implement an Emergency and Spill Preparedness Response Plan (draft plan provided in Section 12.2.1.18.4.13 of the Application/EIS), including response, containment and clean-up plans • Implement an AQEMP (see draft plan in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage vehicle emissions and dust • Implement a preventative maintenance program for equipment • Utilize secondary containment where appropriate • Implement a Hazardous Materials Management Plan (HMMP; S draft plan provided in Section 12.2.1.18.4.12 of the Application/EIS), including measures for transporting, storing and disposing of hazardous materials

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
13.2	Alteration and loss of soil due to terrain stability and accelerated erosion	**C, O, CL, PC**	• Minimize the mine site footprint and avoid hazardous terrain • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including identification of erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats and use of flocculants) • Salvage soil in accordance with the RCP (draft plan provided in Section 2.6 of the Application/EIS)
13.3	Soil contamination due to dust deposition	**C, O, CL**	• Implement an AQEMP (draft plan provided in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage vehicle emissions and dust
13.4	Chemical and physical alteration due to soil disturbance	**C, O**	• Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including identification of erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, revegetation of disturbed areas, erosion control mats and use of flocculants) • Implement a RCP (draft plan provided in Section 2.6 of the Application/EIS), including soil management plan
13.5	Physical alteration due to soil re-distribution	**CL**	• Implement a RCP (draft plan provided in Section 2.6 of the Application/EIS), including plans for progressive reclamation
14.0	**Ecosystem Composition** (Indicators: ecosystem distribution, riparian areas, old growth forest, sparsely vegetated ecosystems, traditional use plants habitat)		
14.1	Loss of ecosystems (ecosystem distribution, riparian ecosystems, old growth forest, traditional use plant habitat)	**C, O, CL, PC**	• Avoid riparian areas and old growth forests where possible • Use existing roads and cleared areas where possible, and maximize the use of existing areas of disturbance • Identify no-work and management work zones (with restrictions, such as no heavy machinery, etc.) and setbacks in accordance with best management practices (BC MFLNRO, 2014) where feasible • Implement construction best management practices to mitigate for altered hydrology (e.g., installing appropriate culverts where required, and maintaining functioning water tables and drainage throughout all phases) • Follow *Approved Work Practices for Managing Riparian Vegetation* (BC Hydro 2003)6 for work in and around water • Implement a RCP (draft plan provided in Section 2.6 of the Application/EIS), including plans for progressive reclamation and reforestation • Implement a SECP (Section 12.2.1.18.4.1 of the Application/EIS), including identification of erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats and use of flocculants) • Implement an AQEMP to manage fugitive dust (Section 12.2.1.18.4.9 of the Application/EIS), and invasive species proliferation (Invasive Species Management Plan (ISMP)(draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), and include traditional use plants in reclamation prescriptions (RCP; Section 2.6 of the Application/EIS)
14.2	Nitrogen deposition (ecosystem distribution, riparian ecosystems, traditional use plant habitat)	**C, O**	• Implement an AQEMP (draft plan provided in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust and Transportation and Access Management Plan (TAMP; draft plan provided in Section 12.2.1.18.4.14 of the Application/EIS), including measures to speed limits on Project-controlled roads
14.3	Spread of invasive plants (ecosystem distribution, riparian ecosystems, traditional use plant habitat)	C, O, CL, PC	• Minimize disturbing areas outside or adjacent to areas targeted for clearing (e.g., machinery and equipment movement, or extent of grubbing and stripping) • Clean earth moving vehicles prior to entering the mine site • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including measures for erosion and sediment control • Implement the LSVMRP and ISMP (draft plans provided in Section 12.2.1.18.4.4 and 12.2.1.18.4.5 of the Application/EIS), including measures to manage plant species at risk and reduce the introduction and spread of invasive species, and replanting procedures • Implement a RCP (draft plan provided in Section 2.6 of the Application/EIS), including use of weed-free seed for reclamation

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
15.0	**Plant Species and Ecosystems and Risk** (Indicators: whitebark pine, plant species at risk habitat, ecosystems at risk)		
15.1	Loss of ecosystems (whitebark pine, plant species at risk habitat and ecosystems at risk)	**C, O, CL, PC**	• Avoid grubbing, stripping, and removal of shrubs and herbaceous species in areas requiring clearing to retain the topsoil and vegetation root mat, to the extent possible • Flag or otherwise identify clearing limits as appropriate • Provide orientation to workers on whitebark pine identification to minimize the disturbance to whitebark pine • Prior to Construction, develop fire management plans, including consideration of whitebark pine on Mt Davidson in suppression planning, and provision of information to the Wildfire Management Branch on whitebark pine distribution to help inform suppression efforts • Implement a Whitebark Pine Management Plan (refer to measures identified in draft plan provided in Section 12.2.1.18.4.4.9 of the Application/EIS), including cone collection and seedling propagation, and depending on the results and success of reclamation trials, enhancing stands on the mine site to improve conditions for whitebark pine survival and recruitment, and using whitebark pine seedlings for mine site reclamation • Implement an ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), including measures to reduce the introduction and spread of invasive plant species • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats, and use of flocculants)
15.2	Nitrogen deposition (whitebark pine and plant species at risk habitat	**C, O**	• Implement an AQEMP (draft plan provided in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust and TAMP (draft plan provided in Section 12.2.1.18.4.14 of the Application/EIS), including measures to implement speed limits on Project-controlled roads
15.3	Reduced ability for whitebark pine to regenerate (whitebark pine)	**C, O, CL, PC**	• Provide orientation to workers on whitebark pine identification as part of overall mine site orientation • Implement a Whitebark Pine Management Plan (refer to measures identified in draft plan provided in Section 12.2.1.18.4.4.9 of the Application/EIS) including cone collection and seedling propagation, and depending on the results and success of reclamation trials, enhancing stands on the mine site to improve conditions for whitebark pine survival and recruitment, and using whitebark pine seedlings for mine site reclamation
16.0	**Wildlife** (Indicators: Caribou, amphibians [western toad], forest and grassland birds [olive-sided flycatcher, Clark's nutcracker, red-tailed hawk, short-eared owl, interior forest habitat barn and bank swallow, black swift], furbearers [marten, beaver, fisher, wolverine], invertebrates [Jutta arctic, American emerald], moose and waterbirds [ring-necked duck, yellow rail, Wilson's snipe, greater yellow legs, horned grebe])		
16.1	Habitat loss and alteration	**C, O** for amphibians (mine site, mine site access road, FWSS, airstrip, Kluskus FSR) **C,O, CL, PC** for amphibians (transmission line)	<u>Amphibians</u> • Locate the transmission line in disturbed areas where possible • Locate project components away from wetlands and riparian areas • Use existing roads and follow existing linear disturbances and cleared areas to support transmission line construction • Identify no-work and management work zones (with restrictions such as no heavy machinery, etc.) and setbacks in accordance with best management practices (BC MLFNRO 2014)[14], to the extent possible • Restrict clearing of terrestrial amphibian breeding habitats to periods outside of the amphibian breeding season (1 April to 30 September) as per ECCC guidance, or conduct pre-construction and pre-clearing surveys and amphibian salvage if clearing is required during the breeding season. If salvage is required, adhere to the *Best Management Practices for Amphibian and Reptile Salvages in British Columbia* (BC MFLNRO 2016)[15] • Implement a Wildlife Management Plan (WLMP; draft plan provided in Section 12.2.1.18.4.612 of the Application/EIS), including measures to reduce sensory disturbance • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS) including erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats and use of flocculants) • Implement a LSVMRP (draft plans provided in Section 12.2.1.18.4.4 of the Application/EIS), ISMP (draft plan in Section 12.2.1.18.4.5 of the Application/EIS), and RCP (draft plan in Section 2.6 of the Application/EIS), including progressive reclamation using local native vegetation, wherever possible, or appropriate commercially grown, weed-free native species • If amphibian use of the TSF is observed during periods when water quality poses a mortality risk, New Gold will consult with regulators and First Nations on appropriate mitigations to exclude amphibians from the area until water quality has sufficiently improved

[14] BC FLNRO. 2014. *Guidelines and Best Management Practices (BMPs)*. http://www.env.gov.bc.ca/wld/BMP/bmpintro.html (accessed March 13, 2017)

[15] BC MFLNRO. 2016. *Best Management Practices for Amphibian and Reptile Salvages in British Columbia*. BC Ministry of Forests, Lands and Natural Resource Operations. http://a100.gov.bc.ca/pub/eirs/finishDownloadDocument.do;jsessionid=YcLRYHmL1NTTvFJpvwPSBJfSSrQh2rWnphcWBwGZT3mN8QRhlnVX!1900646311?subdocumentId=10351 (accessed March 13, 2017)

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.2	Habitat loss and alteration *(cont'd)*	**C, O, CL, PC** for bats and grizzly bear	<u>Bats</u> • Minimize the mine site footprint and avoid large scale clearing of old-growth forest to the extent possible • Adhere to *Best Management Practices Guidelines for Bats in British Columbia* (Holroyd, S.L. and V.J Craig. 2016)[16] • Monitor and protect roost and hibernacula by: conducting pre-construction surveys in the mine site to identify/confirm potential roost and hibernacula features; maintaining an inventory of wildlife trees, snags, buildings, mines, rocky outcrops and cliff/cave features that may function as potential roost and hibernacula features to inform potential mitigation measures; conducting surveys to confirm whether they are used and by which species; applying appropriate mitigation measures if roosts or hibernacula are detected at the mine site and avoidance is not possible • Timing windows used for vegetation clearing will be based on local information of the timing of roosting/ rearing versus hibernation. • Prior to construction, conduct pre-clearing surveys to identify wildlife trees (snags) and any bat roosting habitats in the transmission line right of way. Should roosts be observed, artificial roosts will be installed in consultation with province of British Columbia bat experts and based on provincial guidance in MOE 2016 *Best Management Practices for Bats in British Columbia*, Chapter 2: Mine Developments and Inactive Mine Habitats. • Identify no-work and management work zones (with restrictions, such as no heavy machinery, etc.) and setbacks in accordance with best management practices (BC MFLNRO, 2014) where feasible • Minimize sensory disturbance due to noise in areas adjacent to the mine site and airstrip, including use of noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits • Minimize light disturbance in areas adjacent to the mine site by limiting the use of outside artificial lighting to areas where necessary for safe operation of the Project, including directional lighting and lighting that is activated by motion detector(s) to the extent possible <u>Grizzly Bears</u> • Locate the transmission line in disturbed areas where possible • Use existing roads and follow existing linear disturbances to support transmission line construction • Use helicopters to support transmission line construction in steep areas, where safe and practicable • Conducting pre-clearing surveys to identify grizzly bear activity within potential denning habitat during sensitive periods as described in the WLMP • Avoid clearing and development of berry and kokanee areas, to the extent possible • Minimize the mine site footprint and avoid large scale clearing of old-growth forest and riparian areas, to the extent possible • Minimize sensory disturbance due to noise and light in areas adjacent to the mine site and airstrip, including the use of noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits • Implement invasive plant management techniques, as described in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS) • Restore disturbed habitats at mine closure or develop habitats capable of supporting grizzly bears as described in the RCP (Section 2.6 of the Application/EIS) and WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) and avoid using species that attract bears • Implement no hunting (including no trapping) and no firearms policies for Project employees and contractors while resident on the mine site as described in the WLMP (Section 12.2.1.18.4.6 of the Application/EIS) • Participate in grizzly bear regional wildlife and resource management initiatives in Wildlife Management Units (WMUs) 6-01 and 7-12 where appropriate

[16] Holroyd, S.L. and V.J Craig. 2016. *Best Management Practices Guidelines for Bats in British Columbia, Chapter 2: Mine Developments and Inactive Mine Habitats.* BC Ministry of Environment, Victoria, BC. 60pp.

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures

16.3		**C, O, CL, PC** for caribou, forest and grassland birds, furbearers, invertebrates, moose and waterbirds	<u>Caribou</u>
			• Minimize the mine site footprint and avoid large scale clearing of old-growth forest, riparian stands and lichen-rich stands where possible
			• Decommission and restore the existing exploration access road and Mt. Davidson exploration road during the Construction phase
			• Prior to the commencement of construction, conduct caribou aerial surveys, and subsequently every five years until the end of mine operations, and provide survey results to First Nations and relevant government authorities
			• Construct the mine access road to the mine site to avoid ungulate winter range (HE-1-001 Mt. Davidson)
			• If a mineral lick is identified during pre-construction surveys, or during construction or operations, engage with FLNRO and First Nations to identify appropriate mitigation measures to minimize impacts to the mineral lick
			• Minimize sensory disturbance due to noise and light, including directional lighting and lighting that is activated by motion detector(s) to the extent possible, noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits
			• Schedule project activities to take into account the caribou "least risk window" (as defined by Ungulate Winter Range Order (UWR) 7-01-012), where practicable. In the event caribou are observed in the area of the mine site, work may be stopped until the caribou leave the area
			• As part of the Caribou Mitigation and Monitoring Plan (CMMP), implement a Caribou Offsetting Plan, including land securement and restoration
			• Establish an Environmental Monitoring Board to monitor project-related effects and make recommendations related to adaptive management
			• Implement invasive plant management techniques as defined in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), including developing and implementing detailed construction and operational plans of invasive plant prevention and detection strategies, and an action protocol if invasive plants are detected
			• Implement measures to manage fugitive dust as defined in the AQEMP (draft plan provided in Section 12.2.1.18.4.9 of the Application/EIS), such as:
			  ○ Maintenance of unpaved roads which will be regularly compacted and kept in good repair
			  ○ Use of coarse aggregate for road surfaces with low silt content
			  ○ Roadways will be wetted to minimize dust from ore and waste rock haulage and grading, when ambient air temperatures permit
			  ○ Cleaning of paved areas as required to minimize dust
			  ○ Wetting of materials to minimize dust in material handling, as needed
			  ○ Reporting incidents involving excessive dust on site and implementing adaptive management
			• Implement progressive reclamation using local native vegetation wherever possible or appropriate commercially grown, weed-free native species pursuant to the RCP (Section 2.6 of the Application/EIS)
			• Restore disturbed habitats at mine closure or develop appropriate habitats capable of supporting caribou and other wildlife, as per the Recovery Strategy for Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada (ECCC 2014)[17] and/or the provincial *Draft Caribou Recovery Program* and/or the Tweedsmuir Herd Plan when it becomes available
			• Support non-habitat based tools for caribou recovery identified in the provincial *Draft Caribou Recovery Program* and/or the Tweedsmuir Herd Plan when it becomes available

[17] Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus caribou)* in Canada [Proposed]. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. viii + 68 pp.

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.4	Habitat loss and alteration	**C, O, CL, PC** for caribou, forest and grassland birds, furbearers, invertebrates, moose and waterbirds	<u>Forest and Grassland Birds</u> • Locate project components away from wetlands • Minimize the mine site footprint and avoid large scale clearing of old-growth forest and riparian areas to the extent possible • Avoid vegetation clearing during bird breeding windows. If clearing required during breeding bird window, conduct point surveys and/or other survey techniques consistent with ECCC guidance (*Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: General Nesting Periods of Migratory Birds in Canada*. 2016, and *Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: Technical Information*. 2016) and RISC/RIC standards. These pre-clearing surveys will consider the specific habitat requirements and survey protocols for listed species at risk, including rusty blackbird, olive-sided flycatcher, barn swallow, bank swallow, black swift, and common nighthawk. • Minimize sensory disturbance due to noise and light to areas adjacent to the mine area and airstrip, including directional lighting and lighting that is activated by motion detector(s) to the extent possible , noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits on Project-controlled roads • Where possible, retain and enhance forest edge habitat along road areas to provide escape or thermal cover for passerines (or birds) • Retain coarse woody debris where appropriate for microshelter habitat for birds • Implement an AQEMP (draft plan provided in Section 12.2.1.18.4.912 of the Application/EIS), including measures to manage fugitive dust • Develop and implement a Whitebark Pine Management Plan (draft plan provided in Section 12.2.1.18.4.4.9 of the Application/EIS), including cone collection and seedling propagation, and depending on the results and success of reclamation trials, enhancing stands on the mine site to improve conditions for whitebark pine survival and recruitment, and using whitebark pine seedlings for mine site reclamation • Implement progressive reclamation using local native vegetation wherever possible or appropriate commercially grown, weed-free native species, including use of conifers and whitebark pine in suitable sites, pursuant to the LSVMRP (draft plan provided in Section 12.2.1.18.4.4 of the Application/EIS), and RCP (draft plan in Section 2.6 of the Application/EIS), • Implement invasive plant management techniques as defined in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), including developing and implementing detailed construction and operational plans of invasive plant prevention and detection strategies, and an action protocol to be used if invasive plants are detected • Monitor for Clark's nutcracker, and integrate the results into adaptive management measures as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6) <u>Raptors</u> • Avoid vegetation clearing during bird breeding windows. If clearing required during breeding bird window, conduct point surveys and/or other survey techniques consistent with ECCC guidance (*Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: General Nesting Periods of Migratory Birds in Canada*. 2016, and *Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: Technical Information*. 2016) and RISC/RIC standards. These pre-clearing surveys will consider the specific habitat requirements and survey protocols for listed species at risk, including short-eared owl.

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

16.5	Habitat loss and alteration *(cont'd)*	**C, O, CL, PC** for caribou, forest and grassland birds, furbearers, invertebrates, moose and waterbirds *(cont'd)*	<u>Furbearers</u> • Minimize the mine site footprint and avoid large scale clearing of old-growth forest and riparian areas where possible • Locate the transmission line in existing disturbed areas where possible • Use existing roads and follow existing linear disturbances to support transmission line construction • Use helicopters to support transmission line construction in steep areas, where safe and practicable • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and the height of the plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • Conduct pre-clearing surveys during the denning period (March – April) to identify and avoid potential dens of marten and fisher. If a den is located, establish a 50 metre setback around the den. • Designate well demarcated no-work zones and management work zones (with restrictions, such as no heavy machinery, etc.) and setbacks in areas adjacent to riparian wildlife habitats in accordance with best management practices (BC FLNRO 2014) where feasible • Deploy berms, woody debris, and/or other visual barriers in appropriate locations along the transmission line that may also facilitate cover and movement for furbearers • Minimize sensory disturbance due to noise and light in areas adjacent to the mine site and airstrip, including use of noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits • Implement a LSVMRP (draft plan provided in Section 12.2.1.18.4.4 of the Application/EIS), including minimizing ground disturbance and damage to vegetation • Implement invasive plant management techniques as defined in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), including developing and implementing detailed construction and operational plans of invasive plant prevention and detection strategies, and an action protocol to be used if invasive plants are detected • Implement no hunting (including no trapping) and no firearms policies for Project employees and contractors while resident on the mine site as described in the WLMP (Section 12.2.1.18.4.6 of the Application/EIS) • Implement progressive reclamation using local native vegetation wherever possible or appropriate commercially grown, weed-free native species pursuant to the RCP (draft plan provided in Section 2.6 of the Application/EIS) • Restore disturbed habitats or develop appropriate habitats capable of supporting furbearers pursuant to the RCP (draft plan provided in Section 2.6 of the Application/EIS) <u>Invertebrates</u> • Locate facilities and topsoil piles within the mine site area away from wetlands, and/or minimize ground disturbance footprint • Minimize clearance of black spruce forest and maintaining hydrological regimes of wetlands near infrastructure • Implement an LSVMRP (draft plan provided in Section 12.2.1.18.4.4 of the Application/EIS), including progressive reclamation using local native vegetation wherever possible, or appropriate commercially grown, weed-free native species • Implement fugitive dust control measures as described in the AQEMP (draft plan provided in Section 12.2.1.18.4.9 of the Application/EIS), including watering roads and avoiding use of road salts to improve invertebrate habitat suitability • Implement progressive reclamation using local native vegetation wherever possible or appropriate commercially grown, weed-free native species pursuant to the RCP (Section 2.6 of the Application/EIS) <u>Moose</u> • Locate the transmission line in existing disturbed areas where possible • Use existing roads and follow existing linear disturbances to support transmission line construction • Use helicopters to support transmission line construction in steep areas along the alignment • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and the height of the plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • Participate in moose regional wildlife and resource management initiatives in WMUs 6-01 and 7-12 where appropriate • Minimize ground disturbance and damage to vegetation in areas adjacent to footprints by flagging sensitive habitats, as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Minimize sensory disturbance due to noise and light, including directional lighting and lighting that is activated by motion detectors, noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits • If a mineral lick is identified during pre-construction surveys or during construction or operations, engage with FLNRORD and First Nations to identify appropriate mitigation measures to minimize impacts to the mineral lick • Conduct moose aerial surveys prior to the commencement of Construction, and subsequently every five years until the end of mine operations

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
			• Implement no hunting (including no trapping), no gathering and no firearms policies for Project employees and contractors residing on the mine site, as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Implement invasive management measures as described in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS) • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats, and use of flocculants) • Implement an AQEMP (draft plan provided in Section 12.2.1.18.4.9) along Project-controlled roads, including watering roads and avoiding use of salt on Project-controlled roads • Implement a WMP (draft plan provided in Section 12.2.1.18.4.3 of the Application/EIS) and WCP (Appendix 5.3.7A of the Application/EIS) • Install road signs to alert drivers of speed limits and of wildlife use areas along Project-controlled roads • Implement invasive plant management techniques as defined in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), including developing and implementing detailed construction and operational plans of invasive plant prevention and detection strategies, and an action protocol to be used if invasive plants are detected • Restore disturbed habitats at mine closure or develop habitats capable of supporting moose pursuant to the RCP (Section 2.6 of the Application/EIS)

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.6	Habitat loss and alteration *(cont'd)*	**C, O, CL, PC** for caribou, forest and grassland birds, furbearers, invertebrates, moose and waterbirds (Note: No interaction of transmission line with caribou) *(cont'd)*	<u>Waterbirds</u> • Locate Project components away from wetland and riparian areas • Designate well demarcated no-work zones and management work zones (with restrictions, such as no heavy machinery, etc.) and setbacks in areas adjacent to riparian wildlife habitats in accordance with best management practices (BC FLNRO 2014) where feasible • Avoid vegetation clearing during bird breeding windows. If clearing required during breeding bird window, conduct point surveys and/or other survey techniques consistent with ECCC guidance (*Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: General Nesting Periods of Migratory Birds in Canada*. 2016, and *Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: Technical Information*. 2016) and RISC/RIC standards. These pre-clearing surveys will consider the specific habitat requirements and survey protocols for listed species at risk, including horned grebe and yellow rail. • Implement a SECP (draft plan provided in Section 12.2.1.18.4.1), including erosion identification of erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats, and use of flocculants) • Implement no hunting (including no trapping) and no firearms policy for Project employees and contractors while resident at the mine site as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6) • Implement invasive plant management techniques as defined in the ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS) • Minimize sensory disturbance due to noise and light to areas adjacent to the mine area and airstrip, including directional lighting and lighting that is activated by motion detector(s) to the extent possible, noise abatement technology, equipment placement, regular equipment maintenance, and enforcement of speed limits • Implement a Wetland Compensation Plan (Appendix 5.3.7A of the Application/EIS) • Restore disturbed habitats and develop habitats capable of supporting waterbirds where possible, pursuant to the RCP

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.7	Mortality risk	**C, O, CL, PC** for bats, caribou, grizzly bear, invertebrates	<u>Bats</u> • Adhere to federal guidance to prevent the spread of white nose syndrome, as outlined in *Western Canada White Nose Syndrome Transmission Prevention* (CWHC 2015) • Monitor and protect roost and hibernacula by: conducting pre-construction surveys in the mine site to identify/confirm potential roost and hibernacula features; maintaining an inventory of wildlife trees, snags, buildings, mines, rocky outcrops and cliff/cave features that may function as potential roost and hibernacula features to inform potential mitigation measures; conducting surveys to confirm whether they are used and by which species; applying appropriate mitigation measures if roosts or hibernacula are detected at the mine site and avoidance is not possible • Locate roads and transmission line poles away from wetland and riparian areas, to the extent possible • Minimize sensory disturbance due to noise and light at the mine site and airstrip, including use of noise abatement technology, equipment placement, and regular equipment maintenance <u>Caribou</u> • Decommission and restore the existing exploration access road and Mt. Davidson exploration road during the Construction phase • Collaborate with FLNRORD and First Nations on appropriate site treatment options to provide habitat features for security of caribou and to foster habitats not suitable for alternate prey species. Examples include placing woody debris on the surface of upland slopes (e.g., waste rock pile), and scarifying and replanting surfaces. • Implement adaptive management to manage alternate prey habitat, wolf access or other similar measures, as described in the WLMP (draft plan provided in Section 12.2.1.4.18.6 of the Application/EIS). • Prior to the commencement of construction, conduct caribou aerial surveys, and subsequently every five years until the end of mine operations, and provide survey results to First Nations and relevant government authorities • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and height of plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • During the early years of Operations, deactivate and decommission access roads that are constructed to support transmission line construction to limit predator movements and vision along the line • Schedule Project activities to take into account the caribou "least risk window" (as defined by UWR Order 7-01-012), where practicable. In the event caribou are observed in the area of the mine site, work may be stopped until the caribou leave the area • Develop an Access Management Plan and establish an Access Management Working Group to reduce potential for predators and hunters to gain new access to caribou habitat • Implement no hunting (including no trapping) and no firearms policies for Project employees and contractors while resident at the mine site as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Implement caribou awareness and response protocols for mine personnel during mine safety and environmental orientations • Enforce speed limits and post signs to identify areas of high wildlife activity along Project-controlled roads • Implement best management practices for road surface maintenance (including dust suppression measures) to allow good vehicle line of sight and control to reduce potential collisions with wildlife • Minimize attraction of wildlife to roadsides using adaptive management measures, such as avoiding the use of road salts, removing carrion, and selection of appropriate revegetation species along Project-controlled access roads • Restrict and control road access to the mine site, as described in the TAMP (draft plan provided in Section 12.2.1.18.4.14) • Restore disturbed habitats at mine closure or develop appropriate habitats capable of supporting caribou and other wildlife, as per the Recovery Strategy for Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada (ECCC 2014)[18] and/or the provincial *Draft Caribou Recovery Program* and/or the Tweedsmuir Herd Plan when it becomes available • Support non-habitat based tools for caribou recovery identified in the provincial *Draft Caribou Recovery Program* and/or the Tweedsmuir Herd Plan when it becomes available

[18] Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus caribou)* in Canada [Proposed]. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. viii + 68 pp.

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.8	Mortality risk *(cont'd)*	**C, O, CL, PC** for bats, caribou, grizzly bear, invertebrates	<u>Grizzly Bear</u> • Conduct pre-clearing surveys to identify and avoid potential denning habitat as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6) • Report and document wildlife observations and incidents/accidents along Project-controlled access roads • Minimize attraction of wildlife to roadsides using adaptive management measures, such as avoiding the use of road salts, removing carrion, and selection of appropriate revegetation species along Project-controlled access roads, pursuant to the WLMP (draft plan provided in Section 12.2.1.18.4.6) • Implement best management practices for road surface maintenance (including dust suppression measures) to allow good vehicle line of sight and control to reduce potential collisions with wildlife • Post signs along Project-controlled roads, warning drivers of the possibility of wildlife encounters in areas of high wildlife activity • Enforce speed limits along Project-controlled roads • Implement the WLMP (Section 12.2.1.18.4.6), including a Bear Awareness Program • Implement the TAMP (draft plan provided in Section 12.2.1.18.4.14) • Implement Industrial and Domestic Waste Management Plan (draft plan provided in Section 12.2.1.18.4.11) • Select re-vegetation species that minimize attraction of wildlife to roadsides, and remove carrion along Project-controlled access roads as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6) • Implement no hunting, no feeding and no wildlife harassment policies for Project employees and contractors residing at the mine site <u>Invertebrates</u> • Implement an ISMP (draft plan provided in Section 12.2.1.18.4.5), including invasive plant management • Implement fugitive dust management measures along Project-controlled roads, as described in the AQEMP (draft plan provided in Section 12.2.1.18.4.9), including watering roads and avoiding use of road salts

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.9		**C, O, CL, PC** for amphibians, furbearers, moose and waterbirds	<u>Amphibians</u> • Implement a WLMP (draft plan in Section 12.2.1.18.4.6), including adhering to Guidelines for Amphibian and Reptile Conservation during Urban Rural Land Development in British Columbia (BC MFLRNO 2014) • Implement fugitive dust management measures along Project-controlled roads, as described in the AQEMP (draft plan provided in Section 12.2.1.18.4.9) • Post signs along Project-controlled roads to identify amphibian crossings in areas of high wildlife activity, such as potential toad crossings near breeding sites, to the extent possible • Conduct pre-clearing and pre-construction surveys, and if required, salvage amphibians prior to Construction or temporary loss of wetlands during the active period (extends April 1 to September 30) • Where safe and practicable, implement adaptive management measures to deter water birds and amphibians from the TSF and pit lake waters • Implement a salvage plan that identifies relocation sites and outlines salvage operations prior to Construction during breeding season in potential Western toad habitat <u>Furbearers</u> • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and the height of the plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • During early years of operations, deactivate and decommission access roads that are constructed to support line construction to limit predator movements and vision along the line • Deploy berms, woody debris, and/or other visual barriers in appropriate locations along the line that may also facilitate cover and movement for furbearers • Include wildlife awareness information in regular safety and environmental inductions performed by the mine • Control access to the mine site and manage speed limits on Project-controlled roads as described in the TAMP (draft plan provided in Section 12.2.1.18.4.14 of the Application/EIS) • Implement no hunting (including no trapping) and no firearms policies for Project employees and contractors while resident at the mine site as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Select re-vegetation species that minimize attraction of wildlife to roadsides, and remove carrion along Project-controlled access roads as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) <u>Moose</u> • After initial clearing, maintain vegetation along the transmission line right of way to maintain limits of approach and maintain plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • During early years of operations, deactivate and decommission access roads that are constructed to support line construction to limit predator movements and vision along the line • Conduct moose aerial surveys prior to the commencement of construction, and subsequently every five years until the end of mine operations • If a mineral lick is identified during pre-construction surveys or during construction or operations, engage with FLNRO and First Nations to identify appropriate mitigation measures to minimize impacts to the mineral lick • Include wildlife awareness information in regular mine safety and environmental orientations • Install road signs to alert drivers of speed limits and of wildlife use areas along Project-controlled roads • Implement best management practices for road surface maintenance (including dust suppression measures) to allow good vehicle line of sight and control to reduce potential collisions with wildlife • Report and document wildlife observations and incidents/accidents along Project-controlled access roads • Implement a no hunting (including no trapping) and no firearms policy for Project employees and contractors while resident at the mine site as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Participate in moose regional wildlife and resource management initiatives in WMUs 6-01 and 7-12

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.10	Mortality risk *(cont'd)*	**C, O, CL, PC** for amphibians, furbearers, moose and waterbirds *(cont'd)*	<u>Waterbirds</u> • Locate project components away from wetland areas and riparian areas to the extent possible • Deploy markers on the shield wires on the transmission line and phase conductors on distribution lines • Avoid vegetation clearing during bird breeding windows as per ECCC guidance (*Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: General Nesting Periods of Migratory Birds in Canada*. 2016, and *Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), Avoidance Guidelines: Technical Information*. 2016). Pursuant to ECCC guidance and RIC/RISC, undertake pre-construction surveys where appropriate. These pre-clearing surveys will consider the specific habitat requirements and survey protocols for listed species at risk, including horned grebe and yellow rail. • Where safe and practicable, implement adaptive management measures to deter water birds and amphibians from the TSF and pit lake • Minimize sensory disturbance due to noise and light, including use of directional lighting and lights that are activated by motion detector(s) to the extent possible • Enforce speed limits along Project-controlled roads • Implement a WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS), including adaptive management measures for the TSF and open pit waters, as required, monitoring program for the transmission line (monitor and investigate bird mortality) and implement adaptive measures to reduce further mortality • Implement no hunting (including no trapping) and no firearms policies for Project employees and contractors while resident at the mine site as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS)
16.11	Change to movement patterns	**C, O, CL, PC** for amphibians	• Follow best management practices as described in the *Guidelines for Amphibian and Reptile Conservation during Urban Rural Land Development in British Columbia* (BC MFLRNO 2014)[19] where applicable • Post signs along Project-controlled roads to identify amphibian crossings in areas of high wildlife activity, such as potential toad crossings near breeding sites, to the extent possible • Conduct pre-clearing and pre-construction surveys in areas with high probability of occurrence, and if required, salvage amphibians prior to Construction or temporary loss of wetlands during the active period (extends April 1 to September 30) • Implement a salvage plan that identifies relocation sites and outlines salvage operations prior to Construction during breeding season in potential Western toad habitat • Implement a WLMP (draft plan provided in Section 12.2.1.18.4 of the Application/EIS)
		C, O, CL, PC for moose	• Participate in moose provincial regional initiatives related in WMUs 6-01 and 7-12 where appropriate • Enforce speed limits and post signs along Project-controlled roads to identify moose sensitive areas such as migration routes and seasonal feeding areas • Implement best management practices for road surface maintenance to allow good vehicle line of sight and control to reduce potential collisions with moose • Minimize attraction of wildlife to roadsides using adaptive management measures, such as avoiding the use of road salts, removing carrion, and selection of appropriate revegetation species along Project-controlled access roads, pursuant to the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Minimize sensory disturbance due to noise and light, including use of noise abatement technology, equipment placement, and regular equipment maintenance • Select re-vegetation species that minimize attraction of wildlife to roadsides to reduce potential for vehicle collisions and predation as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • Record wildlife observations on Project-controlled roads • Include wildlife awareness information in regular mine safety and environmental inductions

[19] BC FLNRO. 2014. *Guidelines for Amphibian and Reptile Conservation during Urban Rural Land Development in British Columbia*. Available online at: http://www.env.gov.bc.ca/wld/documents/bmp/HerptileBMP_complete.pdf

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.12	Changes to population dynamics	**C, O, CL** for caribou	• Decommission and restore the existing exploration access road during the Construction phase • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and the height of the plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • During the early years of Operations, deactivate and decommission access roads that are constructed to support transmission line construction to limit predator movements and vision along the line • Place natural cover such as rock piles and woody debris piles in open areas to reduce predator efficiency and create temporary visual cover for caribou pursuant to the RCP (draft plan provided in Section 2.6 of the Application/EIS) • Prior to the commencement of construction, conduct caribou aerial surveys, and subsequently every five years until the end of mine operations, and provide survey results to First Nations and relevant government authorities • Place woody debris on the surface of upland slopes and between rocks and along the slopes, parallel and perpendicular with the slopes, to provide habitat features for security of caribou and to foster habitats not suitable for alternate prey species • Implement adaptive management to manage alternate prey habitat, wolf access or other similar measures, as described in the WLMP (draft plan provided in Section 12.2.1.4.18.6 of the Application/EIS • Restore disturbed habitats at mine closure or develop appropriate habitats capable of supporting caribou and other wildlife, as per the Recovery Strategy for Woodland Caribou, Southern Mountain Population (*Rangifer tarandus caribou*) in Canada (ECCC 2014)[20] and/or the provincial *Draft Caribou Recovery Program* and/or the Tweedsmuir Herd Plan when it becomes available • Support non-habitat based tools for caribou recovery identified in the provincial *Draft Caribou Recovery Program* and/or the Tweedsmuir Herd Plan when it becomes available
		C, O, CL, PC for moose and waterbirds	<u>Moose</u> • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and the height of the plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads • During early years of operations, deactivate and decommission access roads that are constructed to support line construction to limit predator movements and vision along the line • Remove carrion along Project-controlled roads to reduce the risk of attracting predator species, as described in the WLMP (draft plan in Section 12.2.1.4.18.6 of the Application/EIS); and • Implement adaptive management to manage alternate prey habitat, wolf access or other similar measures, as described in the WLMP (draft plan provided in Section 12.2.1.4.18.6 of the Application/EIS). <u>Waterbirds</u> • Locate Project components away from wetland areas and riparian areas to the extent possible • Identify no-work and management work zones (with restrictions such as no heavy machinery), and setbacks in accordance with best management practices (BC MFLNRO 2016)20 to the extent possible • Implement an ISMP (draft plan provided in Section 12.2.1.18.4.5 of the Application/EIS), including invasive plant management techniques • Restore disturbed habitats during mine closure or develop habitats capable of supporting waterbirds pursuant to the RCP (draft plan provided in Section 2.6) • Compensate for impacts to wetlands as described in the WMP (draft plan provided in Section 12.2.18.4.3 of the Application/EIS) and WCP (draft plan provided in Appendix 5.3.7A), pursuant to the Federal Policy on Wetland Conservation (Government of Canada 1991)[21]
16.13	Changes to invertebrate health	**C, O, CL** for invertebrates	• Implement a SECP (draft plan provided in Section 12.2.1.18.4.1 of the Application/EIS), including erosion control measures (e.g., proper ditching, reducing slopes and placement of soil salvage piles, diversion and runoff collection ditches, sediment control ponds, erosion control mats, and use of flocculants) • Implement fugitive dust management measures along Project-controlled roads, as described in the AQEMP (draft plan provided in Section 12.2.1.18.4.9), including watering roads and minimize attraction of wildlife to roadsides and improve invertebrate habitat suitability

[20] Environment Canada. 2014. Recovery Strategy for the Woodland Caribou, Southern Mountain population (*Rangifer tarandus caribou)* in Canada [Proposed]. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. viii + 68 pp.

[21] Government of Canada. 1991. *The Federal Policy on Wetland Conservation.* Ottawa, Ontario, Published by Authority of the Minister of Environment, 15 pp. Available online: http://publications.gc.ca/collections/Collection/CW66-116-1991E.pdf (accessed March 9, 2017)

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
16.14	Changes to amphibian health due to changes in surface water quality in Davidson Creek and Creek 661	**C, O, CL, PC**	• Implement a WLMP (draft plan in Section 12.2.1.18.4.6 of the Application/EIS), including best management practices to reduce potential dust contamination of amphibian habitats • Implement a Hazardous Materials Management Plan (draft plan provided in Section 12.2.1.18.4.12 of the Application/EIS), including explosives use • Implement an AQEMP (draft plan in Section 12.2.1.18.4.9 of the Application/EIS) to manage fugitive dust
17.0	**Provincial Economy and Government Revenues**		
	Loss of employment	**CL**	• Prior to scheduled mine closure, develop an integrated closure plan to help employees transition to new employment
18.0	**Regional and Local Employment and Business**		
	Loss of employment	**CL**	• Prior to scheduled mine closure, develop an integrated closure plan to help employees transition to new employment • Develop and implement a Socio-economic Effects Monitoring Plan (SEEMP to manage socio-economic effects related to the Project, including identification of roles and responsibilities of project personnel and contractors, an implementation schedule, public feedback process, monitoring plan, and a process for adaptive management
19.0	**Regional and Local Government Finances**		
	Loss of employment	**CL**	• Prior to scheduled mine closure, develop an integrated closure plan to help employees transition to new employment • Develop and implement a SEEMP to manage socio-economic effects related to the Project, including identification of roles and responsibilities of project personnel and contractors, an implementation schedule, public feedback process, monitoring plan, and a process for adaptive management
20.0	**Demographics**		
	Changes to population in the Socio-economic Regional Study Area	**C, O, CL**	• Develop and implement a SEEMP to manage socio-economic effects related to the Project, including identification of roles and responsibilities of project personnel and contractors, an implementation schedule, public feedback process, monitoring plan, and a process for adaptive management • Provide incentives for employees to relocate to the SERSA, where appropriate, and encourage the Project management team to reside in the SERSA • Use the airstrip to transport temporary construction workers residing outside of the SERSA • House workforce in camps during construction and operations while on shift
21.0	**Regional and Community Infrastructure**		
	Increase in demand for housing, utilities, recreation and leisure services	**C, O**	• Provide data related to the Project workforce and operations to the province (to the extent that this data can be provided without violating applicable law), and participate in provincial initiatives to monitor potential cumulative socio-economic impacts in the region • Implement a SEEMP to manage socio-economic effects, including identification of roles and responsibilities of project personnel and contractors, an implementation schedule, public feedback process, monitoring plan, and a process for adaptive management • Continue to liaise with the Community Liaison Committee (CLC) over the life of the Project to identify, monitor and discuss measures to mitigate Project effects related to service provision, housing, and health and social services • House workforce in camps during Construction and Operations while on shift • Use the airstrip to transport temporary construction workers residing outside of the SERSA • Use buses or alternatives to personal transportation to transport workers to the mine site during Construction and Operations to reduce potential for traffic accidents
22.0	**Family and Community Well-being**		
22.1	Increase in economic hardship due to loss of employment	**CL**	• Prior to scheduled mine closure, develop an integrated closure plan to help employees transition to new employment

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
22.2	Increase in socially disruptive behaviours	**C, O**	• Continue to liaise with the CLC over the mine life to identify, monitor and discuss measures to mitigate Project effects related to service provision, housing, and health and social services • House workforce in camps during Construction and Operations while on shift • Implement a SEEMP to manage socio-economic effects related to the Project, including identification of roles and responsibilities of Project personnel and contractors, an implementation schedule, public feedback process, monitoring plan, and a process for adaptive management
22.3	Deterioration in family relationships	**C, O**	• Continue to liaise with the CLC over the mine life to identify, monitor and discuss measures to mitigate Project effects related to service provision, housing, and health and social services • Implement a SEEMP to manage socio-economic effects related to the Project, including identification of roles and responsibilities of Project personnel and contractors, an implementation schedule, public feedback process, monitoring plan, and a process for adaptive management • Implement a Health and Medical Services Plan that is consistent with the *Health and Medical Services Best Management Guide for Industrial Camps* (Northern Health Authority, March 2015)[22] including identification of: on-site health and medical services to be implemented to meet the Project's workforce's urgent and non-urgent health care needs; disease and infection prevention and outbreak protocols; health promotion, disease prevention and worker wellness program information; a process for communication, coordination and collaboration with the NHA and other local health service providers (including patient care/transfer, data collection and reporting), and an adaptive management plan
23.0	**Regional Services**		
	Increase in demand on education, health, protective and health services	**C, O, CL**	• Continue to liaise with the CLC over the life of the Project to identify, monitor and discuss measures to project effects related to service provision, housing, and health and social services • Develop and implement a SEEMP to manage socio-economic effects related to the Project, including identification of roles and responsibilities of project personnel and contractors, an implementation schedule, monitoring plan, and a process for adaptive management • Implement a Health and Medical Services Plan that is consistent with the *Health and Medical Services Best Management Guide for Industrial Camps* (Northern Health Authority, March 2015)[23] including identification of: on-site health and medical services to be implemented to meet the Project's workforce's urgent and non-urgent health care needs; disease and infection prevention and outbreak protocols; health promotion, disease prevention and worker wellness program information; a process for communication, coordination and collaboration with the NHA and other local health service providers (including patient care/transfer, data collection and reporting), and an adaptive management plan • Use the airstrip to transport temporary construction workers residing outside of the SERSA
24.0	**Non-traditional Land and Resource Use**		
24.1	Displacement of land use activities	**C, O, CL, PC**	• Consult with tenure holders to identify mutually-acceptable accommodations for potential Project effects, in accordance with relevant guidance including FLNRO's (2008) *Practical Guide to Effective Coordination of Resource Tenures* (all indicators) • Allow livestock to be moved to other pastures if necessary (Agriculture and Range) • Identify alternative watering locations in discussion with the land and/or livestock owner(s), if livestock access to water supply is curtailed by mine operations activities or infrastructure (Agriculture and Range) • Protect groundwater wells with temporary fencing during construction (Water Use) • Narrow the transmission line right of way (ROW) to avoid overlap with PID 9280481 (Private Properties) • Inform the public (e.g. through signage) that consumption of surface water in the TSF and pit lake is not advisable during closure and post-closure, and that Davidson Creek may not be potable during the months of April and May during post-closure • Provide maps and early notification of Project development and other physical work to affected regional forestry stakeholders
24.2	Impeded access to lands and resources	**C, O, CL, PC**	• Provide the construction schedule to tenure holders and recreational groups (e.g., Northwest Brigade Paddling Club, nearby lodges and the local offices of BC FLNRO) overlapping the Project, 30 days prior to the start of construction and resolve any issues related to access as per appropriate industry and provincial standards, guidelines and best practices (all indicators) • Erect appropriate signage notifying temporary closure on affected access routes (all indicators) • Implement the TAMP (draft plan provided in Section 12.2.1.18.4.14 of the Application), including a Traffic Management Plan (draft plan provided in Section 12.2.1.18.4.14.7.4 of the Application/EIS) (all indicators) • Bus or fly the workforce to the mine site during Construction and Operations, where applicable (all indicators) • Participate in the Kluskus FSR industrial road users group over the mine life (all indicators) • Facilitate movement of livestock and farm machinery across ROW corridors, where applicable (Agriculture and Range)

[22] Northern Health Authority. 2015. *Health and Medical Services Best Management Guide for Industrial Camps.* https://northernhealth.ca/Portals/0/Your_Health/Programs/Public%20Health/OfficeHealthResourceDevelopment/2015-03-HMSP.pdf

[23] Northern Health Authority. 2015. *Health and Medical Services Best Management Guide for Industrial Camps.* https://northernhealth.ca/Portals/0/Your_Health/Programs/Public%20Health/OfficeHealthResourceDevelopment/2015-03-HMSP.pdf

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
24.3	Reduced resource availability	**C, O, CL, PC**	• Implement the TAMP (draft plan provided in Section 12.2.1.18.4.14 of the Application/EIS), including a Traffic Management Plan (draft plan provided in Section 12.2.1.18.4.14.7.4) (Hunting, Guide Outfitting and Trapping) • Compensate affected trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue • Limit disturbance to habitat of marten, weasel, beaver, muskrat, and other furbearers during Construction by avoiding, where possible, prime denning and breeding habitat (e.g., mature riparian forests and old forest stands, which are favoured denning habitats for marten; Section 5.4.13.8) (Hunting, Guide Outfitting and Trapping) • Use noise abatement and operations scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors (Hunting, Guide Outfitting and Trapping) • Implement no hunting (including no trapping), no gathering, and no firearms policies for Project employees and contractors while resident at the mine site as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) • (Hunting, Guide Outfitting and Trapping) • Deactivate and decommission transmission line access roads during the early years of operations to limit predator movements and vision along the line • Deploy berms, woody debris, and/or other visual barriers in appropriate locations along the transmission line that may also facilitate cover and movement for furbearers and other smaller animals (Hunting, Guide Outfitting and Trapping) • Manage vegetation by foot during operation of the line, accessed from existing forest roads. (Hunting, Guide Outfitting and Trapping) • After initial clearing, maintain vegetation along the transmission line right of way to minimize predator sight lines by maintaining limits of approach and the height of the plant community at no lower than three feet from the ground on an average basis, except where an area is needed for tower bases, guy anchor points and along access roads (Hunting, Guide Outfitting and Trapping) • Compensate impacts on fish and fish habitat by implementing a Fisheries Mitigation and Offset Plan (Fishing and Aquaculture) • Implement a no fishing policy as described in the WLMP (draft plan provided in Section 12.2.1.18.4.6 of the Application/EIS) (Fishing and Aquaculture) • Require Project vehicles to use only the ROWs and designated access roads near Project development areas to minimize compaction of agricultural soil (Agriculture and Range) • Implement preventative protocols for cleaning of equipment (i.e. construction and excavation) of weeds, according to government and industry standards (i.e. weed control plans and guidelines) (Agriculture and Range) • Follow BC FLNRO guidelines and requirements for clearing, handling, and hauling beetle-infested wood (Forestry and Timber Use) • Communicate with the Village of Fraser Lake regarding plans for clearing and construction of the transmission line and discuss interest in timber from the community forest (Land File 7409927) (Forestry and Timber Use) • Work with FLNRO during detailed engineering of the transmission line at the permitting stage with the goal of avoiding MN4848 (growth and yield plots). If avoidance is not possible and prior to construction, New Gold will have this plot re-measured at New Gold's cost by a contractor to be approved by FLNRO (Forestry and Timber Use) • Work with MOTI to complete the required gravel/quarrying volumes testing for Land file 0107944 and compensate MOTI for the volume sterilized, if any, prior to start of construction in this area (Aggregates and Construction)
24.4	Disturbance of land users' quality of experience		• Implement an AQEMP (draft plan provide in Section 12.2.1.18.4.9 of the Application/EIS), including measures to manage fugitive dust (all indicators) • Implement fugitive dust management measures as described in the AQEMP (see draft plan in Section 12.2.1.18.4.9 of the Application/EIS), which may include wetting unpaved roadways, revegetation of disturbed areas and/or using other materials to minimize dust (all indicators) • Use noise abatement and construction scheduling considerations at noise-sensitive locations and times, where appropriate, to limit disruption to sensitive receptors (all indicators) • Implement visual quality mitigation measures for the transmission line including clear-spanning trails, avoiding tower and pole placement on trails, minimizing placement of towers/poles on top of ridgelines, summits, or other locations where they may be silhouetted against the sky and locating towers/poles and ROW to take advantage of natural screening from vegetation and topography (all indicators) • Require project drivers to close gates properly when vehicles require access to right of way corridors on fenced and gated lands (Agriculture and Range) • Install fencing to restrict cattle movement into the transmission line ROW (Land File 0194075), as necessary and feasible (Agriculture and Range)
25.0	**Current Land and Resource Use for Traditional Purposes**		

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
25.1	Reduced access to hunting and trapping sites for UFN, LDN and STN	**C, O, CL, PC**	• Establish an Access Management Working Group with Aboriginal participation • Establish a Traditional Knowledge/ Traditional Land Use (TK/TLU) Committee to monitor project development and provide TK/TLU information to incorporate during final project design, construction, operations, closure and post-closure • Monitor for unanticipated Indigenous food security effects resulting from the Project based on the following: o change in moose abundance and distribution (using information from the moose winter aerial surveys which New Gold has committed to, as well as other available data); o change in country foods safety and perceived risk (country foods monitoring program); o information brought forward through the TK/TLU Committee as well as through other direct engagement with Indigenous groups (e.g., Environmental Monitoring Board). Should monitoring identify unanticipated effects of the Project on Indigenous food security, New Gold will engage with Indigenous groups to identify appropriate measures to address the effects. Adaptive management may include working with Indigenous groups to identify and deactivate orphan roads to reduce habitat fragmentation in the regional study area, either via in-kind support from New Gold or by assisting Aboriginal groups access funding • Support programs that preserve the transfer of TK, as developed and guided by Aboriginal groups • Post and enforce speed limits on Project-controlled roads • Communicate with trappers and guide outfitters • Implement a country food monitoring plan (draft plan provided in Appendix 9.2.2B of the Application/EIS) in relation to the mine site to monitor species that represent pathways for metals concentrations in country food including plants, mammals and fish)Establish a cultural awareness program to provide information on the history of Aboriginal groups within the vicinity of the Project • Establish a procedure to facilitate access to the mine site area by designated Aboriginal groups for cultural purposes, provided access can be accommodated
25.2	Reduced access to other cultural and traditional land use sites for UFN and STN	**C, O, CL, PC**	• Establish an Access Management Working Group with Aboriginal participation • Establish a TK/TLU Committee to monitor project development and provide TK/TLU information to incorporate during final project design, construction, operations, closure and post-closure, and support programs that preserve the transfer of TK, as developed and guided by Aboriginal groups • Post and enforce speed limits on Project-controlled roads • Establish a cultural awareness program to provide information on the history of Aboriginal groups within the vicinity of the Project • Establish a communications process with potentially affected First Nations regarding project-related activities • Establish a procedure to facilitate access to the mine site area by designated Aboriginal groups for cultural purposes, provided access can be accommodated
25.3	Reduced access to gathering areas for UFN	**C, O, CL, PC**	• Establish an Access Management Working Group with Aboriginal participation • Establish a TK/TLU Committee to monitor project development and provide TK/TLU information to incorporate during final project design, construction, operations, closure and post-closure and support programs that preserve the transfer of TK, as developed and guided by Aboriginal groups • Post and enforce speed limits on Project-controlled roads • Use existing roads to extent possible • Establish a communications process with potentially affected First Nations regarding project-related activities • Establish a procedure to facilitate access to the mine site area by designated Aboriginal groups for cultural purposes, provided access can be accommodated • Implement a no gathering policy for Project workers and contractors while resident on site to reduce access to gathering areas and pressure on gathering

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ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
25.4	Reduced wildlife harvesting success for LDN, NWFN, SFN, StFN, UFN and STN	**C, O, CL, PC**	• Participate in regional wildlife and resource management initiatives for grizzly bear, moose and caribou in WMs 6-01 and 7-12 • Follow guidelines for wildlife "least risk windows" where practicable • Post and enforce speed limits on Project-controlled roads and manage transportation to reduce wildlife collisions • Implement various environmental management plans related to wildlife management, visual resources and traffic management (Section 12 of the Application/EIS) • Use vegetation and coarse woody debris and other approaches to form visual barriers on cut lines, trails or other linear features to reduce changes in predator-prey dynamics • Implement no hunting (including no trapping) and no firearms policies for Project workers and contractors while resident on site to reduce hunting access and pressure • Restore disturbed habitats capable of supporting wildlife during reclamation and closure (draft plan provided in Section 2.6 of the Application/EIS) • Incorporate traditional knowledge in the finalization of the proposed new transmission line alignment to avoid impacting important sites and/or reduce adverse impacts on Aboriginal rights and interests • Establish a TK/TLU Committee to monitor Project development and incorporate TK/TLU information during final Project design, construction, operations, closure and post-closure and support programs that preserve the transfer of TK, as developed and guided by Aboriginal groups • Employ Aboriginal monitors over the life of the Project to assist with environmental and other monitoring
25.5	Reduced plant gathering success for UFN and STN	**C, O, CL, PC**	• Participate in regional wildlife and resource management initiatives for grizzly bear, moose and caribou in Wildlife Management Units 6-01 and 7-12 • Follow guidelines for wildlife "least risk windows" where practicable • Post and enforce speed limits on Project-controlled roads and manage transportation to reduce wildlife collisions • Implement various environmental management plans related to wildlife management, visual resources and traffic management (Section 12 of the Application/EIS) • Use vegetation and coarse woody debris and other approaches to form visual barriers on cut lines, trails or other linear features to reduce changes in predator-prey dynamics • Implement a no gathering policy for Project employees and workers while resident on the mine site to reduce access to gathering area and pressure on gathering • Restore disturbed habitats capable of supporting wildlife during reclamation and closure (draft plan provided in Section 2.6 of the Application/EIS) • Incorporate traditional knowledge in the finalization of the proposed new transmission line alignment to avoid impacting important sites and/or reduce adverse impacts on Aboriginal rights and interests • Implement a country food monitoring plan (draft plan provided in Appendix 9.2.2B of the Application/EIS) in relation to the mine site to monitor species that represent pathways for metals concentrations in country food including plants, mammals and fish) • Establish a cultural awareness program to provide information on the history of Aboriginal groups within the vicinity of the Project • Establish a TK/TLU Committee to monitor Project development and incorporate TK/TLU information during final Project design, construction, operations, closure and post-closure and support programs that preserve the transfer of TK, as developed and guided by Aboriginal groups • Employ Aboriginal monitors over the life of the Project to assist with environmental and other monitoring

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
25.6	Reduced quality of experience using lands and resources for hunting and trapping, fishing, plant gathering and use of cultural and traditional lands for LDN, NWFN, SFN, StFN, UFN and STN	**C, O, CL, PC**	• Establish an Access Management Working Group with Aboriginal participation • Establish a procedure to facilitate access to the mine site by designated Aboriginal groups for cultural purposes, provided access can be accommodated • Establish a TK/TLU Committee to salvage cultural data where avoidance of known archaeological sites, heritage sites and cultural heritage resources is not possible and support programs that preserve the transfer of TK, as developed and guided by Aboriginal groups • Establish a cultural awareness program to provide information on the history of Aboriginal groups within the vicinity of the Project • Allow vegetation to colonize the right-of-way as needed for sections in visually sensitive areas • Paint or stain transmission line structures to blend with the character of the surrounding environment as needed in visually sensitive areas as appropriate • Locate the transmission line within or alongside the footprints of existing long-term linear infrastructure (roads and transmission lines) to cluster disturbance, to the extent possible • Locate project infrastructure to take advantage of both topography and vegetation as screening devices to restrict views of the structures in sensitive viewing areas • Align the transmission line ROW to run in parallel to the natural contours of the landscape rather than perpendicular, to the extent possible • Avoid placing facilities on ridgelines, summits, or other locations where they will be silhouetted against the sky in sensitive viewing areas where possible • Avoid increasing disturbance within remaining areas of intact forests (i.e., areas with low levels of landscape disturbance) to the extent possible • Develop site-specific measures and/or designs at the crossings of the Nechako and Stellako rivers so structures do not unnecessarily affect natural lines (e.g., treelines, ridgelines, river banks) • Allow grass and brush to colonize the transmission line ROW for sections in sensitive viewing areas • Place towers/poles away from the banks of rivers
26.0	**Visual Resources**		
26.1	Change to visual quality (Residences 3, 5, 6 and 7, Mary Jane Lake Recreation Site, Cabin Creek Falls Recreation Site, Nechako River/ Cut-off Creek Recreation Site, Big Bend Meadow Recreation Site, Cheslatta Trail, Brewster Lake Recreation Site, Tatelkuz Lake Indian Reserve (IR) 28, Stellako River)	**C, O, CL, PC**	• Locate the transmission line within or alongside the footprints of existing long-term linear infrastructure (roads and transmission lines) to cluster disturbance, to the extent possible • Locate project infrastructure to take advantage of both topography and vegetation as screening devices to restrict views of the structures in sensitive viewing areas • Align the transmission line ROW to run in parallel to the natural contours of the landscape rather than perpendicular, to the extent possible • Avoid placing facilities on ridgelines, summits, or other locations where they will be silhouetted against the sky in sensitive viewing areas where possible • Avoid increasing disturbance within remaining areas of intact forests (i.e., areas with low levels of landscape disturbance) to the extent possible • Develop site-specific measures and/or designs at the crossings of the Nechako and Stellako rivers so structures do not unnecessarily affect natural lines (e.g., treelines, ridgelines, river banks) • Allow grass and brush to colonize the ROW for sections in sensitive viewing areas • Place towers/poles away from the banks of rivers • Paint or stain transmission line towers/poles to blend in with surrounding environment
26.2	Change to visual quality (Tatelkus Lake IR 28, Dykam Ranch, Tatelkuz Lake Southeast Recreation Reserve, Snake Lake, Top Lake, Davidson Mountain, Kuyakuz Lake Recreation Site)	**C, O, CL, PC**	• Limit artificial light escaping from the mine site to the extent possible • Select and design materials to blend with landscape elements in sensitive viewing areas as appropriate • Paint or stain transmission line structures to blend with the colour and character of surroundings in sensitive viewing areas • Re-vegetate with native vegetation and establish a composition consistent with the surrounding undisturbed landscape where necessary, when construction is within line of sight of a known view point
27.0	**Archaeological Sites**		
	Loss or alteration of know and as-yet unknown archaeological sites	**C, O**	• Avoid known archaeological sites to the extent possible • Conduct an archaeological impact assessment of the final transmission line alignment in areas of moderate to high potential prior to commencing transmission line construction to help inform the final transmission line route • Implement an Archaeology and Heritage Resources Management Plan (AHRMP; draft plan provided in Section 12.2.1.18.4.7 of the Application/EIS, including a chance find procedure and process for reporting chance finds to Aboriginal groups
28.0	**Historic Sites**		

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

ID#	Valued Component (VC) / Effect	Timing	Mitigation Measures
	Loss or alteration of know and as-yet unknown historic heritage sites	**C, O**	• Avoid known historic heritage sites to the extent possible • Implement an AHRMP (draft plan provided in Section 12.2.1.18.4.7 of the Application/EIS), including a chance find procedure and process for reporting chance finds to Aboriginal groups
29.0	**Paleontological Resources**		
	Land- altering activities impacting sites	**C, O**	• Avoid known palaeontological sites to the extent possible • Conduct a desk-based paleontological study prior to commencing transmission line construction to help inform the final transmission line route • Implement the AHRMP (draft plan provided in Section 12.2.1.18.4.7 of the Application/EIS), including a chance find procedure, and a process for reporting chance finds to Aboriginal groups
30.0	**Environmental Exposures[24]**		
	Project-related noise and environmental contaminants	**C, O, CL, PC**	• Implement various environmental management plans mitigate adverse effects related to noise, air quality, water quality, terrestrial resources, fish and aquatic resources, and wildlife valued components. These plans will identify objectives, specific measures to mitigate effects, monitoring requirements and an adaptive management plan.
31.0	**Worker Health and Safety**		
	Changes in health risk resulting in a change in the likelihood of injury or disease	**C, O, CL**	• Adhere to Part 2 (Occupational Health) of the Health, Safety and Reclamation Code for Mines in British Columbia (BC MEM 2017)[2] • Implement a Health and Medical Services Plan that is consistent with the Health and Medical Services Best Management Guide for Industrial Camps (Northern Health Authority, March 2015)[21], and includes identification of: on-site health and medical services to be implemented to meet the Project's workforce's urgent and non-urgent health care needs; disease and infection prevention and outbreak protocols; health promotion, disease prevention and worker wellness program information; a process for communication, coordination and collaboration with the NHA and other local health service providers (including patient care/transfer, data collection and reporting), and an adaptive management plan • Implement an Occupational Health and Safety Management Plan (OHSMP; draft plan provided in Section 12.2.1.18.4.15 of the Application/EIS), including measures to promote the health, safety and well-being of employees • Adhere to the *Drinking Water Protection Act*[25] and Drinking Water Protection Regulation and treat drinking water or provide alternative drinking water if monitoring of the site well identifies exceedances of drinking water quality guidelines • Implement fugitive dust management measures as described in the AQEMP (see draft plan in Section 12.2.1.18.4.9 of the Application/EIS), which may include wetting unpaved roadways, revegetation of disturbed areas and/or using other materials to minimize dust

[24] The determination of significance considers all Project phases but it is based on the HHERA conducted for the Operations phase, which reflects the worse conditions for noise and environmental contaminants.

[25] *Drinking Water Protection Act*, SBC 2001, c 9. http://canlii.ca/t/52p75 (accessed on April 13, 2017)

Project phase: C = Construction; O = Operations; CL = Closure; PC = Post-closure

APPENDIX H: ASSESSMENT OF IMPACTS TO THE CARRIER SEKANI FIRST NATIONS' ABORIGINAL TITLE, RIGHTS, AND INTERESTS FROM THE BLACKWATER GOLD PROJECT (PART C)

Assessment of Impacts on the Carrier Sekani First Nations' Aboriginal Title, Rights, and Interests from the Blackwater Gold Project (Part C)

May 7, 2019

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Assessment of Impacts on the Carrier Sekani First Nations' Aboriginal Title, Rights, and Interests from the Blackwater Gold Project (Part C)

1. PRELIMINARIES

1.1 Document Purpose and Structure

The Blackwater Gold Project (Blackwater) is a proposed open pit gold and silver mine located approximately 160 km southwest of Prince George. New Gold Inc. (the Proponent or New Gold) is seeking environmental assessment (EA) authorizations for Blackwater via processes led by the British Columbia (B.C.) Environmental Assessment Office (the EAO) and the Government of Canada (Canada) Canadian Environmental Assessment Agency (the Agency).

A proposed power transmission line and associated access roads are needed to provide power to the Blackwater mine site, which transmission line, as well as existing and proposed new roads to access the mine site, are and would be located in the Territories of Nadleh Whut'en, Saik'uz and Stellat'en First Nations (collectively, the Carrier Sekani First Nations or CSFNs). For the purposes of engaging with B.C. and Canada in connection with the Blackwater EA, the CSFNs worked together as a collective, and this document is structured to reflect this coordinated approach. The collaborative approach facilitated the parties' recommendations to address the potential adverse effects of Blackwater on any CSFNs' Aboriginal title, rights, and interests (RTI) in accordance with the Collaboration Agreement (see section 2 for details).

This document was collaboratively developed by the CSFNs, the EAO, and the Agency, including collaborating on the descriptions of differing views of the parties as set out in this document. This document is included in Part C of the B.C. EA process, which considers Blackwater's potential effects on the CSFNs' RTI, and associated consultation and accommodation processes and outcomes. The document also includes a discussion of the potential effects and impacts relative to the potential benefits that Blackwater may generate, developed collaboratively between the CSFNs and the EAO.

In consideration of Blackwater's potential effects on the CSFNs, the following matters are presented in this document:

a. *Collaborative EA process* – The background, timelines and perspectives related to consultation on Blackwater, including the unique nature of the collaborative approach to engagement that emerged within the Blackwater EA process.

b. *Community Profiles* – An overview of the CSFNs' community profiles, including Indigenous governance, cultural characteristics, and socioeconomic status and statistics.

c. *RTI* – The CSFNs' descriptions of their RTI.

d. *Assessment of Impacts* – The CSFNs' assessment of Project impacts on their:
   i. RTI;
   ii. traditional knowledge and traditional land use;
   iii. transmission of traditional knowledge;
   iv. socioeconomic factors; and,
   v. governance components of their RTI.

e. *Accommodation* – Accommodation measures for Project impacts on the CSFNs.

f. *Conclusions* – The CSFNs' perspectives on the adequacy of consultation and accommodation, along with their recommendations to the Ministers.

Based on the information summarized in Part C, the final portion of this document considers the CSFNs' interests in relation to the assessed potential effects and impacts of Blackwater on their RTI, and its projected/forecast benefits, and provides the CSFNs' recommendation to the Ministers regarding the issuance of an EA Certificate (EAC) for Blackwater.

1.2 Project Description

Blackwater is a proposed open pit gold and silver mine for which New Gold is seeking a provincial EAC and federal EA authorization. Blackwater is proposed to be located approximately 160 kilometers (km) southwest of Prince George, in south-central British Columbia.

The transmission line and associated access roads that would be required to provide power to the proposed mine site, as well as existing and proposed new roads to the mine site, are proposed to be located in the traditional territories of the CSFNs (see Figure 1). The construction and operation of the mine itself would not take place within CSFNs' Territories, but could result in downstream water quality effects, impacts to wildlife and ecosystems, and socio-economic impacts with corresponding potential adverse impacts within the CSFNs' Territories and on the CSFNs' RTI.

The mine and ore processing facilities would have a nominal milling rate capacity of 60,000 tonnes per day (22 million tonnes per year) over 17 years, resulting in average annual production of 507,000 ounces (oz) of gold and 2,039,000 oz of silver during that period. Blackwater is expected to have a two-year construction phase, and 17 years of operations. After the mine closes, reclamation activities are expected to continue for about 24 years. Monitoring and post-closure activities are expected to run for an extended period after closure.

1.3 Summary

The parties engaged in the Blackwater EA in a unique, progressive, and collaborative manner. This collaborative process provided the CSFNs will a fulsome opportunity to understand the scope of Blackwater as proposed, engage at an EA-level on its potential environmental effects and impacts on their RTI, communicate transparently with the EAO, the Agency, and the Proponent, and engage in Government-to-Government (G2G) discussions regarding the regulation of the Blackwater.

The collaborative approach to the Blackwater EA was in part due to the execution of two G2G agreements between the CSFNs and B.C., which agreements were signed during the course of the Blackwater EA. A key impetus for these agreements related to the CSFNs' view of the state of their Territories and the manner in which historical impacts, and more recently, forest health issues and extensive Mountain Pine Beetle (MPB) salvage harvesting, have resulted in a diminished ecological condition of their Territories with corresponding serious impacts on the CSFNs' RTI.

The CSFNs have indicated that this current state of affairs has caused impacts on the economic potential of each of their Nations and their members (as well as on the broader region) moving forward. To that end, Blackwater provides a potential opportunity to diversify the regional labour market and business environment as timber/fibre constraints manifest on the regional forestry economy, as well as an opportunity for the CSFNs to rebalance the economic asymmetry that exists between their communities and non-aboriginal communities.

When considering Blackwater effects on the CSFNs and its impacts on their RTI, this "current state of affairs" also provides the context through which the CSFNs view the "seriousness of impacts" on their RTI. Based on the CSFNs' separate assessment, the CSFNs concluded that their current ability to exercise their RTI ranges from being constrained (for chinook, lake trout, moose and grizzly), to severely constrained (for sockeye and caribou), to not possible (for coho, Nechako white sturgeon).

Further, after conducting their own assessment of Blackwater impacts on their RTI, the CSFNs concluded that Blackwater would have the following residual ecological impacts on key species:

- negative and serious impacts on sockeye, coho, Nechako white sturgeon, and other resident species (including kokanee, rainbow trout, bull trout and burbot); and

- negative and serious impacts on caribou, moose and grizzly.

The CSFNs have indicated that this current state is not easily or quickly reversible, and some adverse effects are likely to continue to worsen even without further disturbance. Nevertheless, at the conclusion of the EA process, the CSFNs, the EAO and the Agency reached consensus on the proposed conditions for the EA authorizations, if granted.

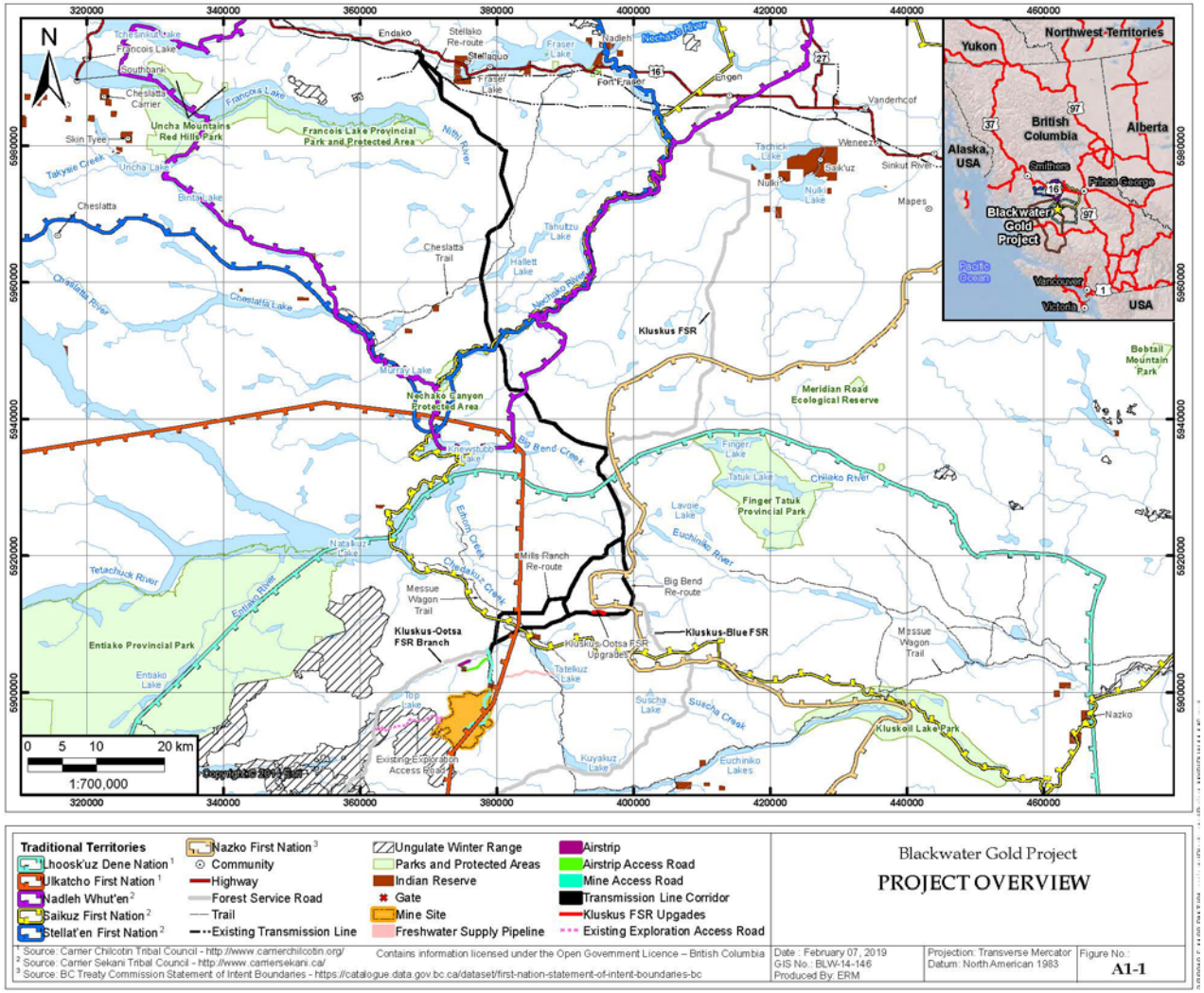
The CSFNs note, however, that the proposed conditions are only one element of the required accommodation for Blackwater. The CSFNs have assessed that economic accommodation and compensation are also required to address the serious residual impacts that Blackwater will visit upon their RTI even after the EA conditions are taken into account. These include the serious residual impacts to the economic and governance elements of the CSFNs' Aboriginal title. For example, CSFNs have concluded that proceeding with Blackwater would: (i) prevent the CSFN members from using for their economic benefit their lands, water, and resources in and around Blackwater which overlaps or borders their Territories, or potentially impacts the resources that they rely on to exercise their RTI; and (ii) worsen the already constrained state of CSFN members' ability to harvest fish, wildlife, plants, and other resources in their Territories.

The CSFNs note that the importance of economic accommodation is clearly recognized in their *Yinka Dene Water Law*, which acknowledges that both existing and new projects that have the potential to impact their RTI require economic accommodation of such impacts through instruments such as revenue sharing agreements, impact management and benefits agreements and/or project equity arrangements.

Notably, New Gold is currently negotiating an agreement with the CSFNs that seeks to address Blackwater's potential impacts on the CSFNs' RTI. The CSFNs also aim to pursue accommodative agreements with the Province and Canada. Until such agreements are finalized, however, the CSFNs are not in a position to support Blackwater.

As no accommodation agreements have yet been finalized, the CSFNs are hereby recommending to the provincial Ministers that they exercise their discretion pursuant to s. 17(3)(c)(iii) to order that further assessment be carried out in connection with the required economic accommodation and compensation owing to the CSFNs with respect to Blackwater and its corresponding impacts on their Territories and RTI.

Figure 1: Map of Blackwater Gold Project, transmission line route, Kluskus FSR and FN Territory boundaries



2. CONSULTATION AND COLLABORATION OVERVIEW

2.1 Consultation by the EAO

The CSFNs and B.C.'s execution of the *Collaboration Agreement* and *Environmental Socio-Cultural Initiatives Agreement*, and the implementation of collaboration, occurred while the EA for Blackwater was well underway within an existing process framework. The summaries below therefore reflect on consultation activities and perspectives pre- and post-collaboration.

2.1.1 Pre-Collaboration

From the commencement of the EA for Blackwater in October 2012 until April 2016, the EAO consulted the CSFNs as described in the Section 11 Order. EAO included the CSFNs in the EA working group and invited them to review and comment on the Section 11 Order, draft Application Information Requirements (AIR), New Gold's draft Aboriginal consultation plans and reports, and the Application for an Environmental Assessment Certificate/Environmental Impact Statement (Application/EIS). The CSFNs participated in Working Group meetings and meetings with EAO, exchanged letters and commented on draft documents.

EAO provided capacity funding to the CSFNs for pre-Application and Application review.

2.1.2 Post-Collaboration

On April 2, 2015, the Carrier Sekani Tribal Council (CSTC), its seven member Carrier Sekani First Nations, and B.C. concluded two agreements: the *Collaboration Agreement*[1], and an *Environmental and Socio-Cultural Initiatives Agreement*. Under both agreements, B.C. committed to enhancing collaboration with the CSFNs in the conduct of EAs, major projects and environmental stewardship. In particular, section 5.3 of the *Collaboration Agreement* sets out a decision-making framework for major projects in which the parties agree to seek (i) to develop consensus recommendations in relation to the design and implementation of environmental assessments, and (ii) consensus in relation to decisions on major approvals.

Following the execution of these agreements, the EAO and the CSFNs worked together to create a Collaboration Plan (Appendix A) in relation to Blackwater to describe how they would collaborate on the EA within the spirit and intent of the *Collaboration Agreement*, including addressing the potential adverse effects of Blackwater on the CSFNs' RTI. EAO provided additional funding to develop and fulfill collaborative commitments.

EAO and the CSFNs met regularly to discuss the EA review schedule and specific Project-related issues, and to collaboratively develop this document. Community

[1] http://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/aboriginal-people/aboriginal-peoples-documents/cstc_-_collaboration_agreement_-_signed_april_2015.pdf

meetings were held at Nadleh Whut'en and Stellat'en during the comment period on the Application/EIS.

EAO's initial views of strength of claim in the areas of the Territories potentially affected by Blackwater and the scope of consultation were communicated to the CSFNs by letter on April 5, 2013. An updated assessment incorporating considerations from the Supreme Court of Canada *Tsilhqot'in* decision (which clarified the test for Aboriginal title relating to the elements of sufficient and exclusive occupation at 1846) was shared with the CSFNs on April 27, 2016 for discussion. Irrespective of different views on strength of claim, EAO and CSFNs agreed that consultation at the deeper end would be carried out by implementing the steps in the Collaboration Plan.

The commitment to collaborate on the development of this report is consistent with the spirit and intent of the *Collaboration Agreement*. The parties fulfilled these commitments by setting out an opportunity for the CSFNs to develop an assessment methodology and provide their perspectives of the impacts from Blackwater to their RTI.

2.2 Consultation by the Agency

The Agency determined at the commencement of the EA process that it was appropriate to consult the CSFNs at the moderate level of the *Haida* consultation spectrum, based on information regarding potential impacts to rights available at the time. Following receipt of information outlining how their members exercise rights in areas potentially affected by Blackwater, specifically the area along the transmission line, the Agency began consulting the CSFNs at the deep end of the *Haida* consultation spectrum in January 2016. Consultation was undertaken through a variety of forms including phone calls, emails, letters, and in-person meetings, to provide updates on key developments and to solicit input or feedback on documents such as the Environmental Impact Statement Guidelines, the draft Consultation Workplan, and the Application/EIS. A draft Consultation Workplan outlines the Agency's proposed consultation activities with each of the Nations.

In April 2016, after discussions with the CSFNs, the Agency proposed updates to the draft Consultation Workplan that provided additional opportunities for direct dialogue between the parties in the EA process. A key commitment in the updated Consultation Workplan is to incorporate text from the CSFNs into the Agency's draft EA Report, regarding potential environmental effects of Blackwater on the CSFNs or potential impacts on CSFNs' RTI.

The Agency supported CSFNs' participation in the EA process through its Participant Funding Program.

2.3 CSFNs' Views on Consultation by the Agency and the EAO

The following reflects the CSFNs' views on the consultation carried out by the EAO and Agency during the EA process and does not necessarily reflect the views of the EAO and Agency.

EA and regulatory review processes are not viewed by First Nations to accommodate First Nations' stewardship responsibilities and their inherent right of self-governance. The right to decide how lands will be used and managed is a component of Aboriginal title. EA and regulatory review processes feed into the CSFNs' Indigenous decision-making processes. Accordingly, for projects to proceed with CSFNs' consent, as provided through each of their own decision-making processes, projects must be constructed and operated in ways that enhance CSFNs' traditional land base and ultimately help the CSFNs achieve their stewardship and economic goals and aspirations. This includes improvements to: employment, education levels, cultural integrity, health services, income levels and social status, social support networks, and social environments.

The CSFNs previously commissioned an assessment of the processes and methodologies utilized within the EA, and identified a number of constructs that frequently lead to differing perspectives in relation to the information and findings flowing from the process. The key constructs within the process that were identified as leading to differing perspectives on the validity of EA findings were as follows:

a. the process-guidance to proponents that the collection of contemporary land and resource use for "traditional purposes", and consideration of that information in relation to Blackwater's impacts and effects – as a surrogate for broader impacts on RTI; and

b. use of EA findings (Valued Ecosystem Components effects characterizations) to infer impacts on impacted First Nations (relevance of biological and spatial context, and thresholds for characterizing).

The CSFNs used the findings of this assessment to structure their own assessment of Blackwater's effects and potential impacts on the CSFNs and their RTI, which co-informs the collaborative process (along with the Application/EIS). That assessment report was completed on the initiation of collaboration pursuant to the Collaboration Agreement.

After the execution of the Collaboration Agreement, the CSFNs, the EAO and the Agency implemented a collaborative approach to the EA for Blackwater to meet the spirit and intent of the Collaboration Agreement.

The CSFNs' viewed consultation to be much more effective following implementation of collaboration. The clarity of potential impacts provided by the CSFNs' RTI assessment was central to focussing discussions with the EAO, the Agency and the Proponent. The more frequent and regular discussions and information sharing that occurred through the collaboration allowed the CSFNs to feel that they were far more appraised of, and involved in, the EA process, as opposed to being mere recipients of information.

The CSFNs do, however, maintain that collaboration is an interim step towards true accommodation of the governance and economic aspects of their RTI through joint decision-making and fair compensation. Perspectives on accommodation outcomes are discussed below in section 6 of this Part C.

2.4 Consultation by New Gold

Under section 11 of the British Columbia *Environmental Assessment Act*, EAO ordered New Gold to consult with the CSFNs about (i) the potential effects of Blackwater on their RTI, and (ii) measures to avoid or mitigate potential adverse effects and/or otherwise address or accommodate their concerns. The Section 11 Order prescribed a process for developing, conducting, and reporting on this consultation.

New Gold submitted consultation plans and reports periodically throughout the EA review as described in the Section 11 Order and as requested by EAO. New Gold's consultation reports are available on the EAO's e-PIC Blackwater website.

Nadleh Whut'en

During the development of the AIR, efforts were made, but there was no progress towards consultation between New Gold and Nadleh Whut'en. Negotiation of a capacity agreement between New Gold and Nadleh Whut'en began in April, 2015, and the agreement was signed in January, 2016. Throughout that time, New Gold conducted meetings, email exchanges, phone calls and site tours with Nadleh Whut'en, and provided draft reports for comment.

Capacity Funding and Agreements

- June, 2015 – Nadleh Whut'en submitted a proposal to conduct a Traditional Knowledge/Traditional Land Use and Occupancy study. The study was completed and eventually shared with New Gold, the EAO, and the Agency.

- January 20, 2016 – Nadleh Whut'en entered into a capacity funding agreement with New Gold and received funding in February, 2016.

Saik'uz

During the pre-Application phase of the EA, New Gold and Saik'uz exchanged technical information, including traditional land use information, and discussed impacts of concern. New Gold conducted meetings, email exchanges, and phone calls with Saik'uz, and attended community meetings. After submission of the Application/EIS, discussions between New Gold and Saik'uz focused on the transmission line route and water quality.

In April, 2016, New Gold provided a report to the EAO and the Agency with an updated assessment of the potential impacts to current land and resource use for traditional purposes. Saik'uz had planned to co-write this report with New Gold, but instead it was produced by New Gold and provided to Saik'uz for comment.

Capacity Funding and Agreements

- February, 2014 – Saik'uz and New Gold signed a Capacity Funding Agreement.

- July, 2014 – New Gold signed a Traditional Knowledge Protocol Agreement with Saik'uz.

- June, 2015 – Saik'uz provided New Gold a Traditional Use Study.

- January 20, 2016 – Saik'uz entered into a capacity funding agreement with New Gold and received funding in February, 2016.

- June, 2016 – Saik'uz provided New Gold a socio-economic study.

Stellat'en

Throughout the EA review, New Gold conducted meetings, email exchanges, and phone calls with Stellat'en, and provided documents for comment.

Numerous discussions were held regarding a potential First Nations Training and Employment Strategy; however, this Strategy has not received endorsement by Stellat'en.

Capacity Funding and Agreements

- December, 2013 – New Gold and Stellat'en signed a capacity funding agreement.

- October, 2014 – New Gold provided funding to Stellat'en for a Traditional Knowledge /Traditional Land Use Study, which was completed and provided to New Gold, the EAO, and the Agency.

- July, 2015 – New Gold provided Stellat'en with financial support for a socio-economic study which was provided to New Gold.

- January 20, 2016 – Stellat'en entered into a capacity funding agreement with New Gold and received funding in February, 2016.

2.5 CSFNs' Views on New Gold's Consultation

In February, 2016 and November, 2016, Nadleh Whut'en, Saik'uz and Stellat'en each provided comments on New Gold's draft Consultation Summary Report indicating that the report was factually inaccurate, that consultation was inadequate and not meaningful, that key concerns were not addressed and that the discussions and associated conclusions were mischaracterized or incomplete.

The lack of capacity funding made it difficult for the CSFNs to participate in consultation, particularly for Nadleh Whut'en, where capacity funding was provided late (February 2016) in the process.

The CSFNs would have preferred to co-draft the Consultation Plans and Summary Reports, rather than commenting on them after the fact.

Following implementation of collaboration and the completion of the CSFNs' RTI assessment report, further conversations between the CSFNs and New Gold led to the re-routing of the transmission line to avoid sensitive habitats and reduce potential impacts to the CSFNs' RTI. New Gold has also committed to discussions with the CSFNs on the implementation of the Yinka Dene Water Law.

Discussions are ongoing between the CSFNs and New Gold on high level topic areas such as business and employment opportunities, environmental matters, social/cultural matters and the application of the *Yinka Dene Water Law*.

3. CSFNS' PROFILE OF CARRIER SEKANI FIRST NATION PEOPLES

3.1 Introduction

The CSFNs are all part of the Dakelh or Yinka Dene Nation. These names, *Dakelh* ("travelers on water") and *Yinka Dene* ("people of the earth"), reflect key aspects of each of the CSFNs' identities. The CSFNs are also commonly referred to as Carrier, thought to be a translation of a Sekani term for their people.

The CSFNs have been self-governing since time immemorial. Key elements of their governance system and legal order are the affiliation of Nadleh Whut'en, Saik'uz and Stellat'en people with clans that include *'Uza'hné* (hereditary leaders), the existence of land and resource territories known as *keyah* (Nadleh Whut'en) or keyoh (Saik'uz / Stellat'en) associated with extended family units, and the use of a system of governance known as *bahlats* (sometimes called "potlaches") as an institution to govern the *keyah*/*keyoh* and clans. Prior to contact with Europeans in 1846, this interconnected system determined legal obligations and authority for stewardship and access to lands, waters and natural resources to ensure that they benefit present and future generations.

After contact, CSFNs' legal orders persisted and evolved, responding to developments such as the imposition of the *Indian Act* and creation of Indian reserves and bands. CSFNs continue to apply their laws, including through the *bahlats* and *Yinka Dene Water Law*, and continue to recognize *'Uza'hné*, *keyah*/*keyoh*, and clan membership in a manner that integrates elected band councils.

The *Yinka Dene Water Law* is comprised of the Yinka Dene 'Uza'hné Surface Water Management Policy (Version 4.1, March 2016) and the Yinka Dene 'Uza'hné Guide to Surface Water Quality Standards (Version 4.1, March 2016) (collectively, the Yinka Dene Water Law). This law is a modern form and emanation of the CSFNs' regulation of the use and management of lands, water, and resources, and is an expression of the CSFNs' Aboriginal rights of governance with respect to the regulation of the surface waters within their Territories. The *Yinka Dene Water Law* describes the CSFNs' guiding narrative objective for surface waters within their Territories as follows:

> Surface waters within our Territories should remain substantially unaltered in terms of water quality and flow.

Finally, each of the CSFNs is a “band” within the meaning of section 2(1) of the *Indian Act*, and their members are “aboriginal peoples of Canada” within the meaning of section 35 of the *Constitution Act, 1982*.

3.2 CSFNs’ Community Profiles

The following profiles of each of the CSFN communities were provided by the CSFNs. Information included in each of the profiles varies based on the information available for each of the CSFNs. Much of the information provided in sections 3.3 to 3.5 below is based on socio-economic studies completed by New Gold as a component of their Application and associated updates, socio economic studies completed by each of the CSFNs, and an Aboriginal and Northern Affairs Development Canada report that included aggregated First Nation community well-being surveys from 1981-2011. In particular, source documents included the following:

- Blackwater Gold Project Economic 2013 Baseline Report; Prepared for New Gold by AMEC Environment and Infrastructure, a division of AMEC Americas Ltd. October 2013;
- December 1, 2015 Memorandum from ERM re Proposed Blackwater Project – Socio-economic Baseline Information Update for Aboriginal Groups;
- Relevant portions of the Application, including:
    - Section 14 (Aboriginal Groups Background Information);
    - Appendix 6.1A (2013 Economic Baseline Report);
    - Appendix 7.1.1A (2013 Social Baseline Report); and
    - Sections 6.3 (Summary of Assessment of Economic Effects) and 7.3 (Summary of Assessment of Social Effects); and
- Aboriginal Affairs and Northern Development Canada, The Community Well-Being Index: Well-Being in First Nations Communities, 1981-2011.Ottawa: Her Majesty the Queen in Right of Canada, represented by the Minister of Aboriginal Affairs and Northern Development (AANDC 2015).

3.2.1 Saik’uz First Nation

Saik’uz is a Dakelh community whose Territory is located a short distance from the geographical centre of British Columbia. The main community, Reserve 1, is located on the east end of Nulki Lake on Tachick Lake, 9 km southwest of Vanderhoof, B.C.

The Saik'uz are Dakelh speaking peoples, part of the Athapaskan language family. The name Saik’uz is derived from the Dakelh (Carrier) word 'on the sand' and refers to the sandy soil on which the main community is located.

Saik’uz describes the occupancy and Athapaskan settlements as being present in the area since time immemorial (Jenness 1943; Morice 1893). Within the Dakelh territory, Saik’uz describes hereditary chiefs (heads of clans - extended families) as having title

over Keyohs, which are specific land bases that are linked to watersheds (Beck 2013; CSTC, 2011; Thomas 2015).

In addition to the hereditary governance system, Saik'uz also has an elected political governing structure in place pursuant to the *Indian Act*. Elections are held every two years for a chief and two councillors.

Saik'uz and its members engage in a range of economic activities, including forest-related activities, arts and crafts, campground and general store operation, trapping, seasonal firefighting, seasonal trap manufacturing, banquet catering, and construction. Some of those businesses include:

- Tin Toh Forest Products Ltd.;
- SFN Catering; and
- Innergex Renewable Energy Inc. and the Saik'uz First Nation Joint venture – developing a wind energy project at Nulki Hills near Vanderhoof.

Saik'uz infrastructure and facilities include a general store, cultural center, church, adult education school, training center, administration office, community hall, and sports fields.

As of 2016 there were 958 registered Saik'uz members, 325 (or 34 percent) of whom live on reserve.

At the time of New Gold's socio-economic survey:

- 93 percent of participants were Status Indians;
- 87 percent lived on reserve;
- the average age of the participants was 40 years old; and
- a large portion of the participants indicated they are single or never married (54 percent), 24 percent were common-law, and 15 percent were married.

Aboriginal Affairs and Northern Development Canada conducted a community well-being survey of First Nations, Inuit, and non-aboriginal communities across Canada in 2011 (AANDC 2015). Indicators used to develop the index were limited to housing, income, labour force, and education.

Saik'uz (shown as Stoney Creek Indian Reserve 1 in the AANDC 2015 report) scored 54 in the wellbeing index, placing it below-average for B.C. aboriginal communities on reserve and well below the average score for communities in B.C., which sits at 80. This indicates a substantial gap in education, income, housing, and employment between Saik'uz members and the broader population, particularly the non-aboriginal population.

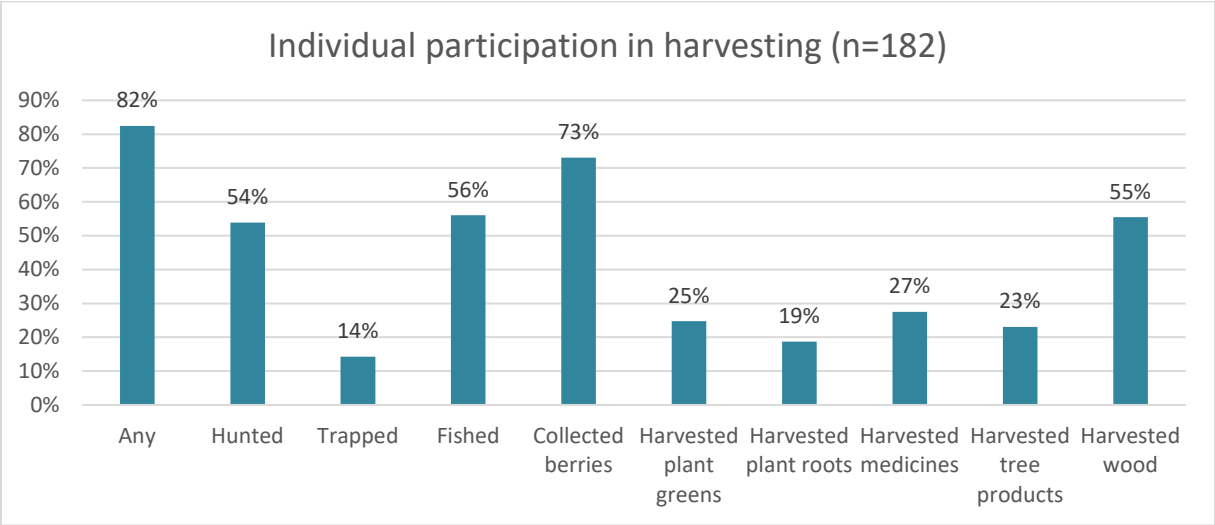
As with most First Nations, Saik'uz incomes lag behind those of non-aboriginal Canadians. Table 1 shows the relative individual incomes of survey respondents compared to regional and provincial populations. Individual incomes for Saik'uz at the time of this study are well below average British Columbians, with Saik'uz citizens over-represented in low-income brackets. The number of Saik'uz respondents with incomes of less than $10,000 was double that of the B.C. aboriginal population, and their overall income was considerably lower, with no community member reporting an income higher than $69,999.

Table 1. Income Brackets per Geographic Area.

National Household Survey 2011. Net individual income (after tax)						
		General population			**Aboriginal population**	
	Saik'uz Survey	**PG (All) N=?)**	**Bulkley-Nechako Region (All) N=30,780**	**B.C. (All)**	**B.C.**	**Bulkley-Nechako Region**
0-$9,999	54%	17%	20%	19%	27%	35%
$10,000-$19,999	25%	17%	19%	19%	24%	22%
$20,000-$29,999	10%	13%	14%	14%	14%	13%
$30,000-$39,999	5%	12%	11%	12%	11%	8%
$40,000-$49,999	3%	9%	9%	10%	8%	5%
$50,000-$59,999	2%	8%	9%	7%	5%	6%
$60,000-$79,999*	1%	12%	9%	8%	6%	7%
$80,000+	0%	12%	2%	10%	5%	4%
*Note: For Saik'uz, no member reports a higher income than $69,999.						
Source: National Household Survey, 2011						

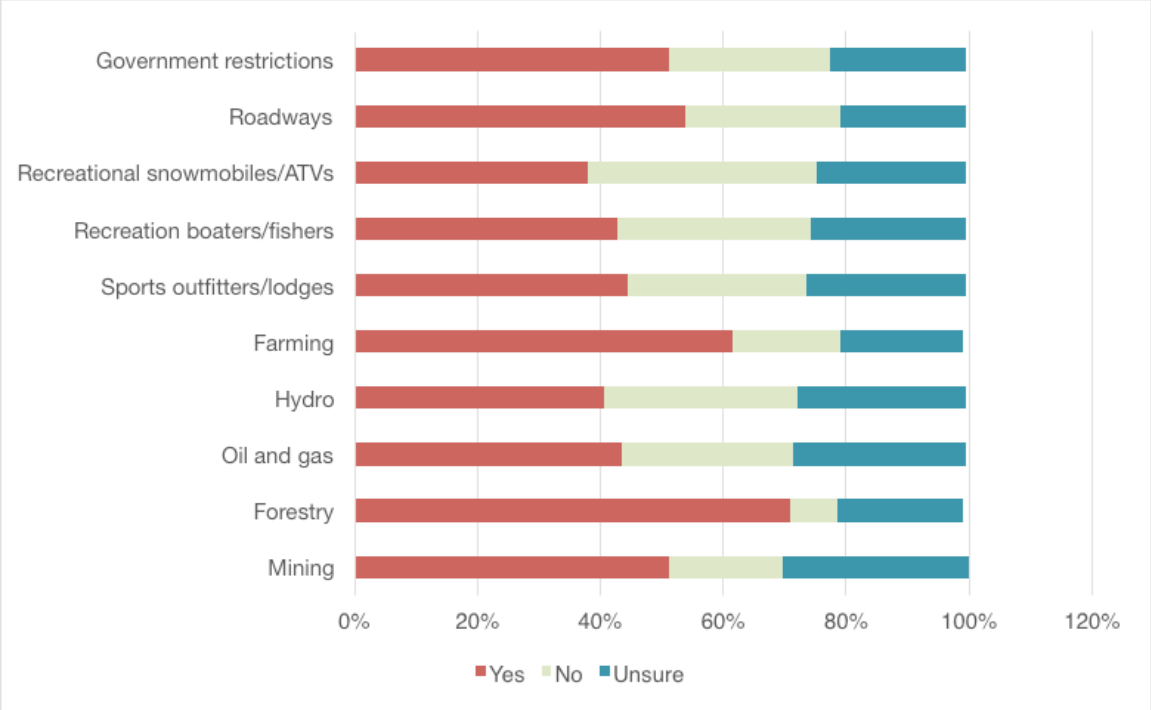
Of the 182 people surveyed in the 2016 study, 82 percent indicated they participated in harvesting. Members participated in a variety of different types of harvesting activity (see Figure 2).

Figure 2: Participation in Harvesting



Participants were asked what factors impacted their ability to harvest. More than 50 percent of participants indicated that disturbance and displacement created by forestry, farming, mining, and roadways, and government restrictions limited their ability to harvest (see Figure 3).

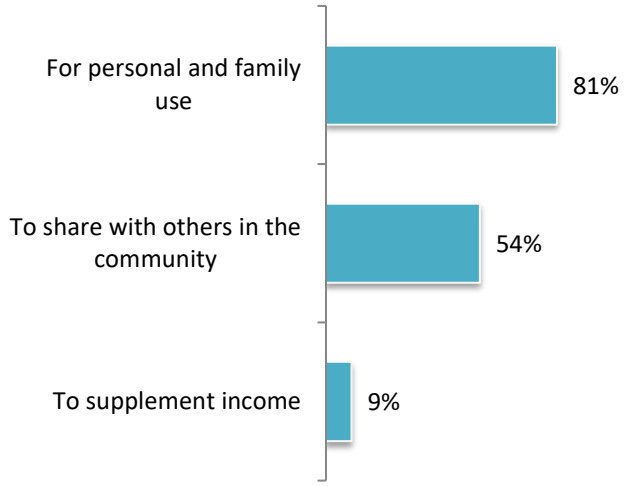
Figure 3: Additional Industrial Limits on Harvesting Figure 3. Additional Industrial Limits on Harvesting



Sharing economy

The sharing economy is very alive within Saik'uz: 54 percent of survey respondents reported that their reason for harvesting in the last year was to share with others in the community (see Figure 4). Concurrently, many members rely on more than one source for their traditional foods. Even those who harvest themselves rely on sharing, trading, community events, and other sources.

Figure 4: Reason for Harvesting



3.2.2 Nadleh Whut'en First Nation

Nadleh Whut'en are a Dakelh people. Nadleh Whut'en Territory is located between Nadleh Bun (Fraser Lake) and the Nechako River along the banks of the Nautley River, which, at only 800 m long, is one of the shortest rivers in the world. The main Nadleh Whut'en community is located on Fraser Lake Indian Reserve No. 1, on the eastern shore of Nadleh Bun.

Canada historically "named" the Nadleh Whut'en Band the Fraser Lake Band. The name was changed in 1990 to Nadleh Whut'en. *Nadleh* refers to where the salmon return every year, while *Whut'en* refers to where you come from (FirstVoices 2011).

In addition to the continued hereditary governance system based on *Keyahs* (as described above), Nadleh Whut'en has an elected political governing structure in place in accordance with *Indian Act* requirements.

There are 553 registered Nadleh Whut'en members, with 262 members (47 percent) living on reserve (INAC, February 2016). According to the Nadleh Whut'en eligible voters list (age 18+), approximately 66 percent (368) of the population is 18 years and older. Ninety-three households are situated within the Territory boundaries, with 82 homes within 25 km of the main community reserve. In the adjacent Prince George / Quesnel area there are 54 recorded Nadleh Whut'en households. The Nadleh Whut'en 2016 voting list indicates that of 368 adult members, 134 (36 percent) live on reserve, suggesting that the reserve population includes a high percentage of children and youth.

Well-Being Index

The Dakelh meaning of wellness is based on the self, body, mind and spirit as being interdependent, and that this self must live interdependently with community, the environment and the spirit world (Brazzoni 2013).

One of the main challenges with many mainstream socio-economic metrics is that they are focused on economic measures and do not include elements such as cultural, family, and community connections of critical importance to Aboriginal peoples. Despite such limitations, those metrics can be illustrative of socio-economic gaps between Aboriginal peoples and non-aboriginal populations.

Nadleh Whut'en (referenced in the AANDC 2015 report index as Nautley (Fort Fraser 1)) scored 49 in the well-being index, placing it below-average for Aboriginal communities on reserve in B.C. Both the Nadleh Whut'en and provincial Aboriginal scores are well below the average score for communities in B.C. (average 80), indicating a substantial gap in education, income, housing, and employment between Nadleh Whut'en and the broader non-aboriginal population.

Income

Households were asked to estimate the annual income of all residents in the home. Comparisons with the regional data sets are difficult as the income brackets used in the survey are not directly comparable with the census brackets. Additionally, housing costs are usually source-deducted for on-reserve First Nations, meaning that income will only include the living allowance portion. This is not the case for off-reserve populations who generally pay their housing costs from income. This means that the lowest income categories are not directly comparable for on and off reserve. However, income brackets above $25,000 can generally be compared as the social assistance rates are generally under that level.

From a comparison of the income brackets above $25,000 in the survey data, it is evident that the on-reserve households have much lower numbers in the higher income brackets.

Both on and off reserve data sets show lower incomes than the available regional comparators. The on-reserve population is particularly under-represented in the higher income brackets. Despite challenges in data comparability, it is obvious that the Nadleh Whut'en living on reserve face a significant income gap with the regional Aboriginal and non-aboriginal populations.

Survey respondents reported spending a large amount of their income on housing. More than half (52 percent of households reported spending in excess of 25 percent of their income on housing. As a comparison, most households (84 percent) in the Bulkley–Nechako region spent less than 30 percent of their household total income on shelter costs. This is alarming because not only are Nadleh Whut'en members making less income, they are also spending a greater portion of their income on housing, leaving less

available for other needs. This exacerbates the income gap, making those households particularly vulnerable to potential adverse effects from Blackwater.

As discussed above, Nadleh Whut'en median incomes – especially those on reserve – are significantly below those of regional and provincial non-aboriginal populations. In addition, there is a high proportion of households with low incomes. While the well-being survey did not measure household food insecurity of adults or children, given income levels it is likely that the majority of households on reserve are also facing challenges in purchasing food, and in particular, healthier food options. These financial challenges make meeting nutrition needs to support good health difficult, which increases risks for several health problems.

Given this context, access to traditional food is highly important for Nadleh Whut'en. While the survey did not include questions directly on community members' participation in different kinds of traditional food harvesting other than medicine, households were asked to indicate how often they consumed a limited number of traditional foods including four species of large game, (moose, deer, caribou, bear), two kinds of fish (salmon, other lake fish), five species of berries (blueberries, huckleberries, saskatoon berries, soapberries, cranberries), one species of plant (labrador tea), and two kinds of small game (rabbit and beaver).

The results show that almost all households consume traditional foods. Traditional foods consumed by the majority of households were salmon (88 percent), other lake fish (60 percent), moose (75 percent), and all species of berries asked about in the survey. At least half of the households consume salmon and moose at least a few times a month, while some households (10 to 15 percent) have these foods more than once a week. Some access to these foods is directly via harvest, but sharing and trading, both within the community and with other communities, are very important to Nadleh Whut'en.

Comparing the data from this survey against results from the First Nations Food, Nutrition and Environment Study (FNFNES), reveals that consumption among Nadleh Whut'en members meets or exceeds the levels of use reported for First Nations residing in the Montane Cordillera/Subarctic.

When use of traditional food by households was displayed by location, it was clear that most households are consuming traditional food. This illustrates the ongoing strong ties between Nadleh Whut'en members and their Territory (wherever members reside) and their ongoing reliance on the Territory's ecosystem health for cultural continuity, physical and mental health, and food and income security.

Wage Employment

Nadleh Whut'en survey respondents were asked a series of questions about their own employment status as well as the number of individuals working in their households and their usual occupation. The bulk of the survey respondents (93 percent) answered the question on employment status. Out of those 145 respondents, 59 percent were employed: 42 percent had full-time employment, six percent were seasonal employees,

eight percent were part-time employees, and three percent were self-employed. Six per cent were receiving employment insurance (EI).

Sixty-one per cent of Nadleh Whut'en adult respondents were working for pay at the time of the survey, with another eight percent doing unpaid work. Thirty-two percent of adult respondents aged 18+ were not employed or were enrolled in education/training. Households were also asked to identify if they contained at least one individual who was working. Of the 140 households that responded to this question, 74 percent indicated that there was at least one person in the household working for pay.

Employment, Education, and Income

Additional analysis was undertaken to see if there was a relationship between level of employment, education, and income. With respect to employment and education, all individual Nadleh Whut'en respondents that held university degrees indicated they were employed while almost half (48 percent) of individuals without a high school degree were unemployed. Retirees, students, as well as all respondents who labelled their employment status as "other" or with an explanation, were excluded. Most of the explanations were full-time students or retirees. Also excluded were individuals who did not list an educational attainment level. The higher an education level obtained, the less likely there was a 'no response' reply. Overall, the survey results indicated that employment has a stronger correlation with household income than education level. Notably, while employment status appears to be linked to education level, there is no clear relationship between education and household income.

Ability to Take Advantage (ATA)

In terms of ATA, the survey results indicated the availability and interest of a significant portion of Nadleh Whut'en members in potential Project opportunities, including training, employment, and business development. Concurrently, the survey results also indicate that notable barriers exist to accessing training and employment, and that overcoming those barriers would require advance planning, programs, and resources. Nadleh Whut'en's experience with resource extraction to date indicates that proactive and early engagement is necessary to ensure adequate access by members to any potential Project opportunities.

Vulnerabilities

The survey results clearly illustrate that most of the potential benefits of industrial development and the cash economy in the region have been bypassing Nadleh Whut'en members, driving a large gap in income and well-being between members without jobs, and those with jobs and the regional population. This gap is evident across indicators of well-being from education and income to mental health. The colonial legacy, including the impact of residential schools, is evident in the vulnerabilities, including addictions and mental health as well as loss of language. Cumulative effects are also evident, with members reporting reduced access to traditional resources and cultural resources and activities. With these vulnerabilities, cultural engagement, family and community

cohesion, and other social determinants of Aboriginal health and resilience are relatively more important.

3.2.3 Stellat'en First Nation

The Stellat'en are Dakelh speaking peoples, part of the Athapaskan language family. The territory of the Stellat'en is located in central British Columbia. The main reserve, Stellaquo (Stella), is located 160 km west of Prince George, at the confluence between two rivers: the Stellaquo and Endako. The Nation also has a second, small reserve at Binta Lake. The Stellat'en belong to the Carrier Sekani First Nations and Stellat'en First Nation is a member of the Carrier Sekani Tribal Council.

Stellat'en describe its Territory as extending from Fort Fraser in the east, to the western shores of Francois Lake, as far north as Grassham Lake and as far south as Knewstubb Lake. When Stellat'en speak of their Territory, they speak of Keyoh Whut'en, an area much larger than the Stellaquo reserve. Many parts of the Keyoh Whut'en area are shared with other First Nations, primarily the Nadleh Whut'en whose reserve is situated on the east end of Fraser Lake.

Historically, Stellat'en and the Nadleh Whut'en were one group, historically referred to by Indian and Northern Affairs Canada (INAC) as the Fraser Lake Indian Band. In the 1950s the two communities split to form the Stellaquo Indian Band (Stellat'en First Nation) and the Fraser Lake Indian Band (Nadleh Whut'en Indian Band). At this point, the Fraser Lake Indian Band was dissolved and Stellat'en First Nation was assigned band number 613 and given authority over two IRs (Stellaquo and Binta Lake) totaling 834.3 hectares (SFN 2009b; AANDC 2015d). The main community of Stellaquo (IR #1) is located at the west end of *Nadleh Bun* (Fraser Lake). The next closest community to Stellaquo is the Village of Fraser Lake, approximately six kilometres east of the reserve. The nearest major centre is Prince George.

Stellat'en has both a hereditary and a band council governance system.

Stellat'en had 535 registered members as of February 2015 (AANDC 2015a), the majority of whom lived off reserve (206 members or 38.5 percent lived on reserve). Of the 329 members living off reserve, 17 live on other reserves while the remaining 312 live primarily in towns and cities in the region, including Prince George, Fraser Lake, Vanderhoof, and the larger provincial centres of Vancouver and Victoria (SFN 2009a). The gender balance of the Nation is even, but the on-reserve population has a slightly higher portion of males to females (46.1percent female).

Aboriginal groups tend to have a faster growing and younger population than the Canadian average. Statistics Canada data available for the Stellat'en on-reserve population mirrors this. Between 2006 and 2011, Stellat'en's on-reserve population grew by 10.2 percent. Over the same period, the population of the Prince George Census Metropolitan Area grew by only 1.2 percent, the Regional District of Bulkley-Nechako (RDBN) grew by 2.5 percent, and B.C. grew by 7 percent (Statistics Canada 2013a). The faster growth and higher birth rate means a younger First Nations population. The

median age for the Stellat'en on-reserve population was 33 years in 2011, compared to 39 for Prince George, 39.3 for the RDBN, and 41.9 for B.C. in the same year.

Well-Being Index

Stellaquo scored 62 in the wellbeing index, placing it at the average for B.C. Aboriginal communities (on reserve). Both of these indexes are, however, well below the average score for communities in B.C., which sits at 80, indicating a substantial gap between Stellat'en members and the broader population, particularly the non-aboriginal population, in education, income, housing, and employment.

Economy

The Stellat'en economy is a complex interplay of wage-based work, self-employment, trapping, harvesting, sharing, and trading of traditional foods. Stellat'en members, on reserve and off, rely on traditional foods to meet their needs, both physical and cultural, on a regular basis. Members also rely on access to their Territory and resources to earn income from trapping, guiding, forestry, construction, environmental monitoring, and other activities.

Traditional foods are economically, nutritionally, and culturally important to First Nations communities. The link between Stellat'en identity, Stellat'en traditional territory, and Indigenous or traditional food is a very important one. The 2014 socio-economic survey (Brown, 2014) found that:

- 80 percent ranked traditional food as somewhat or very important to the diet of Stellat'en families;

- 77 percent ranked traditional food as somewhat or very important to the Dakelh culture in Stellaquo; and

- 75 percent ranked traditional activities as somewhat or very important to the Dakelh culture in Stellaquo.

This link between health and cultural identity is seen in the broader literature on the social determinants of Aboriginal health. Other research also shows that indigenous foods are important for maintaining identity and cultural health. Harvesting activities and indigenous foods play "a key role in maintaining diverse cultures, languages, heritages and identities — in short, in the mental, emotional, spiritual and physical well-being of Indigenous Peoples" (Turner, Plotkin and Kuhnlein 2013: 37).

Economic development from an Aboriginal perspective has to take into consideration the complex interplay between the Aboriginal and market economies. Employment and education need to be framed in a context that considers informal Aboriginal employment or education — employment should include participation in the informal sector through harvesting, trading, and sharing, while education needs to recognize that Aboriginal people have informal education such as the transmission of oral history, traditional knowledge, experiential learning, and language. Mainstream measures of employment

and education tend to fail to recognize the informal and experiential learning and skills of Aboriginal people, and they therefore tend to be inadequate measures. Given that those measures are used as thresholds for access to employment, they do indicate relative access for members to potential project 'opportunities' and have therefore been used for that purpose here; however, based on the inadequacies described above, it must be acknowledged that the mainstream measures are not complete representations of the skills and abilities, or actual education or employment levels, of Stellat'en members.

Wage Employment

Formal sector employment characteristics for Stellat'en survey participants were conducted. Just over half (54 percent) of the 166 respondents reported being employed outside the home. The majority of respondents work full time. However, the proportion working full time is higher among on-reserve members than off-reserve members.

Although some of those not employed are currently students or retired, the majority are seeking some form of employment and for most of them their preference is full time. Although there were more full-time positions held by on-reserve members than off-reserve members, unemployment is higher for on-reserve members. However, for those on reserve, many are either homemakers or pensioners who are not participating in the labour force.

When asked about their general employment goals, 86 listed gaining some form of employment and 21 listed further education and training. Stellat'en survey respondents indicated interest in a wide array of employment areas. The top areas of interest include:

- Health (social worker, registered nurse, counsellor);
- Hospitality (chef, cook, hunting guide);
- Trades (electrician, mechanic, gunsmith);
- Business owner (construction, farm, restaurant);
- Management (board of directors, band manager, advisor); and
- Equipment operation (heavy machines operation).

Just over half of the members surveyed reported that they are interested in jobs with an industry (e.g., a mine or pipeline), with a small percentage (8 percent) indicating interest subject to the fulfillment of certain environmental or economic conditions and another one third of the respondents stating they were not interested in industry jobs. The proportions are different for men and women, with a higher proportion of men showing interest in industry jobs than women.

Education and Training

Typical measures of educational attainment and success are not aligned particularly well with First Nations' experience, values, and culture. There is a gap between Aboriginal perspectives on informal education and experiential learning and government reporting frameworks with respect to indicators of learning outcomes. Though currently utilized indicators are an important measure of the ability of First Nations to engage in the resource wage economy and adapt to effects on their traditional livelihoods, these indicators will have significant limitations for creating strategies and policies for change if they do not adapt to cultural differences in ways of learning.

The Stellat'en survey shows that members have generally lower levels of education achievement compared to the B.C. Aboriginal and general populations. The survey indicated that only about 34 percent of the Stellat'en population holds post-secondary qualification, compared to 40 percent for the B.C. Aboriginal, 48 percent for Prince George, and 56 percent for B.C. as a whole. The proportion of Stellat'en members without a certificate, diploma, of degree is quite high at 36 percent, compared to 21percent for Prince George, and 17 percent for B.C. as a whole.

The key areas of study indicated by the surveyed Stellat'en members holding a college or university degree include education, culinary arts, social work, and First Nations studies.

Barriers to Education and Training Programs

The following is a breakdown of the barriers to education and training programs:

- 59 percent finances, lack of access to funding;
- 19 percent work obligations or time;
- 15 percent transportation issues (including lack of a driver's licence);
- 13 percent location or lack of local provision of training (some report an inability or desire to relocate, lack of funding for relocation, and costs associated with living away from home);
- 11 percent do not have the necessary qualifications;
- 7 percent elder or child care responsibilities; and
- Others: medical reasons, program is not available, or wait listed.

4. CSFNS' DESCRIPTION OF THEIR RTI IN RELATION TO BLACKWATER

The following reflects the CSFNs' description of their RTI in relation to Blackwater and does not necessarily reflect the views of the EAO of the Agency. It is noted that under the Collaboration Agreement, British Columbia expressly recognized the existence of the

CSFN's RTI in their Territories, while also agreeing that further processes are required to establish the scope and geographic extent. Both British Columbia and Canada have also committed to fully implement the *United Declaration on the Rights of Indigenous Peoples*, which provides at Article 26 that "Indigenous peoples have the right to the lands, territories and resources which that have traditional owned, occupied or otherwise used or acquired."

4.1 CSFNs' RTI

The CSFNs are all members of the Carrier Sekani Tribal Council, which is a society formed under the B.C. *Societies Act* and governed by a Board of Directors comprised of the Chief Councillors from each member Nation. CSTC was incorporated in 1979 with a view to, among other things, achieving a just resolution of land claims and RTI issues for the Carrier and Sekani peoples.

In 1982, on behalf of the CSFNs and the other CSTC member Nations, CSTC filed a Comprehensive Land Claim with the Government of Canada. That claim was accepted for negotiation in 1982. In 1994, the CSTC also filed a statement of intent with the British Columbia Treaty Commission.

The CSFNs each possess RTI within and throughout their respective Territories, including Aboriginal title to the land, waters and air-shed, as well as the river and lakebed areas. The CSFNs also each hold important governance, cultural, spiritual, and harvesting rights.

The CSFNs have never ceded, released or surrendered any of their RTI within and throughout their Territories, nor have any events occurred which would operate to otherwise extinguish the CSFNs' RTI. Accordingly, present-day members of each of the CSFNs continue to hold RTI within and throughout their Territories.

Since time immemorial, the CSFNs have occupied, hunted, fished, gathered, travelled, governed, acted as stewards of, and raised families on the lands and waters within their Territories. The lands and waters have provided the CSFNs, their members and their ancestors with spirituality, sustenance, economy, and transportation. Further, prior to contact, the CSFNs' ancestors operated according to legal principles that governed their peoples' use of lands, waters and natural resources, which is the source of their stewardship laws and practices today.

Despite a degree of interruption caused by modern factors including ongoing industrial development, the CSFNs and their members have continued to rely on a variety of resources, lived in villages, occupied semi-permanent campsites and harvested resources on a regular and seasonal basis throughout their Territories. Accordingly, each of the CSFNs continue to hold existing RTI within and throughout their Territories, including to the lands, waters, air-sheds and resources therein.

Each of the CSFNs has RTI that will be adversely impacted by Blackwater. These RTI are described individually below, but are often closely related to one another, with impacts on one having potentially wide-ranging impacts on others.

The CSFNs' Aboriginal title includes the right to possess their Territories and exclusively occupy, use, and control their Territories for their Nations and their members' benefit. The CSFNs refer to case law from the Supreme Court of Canada that the CSFNs view as confirming that Aboriginal title includes incidental rights to (i) exercise authority and jurisdiction over, (ii) decide on current and future uses, and (iii) actively use and manage each of their Territories, including the water, land, air and resources therein, in accordance with their Nations' laws, customs, and practices.

The CSFNs view these concepts as closely tied to the right or ability to benefit from uses of the land and the resources therein, or put another way, the CSFNs' economic interests. This includes deriving benefits from their Territories and pursuing economic development opportunities in a variety of ways; whether related or unrelated to modern forms or natural resource development and extraction. This also includes access to natural resources and use of natural resources by preferred means, which use includes wild foods for the CSFNs' contemporary communities and their ancestors, as well as for sale, trade, or barter as the CSFNs' ancestors did historically.

Additionally, the CSFNs continue to govern and conduct themselves in a manner that is respectful of customary principles of environmental integrity and stewardship. For example, the CSFNs continue to require regular access to an environment that is not significantly degraded and is capable of sustaining (i) the ecosystems therein, (ii) a robust subsistence economy, and (iii) the CSFNs and their members both today and into the future.

Prior to contact with Europeans, the CSFNs operated according to a legal order that governed their peoples' use of lands, waters and natural resources (focused on the salmon fishery and a system of family landholding or occupation called *keyohs/kehahs*). This forms the basis for the CSFNs' stewardship practices today. This stewardship governance practice of the CSFNs corresponds to a well-established legal mandate under Carrier customary law which requires the CSFNs to manage the lands and resources in their Territories in a sustainable way. This springs from and sustains a legal responsibility imposed on the CSFNs by their own system of laws that dictates how they must manage lands and harvest resources.

The CSFNs therefore continue to use lands and resources in a manner reflective of their historical and inherent role as stewards of their Territories, including by using their detailed knowledge and historical occupation of their Territories to maintain an understanding of its overall health and to ensure its long-term sustainability. A large percentage of young Carrier adults continue to use lands and resources within their Territories today. This is a strong indicator of the CSFNs' continued, strong relationship with the land, waters and resources in their Territories, and their future ability and capacity to act as stewards in that regard.

These stewardship obligations require the CSFNs to sustain healthy ecosystems in their Territories, with a view to maintaining these resources as a viable foundation for CSFN members' sustenance and culture, both today and for the benefit of future generations.

Coupled with these practices related to environmental integrity and stewardship is accessing, harvesting, using and enjoying the benefits of natural resources for their desired purposes – be they cultural, ceremonial, spiritual, subsistence, economic and/or other purposes – and to do so in a preferred manner. Incidental and essential to this is the ability to safely travel unobstructed over the lands and waters throughout each of their Territories.

Specific resources that are of historical and contemporary importance to one or more of the CSFNs include the following:

- a variety of fish, including salmon (pink, sockeye, and chinook) and white sturgeon (which is endangered);
- large and small game, including caribou, bear, rabbit, beaver, squirrel, muskrat, grouse and a variety of waterfowl;
- cambium from pine trees, blueberries, huckleberries, Saskatoon berries, soapberries, wild raspberries, and other roots, leaves, berries and types of wood;
- earthen material, such as stones and gravel; and
- the experience of remoteness and solitude on the land for the cultural and spiritual relationships with the land including healthy connection to and adequate protection of and respect for spiritual sites.

Essential to carrying out all of these practices, and vice versa, is the maintenance of individual and community health, which is itself comprised of maintaining conditions conducive to healthy bodies, minds, and spirits (i.e., to the intertwined environmental, cultural, spiritual, social and economic conditions that ensure the well-being of individuals and of each of the CSFNs as a whole). Additionally, this cannot be achieved without equitable socio-economic conditions for each of the CSFNs and their members.

Finally, and closely tied to this are the CSFNs' archaeological, spiritual and cultural sites and practices. The survival of the CSFNs' unique culture depends on the preservation and protection of the existence and sanctity of archaeological, spiritual and cultural sites and to ensure they are kept physically intact for current and future generations. In addition to maintaining the CSFNs' connection to the land, such uninhibited, undisturbed, and private access to these sites is essential to fostering an ongoing sense of community (including Elder-youth interactions) and providing traditional knowledge holders and Elders with opportunities to share history, knowledge, traditional ways and skills with other members, including youth.

4.2 Water

As discussed above, the CSFNs adopted the *Yinka Dene Water Law* in 2016. In accordance with the *Yinka Dene Water Law*, the CSFNs have classified receiving waterbodies located within their Territories and downstream of Blackwater based on their cultural and ecological importance, including High Cultural or Ecological

Significance (Class I Waters), Sensitive Waters (Class II Waters), and Typical Waters (Class III Waters).

Water management goals for Class I Waters are focussed on protecting and maintaining background conditions in terms of quality and quantity (i.e., non-degradation). For Class II Waters, resource management activities are focussed on minimizing changes to background conditions, such that developmental activities are planned and implemented in a manner that minimizes alteration of the quality and quantity of surface waters. For Class III Waters, resource management activities are focussed on protecting existing and future water uses. For all water bodies, rates of flow should not be altered relative to background conditions and flows should be restored in water bodies that have been affected by historical water management activities.

The conditions for the EA authorizations (if granted) that the parties have collaboratively developed incorporate specific requirements for New Gold to take into account the Y*inka Dene Water Law*. Concurrently, the CSFNs and New Gold are in ongoing discussions regarding the application of the *Yinka Dene Water Law* to Blackwater.

4.3 Governance

The CSFNs have been governing their Territories in accordance with the Yinka Dene legal tradition for thousands of years. There are several distinct elements of their governance system and legal order. In particular, their peoples are affiliated with various clans that include hereditary leaders known as *'uza'hne*. They also have land and resources management territories known as *keyoh/keyah* associated with extended family units. The primary institution for governing *keyoh/keyah* and clans is through the potlatch system of governance known as *Bah'lats*.

Prior to contact with settlers, this interconnected system determined legal obligations and authority for stewardship of and access to lands, waters, and natural resources to ensure that they benefit present and future generations. After contact, the CSFNs' governance system and legal tradition have persisted and evolved, responding to developments such as imposition of Indian reserves and bands, a provincial trapline registration system that did not necessarily correspond to *keyoh/keyah*, and Canada's former ban on conducting *Bah'lats*. The CSFNs continue to apply their laws, including through the *Bah'lats*, and continue to recognize their '*uza'hne, keyoh/keyah* and clan membership.

The governance system of each CSFN is described briefly below.

The Stellat'en traditional, hereditary governance system is matrilineal and clan based. As a matrilineal society, kinship lines are traced through the mother's lineage, and clans and names are inherited through the mother. The Stellat'en are grouped into four clans: grizzly bear/black bear/wolf (*dumdenyoo*), beaver/owl (*tsayoo/tsumusyoo)*, frog/crane (*dulth ts'eyoo)* and caribou/little man (*luksilyoo)* (SFN 2009a).

The Stellat'en traditional clan based governance system is practiced through the *Bah'lats* (often anglicized to "potlatch"). Formal *Bah'lats* business takes place during the

feast with strict protocols for where people are seated according to their house groups, acknowledgment of guests, presenting gifts, etc. These protocols are strictly adhered to.

According to Stellat'en oral history, dispute resolution is an important function of the *bah'lats* and historically it played a critical role in sustaining peace:

> *Bah'lats Ada Dene Huyinla: In the beginning, at the time of Ustas, the Bah'lats was not yet known by this name. Instead the people spoke of the "big gathering" du'ghe'telh-dulh, to describe the congregation of several families at an important meeting. At these meetings you would have talks to settle problems in the village and were given food afterwards. The du'ghe'hu'telhdulh became the way to settle important disputes between families. (Bah'lats Ada Dene Huyinla — Potlatch in the Beginning (SFN 2009c)*

As a result, the outcomes of *Bah'lats* decisions were accepted as binding.

Nadleh Whut'en hereditary governance is based on clans and *Keyahs*. *Keyah* holders have great responsibility as they are the caretakers of the land, and act as the spokesperson for people who live within the *Keyah*. The Nadleh Whut'en traditional or 'hereditary' clan-based governance system is practiced through the *Bah'lats*. *Bah'lats*, which were administered by head clan and sub-clan chiefs, serve as a legal basis for succession and inheritance, territorial laws, resource management, family law, dispute settlement, and local governance, while also serving as means by which principles of justice passed on are taught to future generations (Borrows 2010). The *Bah'lats* is also important for sharing resources, recognizing the uneven access to resources year to year in different areas, and the corresponding challenges of scarcity (CSTC 2006).

Saik'uz hereditary governance is based on clans and *Keyohs*. Saik'uz members are divided into two clans: the *Nulki Whut'en*, (the frog clan) and the *Ta'chik Whut'en* (the grouse clan). *Keyoh* holders have great responsibility, as they are the carers of this land, and act as the spokesperson for people who lived within the *Keyoh*. The Dakelh people have historically been matrilineal, meaning that decent is traced along matrilineal lines and clan membership is based on the mother's clan.

5. CSFNs' ASSESSMENT OF PROJECT IMPACTS ON THEIR RTI

As described above, the CSFNs' RTI include the right to use, occupy, and possess and govern the lands, waters, air and resources in their respective Territories. In addition, the CSFNs have independent freestanding rights to manage and harvest fish, wildlife, plants, and other species in their Territories for a variety of purposes.

During the EA of Blackwater, the CSFNs raised concerns and issues related to Blackwater, environmental components, and their RTI, including the following:

Any potential impacts from Blackwater to:

- water, including water management, quality and quantity;

- water crossings, wetlands and wildlife habitat, including habitat fragmentation;
- sediment and erosion control;
- hunting, fishing, trapping and gathering rights, including impacts to the species (i.e. caribou, moose, plants, berries) and methods of harvesting (i.e. traplines);
- use and management of Territories; and
- socio-economic well-being.

Issues / concerns with respect to:

- tailings management;
- access roads;
- opportunities to be involved in Blackwater throughout the mine life;
- Project design, proposed mine facilities, and structures;
- transmission line design and route;
- proposed mitigation measures and conditions;
- cumulative effects; and
- loss of land use due to the transmission line.

The following sections detail the CSFNs' assessments of various effects and corresponding impacts of Blackwater on their RTI, which assessments do not necessarily reflect the views of the EAO or the Agency.

5.1 Biophysical Project Effects

5.1.1 Impact Assessment Methodology

As discussed above, a comprehensive assessment of the impacts of Blackwater on the CSFNs' RTI requires a different approach and methodology relative to that used for the effects assessment in Part B of the EAO assessment report. This approach requires that the assessment reflect the territorial-basis upon which RTI exist and are exercised, and incorporates an assessment of the current ability of the CSFNs to meaningfully exercise their RTI. This "current state" of the ability to meaningfully exercise (AME) then serves as a "baseline" against which impacts can be assessed and characterized (i.e. provide an understanding of the sensitivity of the AME to potential impacts).

The "Assessment of the Impacts of New Gold's proposed Blackwater Gold Project" (Eco Report) prepared by Brian Toth and Michelle Tung for the CSFNs in June 2016

assesses Blackwater's potential impacts to the CSFNs' RTI from that unique perspective. This assessment was conducted separately from the assessments conducted through the EA process led by the EAO.

The approach used by the authors of the Eco Report included the following methodological steps:

(a) The current understanding of the CSFNs' RTI relative to Blackwater were described and "framed" to produce a common understanding of associated geographical area(s) and environmental matters that need to be scoped into the assessment.

(b) The CSFNs' Territories were then scoped relative to key historical effects that influence the current condition of the environment and the CSFNs' ability to exercise their RTI. Key environmental trends within the CSFNs' Territories were also identified at this stage.

(c) Landscape-level disturbance indicators were then assessed for each of the CSFNs' Territories to understand the current condition of each Territory relative to land and resource use pressures, and potential sensitivity to additional disturbance.

(d) Key biological resources that are central to CSFNs' RTI were then assessed in terms of their current health/status.

(e) This information was then used to build and inform an understanding of the ability of the CSFN members to meaningfully exercise their rights by harvesting or using those species (i.e. "the ability to meaningfully exercise").

(f) Blackwater's potential impacts and effects that are relevant to the CSFNs' RTI were then summarized based on the information presented in the Application.

(g) The potential adverse effects of Blackwater were then considered based on the existing state of affairs in order to assess and characterize the seriousness of those Project impacts on the CSFNs' RTI.

The Eco Report assessed the entirety of the CSFNs' Territories in an effort to describe the "existing state of affairs", including the existing ability of the CSFN members to meaningfully exercise their RTI. For this reason, all areas of the CSFN Territories are discussed, regardless of whether there is a potential effect from Blackwater. The assessment is summarized and characterized below.

Following the completion of the Eco Report (2016), the CSFNs' reviewed New Gold's Consolidated Effects Memos dated September to November 2017 (collectively, the CEMs) to consider changes to Blackwater made subsequent to the submission of the

Application/EIS, including the re-alignment of the transmission line. Notably, these alterations to Blackwater did not alter the findings of the Eco Report.

5.1.2 Current Condition as Background Context

Background environmental trends and historical impacts to the environment within the CSFNs' Territories have had, and continue to have, significant adverse impacts on the ability of the CSFNs members to exercise their RTI. These include, but are not limited to:

- Climate change related trends, including warming air and water temperatures, and shifting precipitation and run-off patterns, which have broadly caused environmental effects and adverse effects to the CSFNs' Territories – including:
    - large-scale forest health issues;
    - fires and salvage logging;
    - altered stream thermographs/hydrographs;
    - large-scale terrestrial habitat disturbance and alteration, with corresponding effects on wildlife species; and
    - shifting discharge regimes, warming stream temperatures, and lower summer flows adversely effecting fish health.
- The diversion, impoundment, and regulation of the Nechako River which have caused broad environmental effects as well as adverse effects on the CSFNs' Territories – including:
    - inundated watersheds;
    - a diminished water budget;
    - an altered discharge, temperature and sediment regime;
    - a transitioning channel and flood plain;
    - loss of lands; and
    - adverse effects on fish and wildlife species that use or reside in the river.

These issues have resulted in well documented and ongoing adverse effects on aquatic and terrestrial ecosystem health, and on the biological resources that the CSFNs' Territories are capable of supporting, with corresponding impacts on the CSFNs members' abilities to exercise their RTI. These factors serve as "background-context" to the current condition of the CSFNs' Territories.

5.1.3 Current Status of Wildlife and Aquatic Populations

Aquatic Populations

The Eco Report assessed the status/health of key species of concern to the CSFNs based on available information. This section provides a summary of each fish stock/population considered within the CSFNs' Territories (as outlined in the Eco Report). The bolded text under each summary reflects a corresponding assessment of

the ability of the CSFNs members to meaningfully exercise their associated RTI (i.e. the existing state of affairs of the ability to exercise). That assessment is based on the degree to which the CSFNs' ability to exercise the right within their Territories is constrained.

Sockeye

- Primary sockeye stocks that support the CSFNs' harvesting rights include stocks that originate within the Nechako watershed, including the Nadina and Stellako sockeye conservation units (CUs). The Fisheries and Oceans Canada (DFO) status of these CUs are poor and cautionary-poor, respectively.

- These DFO status assessments only considered data up to 2010. Trends contributing to the declines observed for these stocks have generally continued from 2011 to 2015.

Conclusion for Sockeye

Sockeye salmon is a critical species to the CSFNs – it is a cornerstone of their cultures. CSFNs members' abilities to exercise their RTI associated with sockeye is **severely constrained** due to both diminished abundance and restrictive regulation in recent years. Fish cannot be regularly caught in the amount, in the locations, and/or using the methods desired by CSFNs members seeking to exercise their Aboriginal rights and interests. The condition of sockeye is also becoming problematic. In many years, with increasing frequency, the CSFNs have not been able to fish for sockeye at all, meaning that their ability to exercise of their corresponding rights and interests has been fully constrained in those years.

Chinook

- Chinook that originate from and return to habitats in the Nechako River watershed belong to two different management units ("MUs"; the Spring 5_2 and Summer 5_2 MUs within DFO's Fraser Chinook Management Framework).

- Chinook stocks in both MUs have been declining (as have most other Fraser River chinook stocks), and the DFO has undertaken an investigation of causative factors after multiple years of management measures that have not elicited the desired response.

- The current status of both of these chinook MUs is considered poor. Abundance is the lowest on record for both MUs; and is managed by DFO as a conservation concern.

Conclusion for Chinook

CSFN members' ability to exercise their RTI associated with chinook is **constrained** by limited abundance and regulation. The CSFNs members' abilities to harvest chinook has been adversely affected by a number of historical factors, including the impoundment

and regulation of the Nechako River, which resulted in physical alterations to fishing sites, as well as policies that prohibited fishing of preferred sites and with preferred methods. More recently, conservation-based management restrictions on harvesting have been implemented, further limiting the ability of CSFN members to meaningfully exercise their corresponding Aboriginal rights and interests.

Coho Salmon

- The coho salmon population within the Nechako River watershed is a component of the Upper Fraser subpopulation of Interior Fraser Coho. Interior Fraser Coho are Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed as Endangered, and are managed according to a Conservation and Recovery Strategy and ministerial commitments.

- Coho salmon presence and distribution in the Nechako River are poorly described, and very limited inventory efforts have been undertaken to date.

- The harvest of coho by the CSFNs is historically documented, but stock distributions in the upper Fraser River watershed are believed to have been heavily impacted by the Hells Gate slide in the early 1900s. Their existing distribution in the upper Fraser River has been characterized as a re-colonization.

Conclusion for Coho Salmon

The CSFNs are currently prohibited from harvesting coho from the Nechako watershed (i.e. ability to harvest is **not possible**) due to DFO's conservation and rebuilding management directives. Regardless, harvesting is not likely to be viable given what are believed to be very low numbers of coho within the Nechako.

Kokanee

- Kokanee populations are widespread through the Nechako basin – they occur within all sockeye nursery lakes (Francois, Fraser, Takla, Trembleur, Stuart) and are documented in 41 other lakes and reservoirs within the Nechako watershed.

- Kokanee are, however, not monitored to any extent and are only managed with a blanket harvest regulation, with the exception of some stocked populations.

- Insufficient information exists to assess the current health or status of the kokanee populations within the CSFNs' Territories.

- Kokanee is a yellow-listed species, meaning that it is not currently recognized as being at risk in B.C. However, kokanee are susceptible to industrial, agricultural, and urban development due to their dependence on clear flowing streams.

- The CSFNs use and rely on kokanee extensively for sustenance and other purposes. Kokanee are also well recognized for their importance to the ecosystem in terms of their contribution to fish and wildlife diets.

Conclusion for Kokanee

CSFN members' ability to exercise their RTI associated with kokanee is **not well understood** and information is limited. Kokanee populations and harvests within the CSFNs' Territories are not monitored to any extent. Kokanee stocks in the reservoirs created by the Kenney Dam are not harvested due to perceived risks.

Nechako White Sturgeon

- White sturgeon in the Nechako River watershed have been assessed as Endangered by COSEWIC (2006 and 2012), and were added to Schedule 1 of federal *Species at Risk Act* (SARA) in 2006. Their management is guided by SARA and the population specific goals and objectives are outlined in the Recovery Strategy for White Sturgeon in Canada.

- The sturgeon population has suffered from a "recruitment failure" since 1967 – essentially a failure to produce juveniles that survive to become adults; as such, the remaining population (recent estimates maximum of 600 individuals) are largely older fish (>40-years of age), and declining in reproductive potential. It is estimated that the population will become unrecoverable within 15-20 years – meaning there will be too few individuals that can successfully reproduce to maintain the species.

- A sturgeon hatchery has recently been built (2014) in Vanderhoof for the purposes of annually raising several thousand juvenile white sturgeon to be released back into the Nechako River as 1-year olds. Work is intended to continue on restoring natural recruitment so that successful wild spawning and juvenile-adult survival can be re-established.

Conclusion for Nechako White Sturgeon

White sturgeon is a very important species to the CSFNs for the exercise of harvesting, cultural and other rights and interests. The CSFNs can no longer exercise their RTI associated with sturgeon (i.e. the ability to exercise Nechako White Sturgeon harvesting rights is **not possible**). For example, they can no longer legally or sustainably harvest white sturgeon for sustenance, cultural or other uses. The CSFNs have forgone directed harvest of sturgeon for more than a decade out of concern for the sustainability of the population.

Since the sturgeon population's protection under SARA in 2006 (prohibitions restrict activities with the potential to kill, harm, harass, etc. sturgeon), the CSFNs have reported by-catch encounters, while the CSTC (which includes the CSFNs) has implemented harm reduction and outreach measures, and continually engages with the DFO in relation to the prohibitions and the food, social, ceremonial salmon fishery.

Lake Trout (char)

- Lake trout populations are distributed across the Nechako plateau, with each population typically resident in a single larger lake, with no or limited gene flow with other populations.

- Lake trout within the Omineca (Region 7) are among the most actively managed populations in B.C., with many populations having been assessed in recent years.

- Diminished lake trout populations is documented for numerous lakes within the CSFNs' Territories.

Conclusion for Lake Trout (char)

The CSFN members' ability to exercise their RTI associated with lake trout is **constrained** in some lakes due to reduced abundance and reduced size (over-exploitation). Concurrently, there is an increasing reliance on resident fish stocks such as lake trout due to the decline in sockeye availability, thereby further threatening the long-term sustainability of this species within the CSFNs' Territories.

Rainbow Trout

- Wild native rainbow trout are extensively distributed throughout the Nechako River watershed.

- Although extensive efforts have been undertaken to monitor stocked populations, little work has been completed on specific biological, life history, and genetic traits exhibited between the various wild populations, and few wild populations are monitored to any extent.

- CSFNs members harvest rainbow trout in lakes and rivers throughout their Territories.

- Insufficient information exists to determine the health and status of rainbow trout populations within the CSFNs' Territories, and in many cases the information required would be stock and fishery specific.

Conclusion for Rainbow Trout

Harvest and population monitoring (particularly for wild populations) is inadequate for the purposes of assessing trends and the CSFNs' current abilities to exercise their RTI associated with rainbow trout (i.e. ability to exercise RTI associated with rainbow trout is **not well understood**).

Data Gaps and Other Resident Fish Species

- Bull trout:
    - The Nechako River and its main tributaries and lakes are known to provide important habitats, particularly in relation to seasonal feeding opportunities for bull trout.
    - Bull trout are managed as a conservation concern by B.C., and resident anglers are subjected to restricted harvests within the Omineca. That conservation concern is largely driven by susceptibility to overharvest.
    - The CSFNs harvest bull trout in directed seasonal fisheries. The presence and numbers of bull trout are anecdotally recognized by several First Nations to be diminished in a number of watersheds in B.C.
    - Insufficient regional information exists about bull trout to understand their status in relation to the CSFNs' RTI.
- Burbot:
    - Burbot populations are also widely spread across the Nechako River watershed and the CSFNs' Territories.
    - The CSFNs use burbot from a number of lakes and large rivers within their Territories. There are a number of seasonally preferred harvesting areas where burbot are specifically targeted, particularly in winter ice fisheries.
    - Few burbot populations within the CSFNs' Territories have been assessed or monitored to any extent. There is insufficient information available to assess their status relative to the CSFNs' RTI.
- Lake whitefish:
    - Lake whitefish are recorded in 27 lakes within the Nechako River watershed. There have not been any comprehensive surveys of these stocks – they are managed via a blanket harvest quota.
    - The CSFNs do and have historically used lake whitefish for a variety of purposes.
- The CSFNs also use and have historically used various species of sucker, pikeminnow, chub, peamouth and other resident species for both sustenance and other uses (e.g. rendering for oil, trapping attractants, etc.). These species are not monitored to any extent.

As outlined above, there are numerous species that are utilized by CSFNs members, but for which little or no information exists to inform an assessment of population status

and/or the manner in which the CSFNs' abilities to meaningfully exercise associated RTI may be affected.

Wildlife Populations

The Eco Report reaches the following conclusions about the current status of wildlife resources that support CSFNs' RTI in their Territories (the bolded text under each summary reflects an assessment of the ability of CSFNs members to meaningfully exercise their corresponding RTI.

Caribou

- The Tweedsmuir-Entiako and Itcha-Ilgachuz caribou subpopulations are part of the Southern Mountain population, listed on Schedule 1 of SARA as Threatened.

- Caribou population levels have contracted from all but small portions of the CSFNs' Territories.

- In the central interior, the decline in caribou numbers and the retraction of their range have been the focus of substantial research and management effort since recognition of the matter triggered the actions of responsible agencies approximately 15 to 20 years ago, and began long before research and management efforts began.

Conclusion for Caribou

CSFN members' ability to exercise their RTI associated with caribou is **severely constrained**. With diminishing numbers and habitat pressures, caribou population ranges have contracted to the extremities of the Territories. Where not precluded from harvesting due to conservation prohibitions, caribou population numbers are small and remotely distributed, making the exercise of corresponding RTI by the CSFNs impracticable, and in some cases incongruent with cultural values given the populations' current status and declining trends.

Moose

- Moose are distributed throughout the CSFNs' Territories.

- Surveys undertaken in 2011/12 and 2012/13 indicated that moose densities have declined by 50 percent since 2005 in the southern Omineca. A 2016/2017 inventory in the Southern Omineca found that populations have continued to decline. Populations around the Prince George area have continued to decline from highs of 1.35 moose/km^2 to 0.40 moose/km^2 to 0.46 moose/km^2. In the Fort St. James area, populations have declined from 0.77 moose/km^2 in 2011 down to 0.47 moose/km^2 in 2016 (B.C. moose fact sheet, Dec. 2017).

- Whereas caribou had historically been the primary ungulate targeted and harvested by the CSFNs' members and their ancestors, adverse effects on caribou populations

have resulted in moose being the ungulate that is most commonly harvested and consumed by CSFNs members today.

- The decline in the moose population is noted by the CSFNs to be a substantial impact on their RTI. Some CSFNs members report substantial challenges in finding and harvesting moose and suggest that in preferred hunting areas, numbers are substantially lower than the 50 percent recorded decline since 2005.

Conclusion for Moose

CSFN members' ability to exercise their RTI associated with moose is **constrained** due to population declines of late, and increased access and competition. Greater effort is required to harvest, or hunt in the desired setting, thereby requiring greater travel, time and cost which has had the effect of reducing or outright eliminating the CSFNs members' ability to meaningfully exercise their corresponding Aboriginal rights and interests.

Grizzly

- Grizzly bear is a species of conservation concern both federally and provincially (COSEWIC Special Concern; SARA Special Concern; B.C. CDC Blue List), largely due to extensive range and population reductions caused by habitat development and fragmentation, and human-related conflicts and mortality.

- Grizzly bear population units (GBPUs) within the CSFNs' Territories include the Nation, Nulki and Francois units, and a portion of the Bulkley-Lakes unit.

- The Francois and Nulki GBPUs were closed to harvest in 2012 as a result of low population estimates (58 bears and 44 bears, respectively).

Conclusion for Grizzly Bear

Grizzly bears are of significant cultural and spiritual importance to CSFN. The maintenance of habitat capacity to support healthy/robust populations is central to the CSFNs' RTI and their members' abilities to exercise their Aboriginal rights and interests. Notably, grizzly bear populations (Nulki and Francois) have recently declined below levels that are considered viable to sustain directed harvest. CSFNs' threshold for a healthy population is well above B.C.'s "viable" population designation. Due to limited abundance and sustainability issues related to Nulki and Francois populations, CSFNs' RTI, including cultural and spiritual interests, in grizzly bear populations are **severely constrained.**

5.1.4 Related Project Impacts on CSFNs' RTI

The results of the Eco Report indicate that a large number of fish and wildlife species within the CSFNs' Territories have undergone recent (10-20 years) large-scale declines in abundance, while others have been declining for longer periods and have exceeded biological thresholds of population sustainability.

Factors contributing to these diminished statuses vary, and range from factors external to the local area (such as marine productivity and other climate change related trends), to localized factors (such as those related to land and resource management, including forestry and MPB impacts). In all cases of diminished population health/status, additional landscape disturbance, including clearing and linear development, have the potential to contribute to factors that have or are facilitating the diminished state of many species that are central to the CSFNs' culture, RTI, and to their members' abilities to meaningfully exercise their RTI.

The prior/ongoing impacts/trends and their effects, and the current status of fish and wildlife provide the current condition (or existing state of affairs) of the "ability to exercise rights", and provide the starting point for assessing how Blackwater will impact the CSFNs' RTI.

This section provides a summary of the CSFNs' assessment of Blackwater's impacts on their RTI, including their members' abilities to meaningfully harvest aquatic and wildlife resources, based on the existing state of affairs described above. This assessment includes the CSFNs' review of New Gold's CEMs, that consolidated the changes made by New Gold after the submission of the Application/EIS, including the re-routing of the transmission line.

Aquatic Populations

The primary means by which Blackwater will interact with aquatic resources that are associated with the CSFNs' RTI include the following:

- the power transmission line and access roads that will pass through portions of each of the CSFNs' Territories;
- the existing Kluskus FSR that will see an increase in a variety of traffic (through all Project phases); and
- downstream threats to fish and fish habitat values due to water use/withdrawal, seepage/runoff (water quality) associated with the mine site and freshwater supply system (FSS), and accidents/malfunctions.

In particular, the construction of the transmission line will cause measurable effects that will contribute to existing adverse effects on all three of the CSFNs' Territories and their RTI. These effects include:

- increases in road density;
- increases in ECA or disturbed areas;
- increases in riparian areas disturbances; and
- increases in stream crossings (roads and transmission line right of ways (RoW)).

The mine site and FSS will affect downstream fish and aquatic habitat that will contribute to existing adverse effects on resident populations. These Project-related effects include changes to water quality and quantity (related to seepage, sediment movement and tailings storage facility (TSF) discharge to Davidson Creek post-closure). A TSF dam

breach could potentially have severe adverse effects on downstream aquatic values of interest to the CSFNs that would vary in duration and extent depending on the nature/magnitude of the breach.

Sockeye Salmon

Each CSFN has an existing high proportion of watershed assessment units (WAUs) within its Territory that falls into the high risk category for the riparian forest removal and equivalent clearcut area (ECA) indicators. The transmission line corridor will result in incremental loss of riparian habitat and increases in ECA.

Based on the findings of the Eco Report, Blackwater is anticipated to incrementally contribute to current effects that are adversely affecting the Nadina and Stellako conservation units (CUs). These two populations already have poor and cautionary-poor statuses, respectively. CSFN members' ability to exercise their corresponding RTI are already severely constrained due to diminished abundance and regulation.

Activities associated with Blackwater, in particular the transmission line corridor, are anticipated to exacerbate existing migratory stressors through the loss and/or disturbance of riparian habitat, and increases in land clearing/ECA (impacting flow and temperature regimes). Other incremental effects associated with the transmission line include increased erosion, sedimentation, and water temperatures due to disturbance of riparian vegetation, and an increased risk of spills or leaks into water courses (also associated with increased traffic on Kluskus FSR). Project effects on sockeye are anticipated to be negative, incremental to causation related to the CSFNs' constrained ability to exercise their harvesting rights and interests, and therefore causing potentially serious impacts on the CSFNs' RTI.

Coho

Each CSFN has a high proportion of WAUs within its Territory that fall into the high risk category for the riparian forest removal and ECA indicators. The transmission line corridor will result in incremental loss of riparian habitat and increases in ECA.

Based on the findings of the Eco Report, Blackwater is anticipated to have a negative effect on coho stock recovery through incremental additions to adverse cumulative environmental effects. The transmission line corridor will diminish fish habitat productivity, negatively affecting stock re-colonization and recovery. Anticipated Project effects on coho will therefore potentially cause serious impacts on the CSFNs' RTI.

Chinook

Based on the findings of the Eco Report, Blackwater is anticipated to have negligible (neutral) effects on chinook. Chinook in the Nechako watershed have not been documented to be adversely affected by temperature and discharge trends.

Nechako White Sturgeon

Based on the findings of the Eco Report, Blackwater is anticipated to have a negative effect on sturgeon recovery. Any Project effects that could lead to adverse effects on the Nechako River that contribute to the impairment of spawning habitats are of great concern and pose potentially serious impacts to the CSFNs and their RTI. Particular effects that are of significant concern include the addition of sediment, and alterations to flow and temperature regimes due to the loss and/or disturbance of riparian habitat. Thus, although Blackwater is not anticipated to have direct adverse effects on Nechako white sturgeon, the numerous potential indirect effects would nevertheless be incremental to existing cumulative adverse environmental effects, and negative and potentially serious impacts on the CSFNs' RTI.

Lake trout (char)

Based on the findings of the Eco Report, Blackwater is not anticipated to have a direct negative effect on lake trout (char). The transmission line corridor will not facilitate new or improved (motorized and foot) access to any lake trout-bearing lakes within the CSFNs' Territories. Accordingly, Blackwater effect on lake trout is anticipated to be neutral.

Other Resident Species

Other resident fish species of value to the CSFNs include kokanee, rainbow trout, bull trout and burbot. While there are information gaps on the existing health/status of these populations within the CSFNs' Territories, the residual effects of Blackwater are expected to be incremental and negative on these fish stocks.

The Application characterizes localized effects on resident fish and fish habitat related to the mine site and FSS that include changes in fish habitat quality and availability in Davidson Creek and lower Chedakuz Creek. CSFN members have expressed concerns related to potential downstream effects that may affect fish and fish habitat in the Chedakuz Creek watershed (downstream of the mine site and FSS) and in the Nechako Reservoir. Effects of concern include changes in water quality and quantity as a result of seepage (all Project phases), sediment movement, and TSF discharge to Davidson Creek post-closure.

Wildlife Populations

The primary means by which Blackwater will interact with wildlife resources that are of interest to the CSFNs include:

- the transmission line and access roads that will pass through portions of each of the CSFNs' Territories;
- the existing Kluskus FSR that will see an increase in a variety of traffic (through construction, operation and reclamation); and

- the mine site and related infrastructure that has the potential to displace and/or adversely affect the abundance and/or population size of wildlife with ranges that include portions of the CSFNs' Territories.

The CSFNs presently and/or historically have used all wildlife resources within their Territories for some purpose generally related to their RTI. Large game wildlife resources (such as moose, caribou and grizzly bear), which are of particular importance to the CSFNs' RTI, are described below.

Moose

Based on the findings of the Eco Report, Blackwater is anticipated to have negative effects on the status/health of moose. The current health of moose populations in the southern Omineca has already declined significantly by approximately 50 percent. Blackwater will contribute to the causative factors that are believed to have led to these declining moose population trends, which include loss of limiting (winter) habitat and increased mortality due to changes in predator efficiency and hunter access – both largely due to extensive forest health and forestry-salvage activities.

The Application concludes that Blackwater's residual effects include:

- increased mortality due to vehicle collisions and increased access for legal and illegal hunting within the RSA;

- changes to movement patterns, due to changes in habitat availability and sensory disturbance; and

- changes in wildlife population dynamics as a result of changes in foraging habitat, increased access for predators, and changing predation rates within the RSA.

The Application also describes habitat loss and alteration effects that include two percent loss of high to moderate value winter and growing (summer habitat) in the RSA. According to New Gold, Project activities are therefore expected to result in the incremental decline of limiting habitat (two percent of high to moderate winter habitat) for moose within Blackwater Wildlife RSA.

The Eco Report (section 6.2.2) quantifies how Blackwater-related transmission line corridor will increase ECA percentage and road density. In the southern Omineca, those effects will be cumulative with factors that have already contributed to a significant short-term decline in the moose population, and will impart an overall reduction in moose population potential, and population resiliency (i.e., ability to rebuild). Notably, these effects are contrary to the objectives of the moose management measures recently implemented by the Ministry of Forests, Lands and Natural Resources Operations (FLNRO) to facilitate population rebuilding and therefore represent potentially serious impacts on the CSFNs' RTI.

The re-alignment of the transmission line, which occurred subsequent to the submission of the Application/EIS, avoids and reduces the transmission line's environmental effects and adverse impacts on the CSFNs' RTI. However, the remaining effects cannot be fully

mitigated, and the potential impacts of residual effects on moose populations and the associated CSFNs' RTI remain negative and serious.

Caribou

Based on the findings of the Eco Report, Blackwater is anticipated to have negative effects on caribou, through incremental degradation of core habitat and increased linear feature density, which contribute to increased mortality risks (predator efficiency, hunting access, and vehicle collisions). The Tweedsmuir-Entiako and Itcha-Ilgachuz caribou subpopulations are part of the Threatened Southern Mountain Population/Northern Group (Environment Canada, 2014) of Northern Mountain DU7 (COSEWIC 2011), and part of the provincially Blue-listed northern ecotype (B.C.CDC, 2014). The declining numbers throughout their distribution are already approaching or exceeding recognized thresholds for caribou sustainability, and Blackwater's residual effects will thereby contribute negatively to the existing poor health of those subpopulations.

The Application describes current conditions that potentially exceed or are expected to exceed recognized thresholds for caribou sustainability – as follows:

- The Application finds that cumulative residual effects currently affect 29 percent of the RSA (forestry and MPB are the two greatest contributors). Due to the large area affected by MPB, there is a reasonable likelihood that future cumulative effects to caribou habitat could increase beyond the 35 percent threshold (Environment Canada, 2014).
- Caribou calf surveys of both subpopulations indicate wolf densities may be greater than 3 per 1000 km^2, which would exceed the threshold for significance related to changes in caribou population dynamics; calf mortality rates suggest that predation was high in 2013 in the Tweedsmuir-Entiako subpopulation area.

The Application finds that Blackwater will have the following negative residual effects on caribou:

- Loss and degradation of caribou habitat (3 percent of moderate to high value available suitable spring and summer/fall habitat in the RSA). The overlaps of forestry, mining, roads, fire and MPB infestation on moderate to high value caribou habitat account for 84 percent of the RSA (217,053ha of overlap of RSA);
- Increased mortality risk, associated with the access road, Kluskus FSR and transmission corridor, through vehicle collisions and indirect effects related to predatory efficiency and hunting access; and
- Changes in population dynamics, due to additional linear development within the caribou RSA, which can increase predator efficiency (increase in potential wolf access to suitable caribou habitat).

The Application concludes that Blackwater will have cumulative residual effects on caribou through interactions with Blackwater's contribution to habitat loss and changes to population with past/present and future activities (forestry, recreation, mining, and natural disturbances).

Given the status of these caribou sub-populations, and the CSFNs' constrained abilities to exercise their rights to harvest them, any landscape effects that threaten the conservation and recovery objectives for caribou are of considerable concern to the CSFNs, and potentially serious impacts to the CSFNs' RTI.

Grizzly Bear

Based on the findings of the Eco Report, the Blackwater area potentially affects the Blackwater-West Chilcotin GBPU, the western part of the Nulki GBPU, and a small south-central area of the Francois GBPU. The Francois and Nulki GBPUs, which are both within the CSFNs' Territories, were closed (to harvest) in 2012 as a result of low population levels (58 bears and 44 bears, respectively). The management objective for Threatened GBPUs in B.C.is population recovery to prevent range contraction and ensure long-term population viability.

Pre-existing habitat loss and fragmentation due to logging and road development have altered low elevation habitat within the Blackwater area. MPB infestation has affected large areas of mature pine forest in the region, including the LSA and RSA. Mineral exploration in the area has increased the number of access roads, which has caused increased habitat fragmentation (relatively small and localized compared to forestry activities), and while there are no hunting seasons for grizzly bear in the Blackwater area, there are hunting seasons for other species that share grizzly bear habitat (i.e., moose, black bear).

The Application characterizes effects on grizzly bear as follows:

- Habitat loss: one to three percent of suitable grizzly bear spring and summer habitat and one to four percent of suitable late summer/fall habitat. Once the habitat effect occurs during construction, it will be approximately 17 years before closure and then at least 80 or more years for the forest ecosystems to reach maturity. Sources of habitat loss that include mining, forestry, roads, fire and MPB overlap with 85 percent of the RSA.
- Linear density: All 3 GBPUs already above the 0.6 percent linear density threshold of 0.6km/km^2 at current conditions, and Blackwater will contribute to a further increase in linear density (29 km in Nulki, 0.1 percent increase; 0.4 km increase in Francois, minimal percentage increase).
- Risk of mortality: Mortality risks will increase along roads, airstrip, transmission line and FSS, with long-term effects potentially occurring within 250 m of the edge of clearing and roads.
    - Based on available mortality records, the sustainable harvest rate of 3.8 percent (set by B.C. MFLNRO) is already exceeded by Nulki (7 percent) and just met by Francois (3.8 percent). Therefore any additional mortality risk exceeds the FLNRO threshold (in the absence of directed harvest).
    - The Kluskus and Kluskus-Ootsa currently experiences 4.8 vehicles/hour, which use will increase to 9.5 vehicles/hour, and peak for several months at 12.5 vehicles/hour.

The Application recognizes that Blackwater is expected to interact cumulatively with all past, present and future activities related to habitat loss and mortality risk – this includes historical activities (such as forestry, recreation, trapping, guiding and traditional land uses), as well as current and future land uses (which mirror the historical activities, and also include activities such as mining, mountain bine beetle impacts and forest fires).

Based on the findings of the Eco Report, Blackwater is anticipated to have a negative effect on the status of the Nulki and Francois GBPUs. Project effects exacerbate and will interact cumulatively with past, present and future activities that negatively affect these grizzly bear populations, and they are therefore potentially serious impacts on the CSFNs' RTI.

The re-alignment of the transmission line, subsequent to the submission of the Application/EIS, avoids and reduces the transmission line's environmental effects and adverse impacts on the CSFNs' RTI. However, the effects cannot be fully mitigated, and the potential Project impact of residual effects on grizzly populations and the CSFNs' associated ability to exercise their rights and interests remain negative and serious.

Other Wildlife

There is insufficient information to understand the status of deer and elk populations within the CSFNs' Territories. Nevertheless, elk are becoming increasingly important to the CSFNs for sustenance given declines in moose and caribou populations. It is likely that Blackwater's effects, including increased traffic and increased access, will result in high mortality rates via vehicular collisions and hunter access.

Summary

A summary of the anticipated Project impacts on the CSFNs' RTI is provided in Table 2 below. Notably, alterations to Blackwater, including the re-alignment of the transmission line, do not alter the findings of the RTI assessment presented above and summarized in Table 2.

Table 2. Summary of anticipated Project impacts on the CSFNs' RTI.

Species/ Stock	Current State		Anticipated Project Impact	
	Health/Status	CSFNs' Current Ability to Exercise Rights	Anticipated Project Impact on Species/Stock	Anticipated Project Impact on CSFNs' AME-RTI
AQUATIC RESOURCES				
Sockeye	**Red/Red-amber** (poor/ poor-cautionary, WSP)	**Severely Constrained;** diminished abundance, regulation. In some years, fully constrained.	**Negative and incremental.** Transmission line corridor anticipated to exacerbate existing migratory stressors through the loss and/or disturbance of riparian habitat and increases in land clearing/ECA (impacting flow and temperature regimes). Other incremental effects associated with the transmission line include increased erosion, sedimentation, and water temperatures due to disturbance of riparian vegetation, and an increased risk of spills or leaks into water courses (also associated with increased traffic on Kluskus FSR).	**Negative and Serious**
Chinook	**Poor status:** lowest abundance on record	**Constrained;** limited abundance, regulation	**Negligible (neutral) effects on chinook.** Chinook in the Nechako watershed have not been documented to be adversely affected by temperature and discharge trends.	**Neutral**
Coho (IFC)	**ENDANGERED**, COSEWIC	**Not Possible**	**Negative and incremental on coho stock recolonization and recovery through incremental additions to adverse cumulative environmental effects.** The transmission line corridor will result in incremental loss of riparian habitat and increases in ECA and diminish fish habitat productivity.	**Negative and Serious**
Nechako White Sturgeon	**Endangered**, COSEWIC, SARA-listed.	**Not Possible**	**Negative effect on sturgeon recovery.** The numerous potential indirect effects would be incremental to existing cumulative adverse environmental effects. Effects of significant concern include the addition of sediment, and	**Negative and Serious**

Species/ Stock	Current State		Anticipated Project Impact	
	Health/Status	CSFNs' Current Ability to Exercise Rights	Anticipated Project Impact on Species/Stock	Anticipated Project Impact on CSFNs' AME-RTI
			alterations to flow and temperature regimes due to the loss and/or disturbance of riparian habitat.	
Lake trout (char)	**Diminished status**; numerous lake populations	**Constrained and negatively impacted in some lakes**	**Neutral.** Not anticipated to have a direct negative effect. The transmission line corridor will not facilitate new or improved (motorized and foot) access to any lake trout-bearing lakes within the CSFNs' Territories.	**Neutral**
Other resident species, (incl. kokanee, rainbow trout, bull trout and burbot).	**Unknown.** Insufficient information to determine health status of populations within CSFNs' Territories	**Not well understood**	**Incremental and negative.** Effects of concern include changes in water quality and quantity as a result of seepage (all Project phases), sediment movement, and TSF discharge to Davidson Creek post-closure.	**Negative and Serious**
WILDLIFE				
Caribou	**Threatened** – COSEWIC, SARA listed	**Severely Constrained**	**Negative.** Incremental degradation of core habitat and increased linear feature density, which contribute to increased mortality risks (predator efficiency, hunting access, and vehicle collisions). Factors that have led to declining numbers throughout their distribution are already approaching or exceeding recognized thresholds for caribou sustainability.	**Negative and Serious**
Moose	**Declined:** densities declined by 50 percent since 2005 in S. Omineca	**Constrained**	**Negative**. Transmission line will increase ECA percentage and road density and these effects that will be cumulative with factors that have already contributed to a significant short-term decline in the moose population and impart an overall	**Negative and Serious**

Species/ Stock	Current State		Anticipated Project Impact	
	Health/Status	**CSFNs' Current Ability to Exercise Rights**	**Anticipated Project Impact on Species/Stock**	**Anticipated Project Impact on CSFNs' AME-RTI**
			reduction in moose population potential, and population resiliency (i.e., ability to rebuild). The re-alignment of the transmission line, subsequent to the submission of the Application/ EIS, avoids and reduces the transmission line's environmental effects. However, remaining effects cannot be fully mitigated, and the potential impacts of residual effects on moose populations remain negative.	
Grizzly	COSEWIC **Special Concern**; B.C. CDC Blue List. Two local populations – Declined	**Constrained;** limited abundance and sustainability issues	**Negative effect on the status of the Nulki and Francois GBPUs.** Project effects (habitat loss, linear density, risk of mortality) will exacerbate and interact cumulatively with past, present and future activities that negatively affect these grizzly bear populations The re-alignment of the transmission line, subsequent to the submission of the Application/EIS, avoids and reduces the transmission line's environmental effects. However, the effects cannot be fully mitigated, and the potential project impact of residual effects on grizzly populations remain negative.	**Negative and Serious**

5.2 Project Impacts on CSFNs' Traditional Knowledge and Land Use

This section provides the CSFNs' assessment of Blackwater impacts on their traditional knowledge and traditional land use. The information presented below is specific to the information available for each of the CSFNs at the time of writing.

Stellat'en First Nation

Land Use Resources

Travel corridors are of critical importance to the Stellat'en given their regular use and connected areas of trade, resource use, cultural and spiritual importance and habitation. The Blackwater transmission line corridor crosses over important corridors and trails which have traditionally and continue to be used by resource harvesters and those attending healing camps and sacred sites. Trails that travel in a more northerly or westerly direction from Stellat'en and other areas around Fraser Lake may be impinged upon by Blackwater.

The Blackwater transmission line corridor also includes areas of significant cultural and spiritual importance, including battle and gravesites, cremation sites, fasting, healing, ceremonial and sacred sites, and sweat lodges and pictograph sites.

Plant and Wildlife Resources

Berry picking and plant harvesting constitute a very important component of Stellat'en land use and cultural practice. Berry picking remains a vital and important seasonal harvesting activity. Recent forestry practices and other developments have negatively affected berry picking and plant gathering areas, and Blackwater could further degrade the Stellat'en ability to participate in these traditional practices and other RTI.

Moreover, the Blackwater transmission line corridor includes regions of intense hunting used by Stellat'en members. These regions have the potential to be crossed or impinged upon by aspects of Blackwater.

Potential impacts to the ecological environment could negatively impact Stellat'en members' ability to (i) harvest adequate quantity and quality of traditional foods, and (ii) engage in activities that strengthen cultural continuity and enable the exercise of their RTI.

Protecting the ability to hunt, fish and collect berries and medicines for the next generation is of critical importance to Stellat'en. These intergenerational practices may be threatened by Blackwater as biotic resources are strained and Stellat'en members are forced to travel farther distances to hunt and gather due to increased construction and traffic in nearby, traditional and/or preferred harvesting areas.

Aquatic Resources

Quality of surface and groundwater is of critical important to the Stellat'en people. Traditional water sources are relied on to provide quality habitat for aquatic life and sustain a healthy subsistence food fishery. In this regard, fish continues to be a major component of Stellat'en sustenance and cultural practice.

Blackwater may adversely affect the quality of already strained traditional water sources. Stellat'en members used to collect drinking water from the Endako River, but are no longer able to safely use this water source due to contaminants from nearby projects.

Notably, Fraser Lake and Francois Lake and all associated tributaries are of immense importance to the Stellat'en food fishery. Also of critical importance is the Endako River that connects the two lakes. Many other lakes within the Stellat'en Territory are also used extensively, depending on the time of year and desired species. The Blackwater transmission line corridor will also cross streams that are within these watersheds. As water is not stationary, implications to the Nation's RTI may be broad in scope.

Cumulative Effects

Blackwater may exacerbate habitat loss related to land development, increased rate and magnitude of forest fires, and bioaccumulation of contaminants from existing projects, such as the Endako mine. At present, the cumulative effects of development and resource extraction on or nearby the Stellat'en Territory have seriously impacted at least three resources relied on by Stellat'en members to meaningfully exercise their RTI, such as: (i) healthy populations of fish and game in preferred harvesting areas; (ii) traditional land tenure and governance systems; and (iii) an adequate land base within which to pursue seasonal rounds and meaningfully exercise RTI. Additional future development could compromise a fourth critical resource: freedom from competition for access to traditional resources.

Nadleh Whut'en First Nation

Nadleh Whut'en members have used the area proposed for the Blackwater transmission line corridor since time immemorial for hunting moose and other game, fishing, and collecting berries, drinking water and medicine. Additionally, the Blackwater transmission line corridor extends over several important places that support the cultural continuity of Nadleh Whut'en members, such as campsites, trails, water routes, and collection sites for plants used for ceremonial purposes.

When the physical works and activities required by Blackwater are considered alongside Nadleh Whut'en use and occupation of its Territory, it is clear that Project interactions have the potential to constrain and adversely impact Nadleh Whut'en use of lands and resources and its RTI for multiple generations.

Wildlife Resources

Nadleh Whut'en members have experienced a decline in the abundance of wildlife available for hunting, with significant declines in caribou and moose populations across their Territory. Forestry has been intensive in the region and Nadleh Whut'en members have observed significant habitat loss and fragmentation in their Territory as a result. Moose are one of the most crucial species hunted by Nadleh Whut'en members; however, moose have suffered serious declines in numbers and health over the past decades. Potential Project interactions with Nadleh Whut'en RTI include, but are not limited to:

- loss of valued wildlife habitat to deforestation and fragmentation;
- increased traffic on the Kluskus Forest Service Road increasing (i) instances of road kill, (ii) driving animals (particularly moose) away from the area, and/or (iii) presence of people who are not Nadleh Whut'en members which will lead to an increase of non-Aboriginal hunting;
- exacerbation of moose population declines in the region, resulting in Nadleh Whut'en members having to travel further in order to hunt successfully;
- decreased moose health and associated increase in Nadleh Whut'en members encounters with sick or unhealthy moose; and
- increased travel for Nadleh Whut'en hunters to hunt successfully; potentially outside of Nadleh Whut'en's Territory.

Aquatic Resources

Fishing has always been an important part of Nadleh Whut'en culture, life, and its RTI. Since time immemorial, fishing has been a key source of food for Nadleh Whut'en people. Nadleh Whut'en members continue to access and rely on fishing for a significant portion of their diet. Further, sharing fish is an important aspect of Nadleh Whut'en culture. Sharing is key to Nadleh Whut'en food security and also supports community wellbeing – it is a way of life for Nadleh Whut'en members. Sharing salmon and other fish is a key aspect of the reciprocal and respectful sharing relationship and traditional protocols that Nadleh Whut'en maintains with other Nations. Nadleh Whut'en members have experienced a decrease in fish abundance and quality within their lifetimes. Potential Project interactions with fishing include, but are not limited to:

- contamination of fish from upstream Project components (such as tailings pond) and other Project effluents;
- damage to fish and fish habitat from transmission line water crossings;
- water use for Blackwater impacting overall water levels in the Nechako River basin; and

- increase in non-Aboriginal fishing, lowering the overall fish population and availability thereof for Nadleh Whut'en RTI.

Flora Resources

Collecting berries and food plants has been a way of life for Nadleh Whut'en members since time immemorial. Gathering berries, food plants and fungi is an important subsistence and cultural activity for Nadleh Whut'en members. Nadleh Whut'en members collect a variety of berries, including blueberries, raspberries, huckleberries and Saskatoon berries as well as other food plants, including mushrooms and wild onions.

Nadleh Whut'en members have observed a decline in the quantity and quality of berries across their Territory. Potential Project interactions with berries and other food plants include, but are not limited to:

- avoidance of berries along transmission lines;

- contamination of food plants from Project components, effluents and related activities; and

- decreased access to berry and food collection sites along the Kluskus FSR and Holy Cross Road.

Gathering and using medicinal plants, and the associated traditional knowledge, are of great importance to the Nadleh Whut'en. Medicinal plants and traditional knowledge of their use, including gathering, preparation, and administration, are central to Nadleh Whut'en way of life, Nadleh Whut'en members' relationship to their Territory and their associated RTI.

Nadleh Whut'en members have observed adverse effects to medicinal plant harvesting from a number of causes, including deforestation and linear developments. Potential Project interactions with medicinal plants include, but are not limited to:

- physical damage to plant and medicine habitats from road widening, construction, maintenance and use;

- replacement of native species with non-native species during reclamation;

- contamination or perceived contamination of plant collection sites due to spraying of herbicides around the transmission-line corridor, and along roads and access routes used during the mine life;

- damage to, and avoidance of, medicines from dust generated by Project-related road traffic during mine construction, operations and maintenance; and

- avoidance of medicine resources to due hazards from Project-related traffic.

Water

Nadleh Whut'en members collect spring water regularly throughout their Territory. Spring water is used as drinking water and in the making of medicines. Spring water collection is a traditional practice that continues to be exercised by Nadleh Whut'en members today. Contemporary water collection and use is based in traditional knowledge and practices. Water collection is a key part of Nadleh Whut'en culture. In addition to being used for drinking and medicine-making, springs and spring water are used in Nadleh Whut'en ceremonies. Spring water is an important component of Nadleh Whut'en harvesting rights, practice, culture and overall RTI.

Nadleh Whut'en members have experienced the contamination of springs and spring water due to industrial development across their Territory. Potential Project interactions with water include, but are not limited to:

- direct or indirect contamination of groundwater aquifers from Project components, effluents and activities (including the tailings pond), with corresponding impacts on spring waters;
- corresponding damage to Nadleh Whut'en health through contaminated spring water; and
- disruption of spring water access from transmission line and loss of use.

Cultural Continuity

Connection to the land and experience of the land is a central component of Nadleh Whut'en culture. Nadleh Whut'en cultural practices and spirituality are at work in every aspect of Nadleh Whut'en members' use of the land, and are tied directly to the land and their corresponding RTI.

The areas of the Territories affected by Blackwater cover specific sites of particular cultural importance to Nadleh Whut'en, including: creeks and springs visited by Nadleh Whut'en members for ceremonial purposes; the red mountain near Stellaquo which is a sacred site within the vicinity of Blackwater's transmission line; historical burial places; and site-specific locations associated with different types of spirits, including Ormond Lake, Fraser Mountain and Lejac.

Nadleh Whut'en members maintain protocols and positive relationships with neighboring Nations and are able to access neighboring territories for traditional activities (including hunting and berry-picking) through those protocols and relationships. This respectful and reciprocal sharing of resources and territory has been taking place for generations.

Cultural uses within the areas of the Territories affected by Blackwater, including spiritual and ceremonial uses, are tied to the land and often rely on clean or undeveloped land. Nadleh Whut'en members' identities, culture and spiritualties are all tied to the land. Having an intact, healthy landscape is integral to the continuity of Nadleh Whut'en intergenerational knowledge transmission and the practice of the Nadleh Whut'en way of life.

Blackwater would potentially affect Nadleh Whut'en culture use and RTI associated with the land in the following ways:

- clearing of land for the transmission lines poses a risk to the transmission of knowledge as it would remove key teaching areas and push Nadleh Whut'en members out of their preferred areas;

- development in the area, including scarcity of resources and corresponding competition for scarce resources, may cause tension among neighbouring Nations and erode historical and traditional relationships; and

- impediments may be caused to cultural practices that rely on clean (undeveloped) land.

Cumulative Effects

Blackwater's impacts interact within a web of cumulative effects that have already changed the landscape. Interactions from Blackwater would occur in the context of existing and on-going effects from various sources, including from, but not limited to:

- logging and the associated destruction and fragmentation of habitat;

- conversion of habitat to agricultural land and the associated loss of access and use;

- transmission lines and the associated destruction and fragmentation of habitat, as well as the spraying of pesticides and herbicides;

- existing mines, such as the Endako mine, and the associated contamination of water ways and avoidance of hunting areas and plant collection areas;

- climate change and the associated increase in ticks negatively affecting moose health, among other climate change related effects, such as loss of forested area due to the MPB; and

- decline in the quantity and health of moose and the associated increase in competition for scarce resources.

Saik'uz First Nation

Information regarding the impacts to traditional knowledge and traditional use for Saik'uz First Nation was not available at the time of writing.

5.3 Project Impacts on CSFNs' Transmission of Traditional Knowledge

The following provides the CSFNs' assessment of Blackwater effects on their transmission of traditional knowledge. In short, the CSFNs view Blackwater as likely to have detrimental effects on traditional knowledge, including: the sharing of stories and legends; teaching of traditional knowledge and skills; and transfer of oral history, the

CSFNs' Indigenous laws and legal principles, place names and spiritual practices. These practices and knowledge may be lost or altered by Blackwater and related environmental changes (e.g. diminished access to, and quality of experience using, lands and resources due to noise, visual quality, air quality or human presence). Moreover, changes to traditional land use patterns may hinder the ability of the CSFNs members to apply their language skills and transfer language and knowledge between generations.

Project effects on each of the CSFNs' abilities to transmit traditional knowledge are described separately below. The scope of information presented for each Nation varies based on the information available from each of them at the time of writing.

Stellat'en First Nation

The ability to exercise historical and contemporary RTI and practices valued by Stellat'en while recognizing the dynamic nature of their culture is crucial to present-day and future generations of Stellat'en members. Evidence of Stellat'en occupancy on the land represents only a small portion of the land that is needed for the continued survival of their living and dynamic culture.

The overwhelming majority of Stellat'en material culture and/or cultural practices are not represented in the archaeological record, with the 'oral history of the Carrier Sekani (being) the primary authority on their culture, governance, and territories' (CSTC, 2007; page 18 of Triton report).

Stellat'en maintains, as it always has, complex laws, policies and protocols governing its Territory, including access and use of the land, and the responsible use of its resources. These systems are still important in contemporary Stellat'en culture, and maintaining records of, and control over, hereditary rights and property is integral to this process.

Governance, and land use planning, management and tenure, is carried out through the potlatch *Bahl'ats* system. The cultural practices and information sharing that occur during *Bahl'ats* convey and enforce Stellat'en legal traditions and protocols from generation to generation. In *Bahl'ats*, the Stellat'en system of land ownership and management is maintained.

Legends and stories, while leaving little material evidence behind, attach place names to events, stories, legends and assist in underlining a relationship to the land, as well as developing an indigenous typonymy as evidence of occupation.

Historically, survival entailed substantial knowledge of the complexity of the landscape and the resources available from it. Resources are considered and/or gathered in cycles of procurement called seasonal rounds. Knowledge of the availability, cycle, location, seasonality, quality, or movements of resources was, and is, imperative. This knowledge remains vital, whether on a daily, seasonal or annual round basis and includes techniques of proper preparation and preservation of resources in addition to knowledge and availability of harvest. This knowledge remains pertinent for Stellat'en.

Familial, commercial and political astuteness is essential for transactions between members, families and other Nations.

Blackwater could contribute to existing cumulative adverse effects on Stellat'en's language loss if cultural practices, harvesting and time on the land in its Territory are adversely impacted. As noted in an earlier report (MacDonald, 2014), "Cultural continuity depends to a large extent on continued use of the land, and is therefore vulnerable to industrial development that limits access, use and cultural practices. Actions that destroy a place, or cause the use of a place to be lost… frequently result in a gap in the transmission of place-based knowledge, and eliminate the place as a cultural resource for remembering, teaching and learning the knowledge associated with it."

Nadleh Whut'en First Nation

Nadleh Whut'en cultural practices and spirituality are at work in every aspect of Nadleh Whut'en's use of the land, and are tied directly to the land and Nadleh Whut'en's corresponding RTI. Nadleh Whut'en members' identities, culture, and spiritualties are all tied to the land. Having an intact, healthy landscape is integral to the continuity of Nadleh Whut'en intergenerational knowledge transmission and the practice of Nadleh Whut'en way of life.

The effects of colonization on Nadleh Whut'en and its members have adversely affected cultural continuity. Nadleh Whut'en members are working to protect their laws, RTI, and cultural, ceremonial, and spiritual traditions. Potential Project interactions with cultural continuity include, but are not limited to:

- impeding cultural practices which rely on clean (undeveloped) land;
- interrupting transmission of traditional knowledge due to loss of preferred area and plants in the vicinity of the transmission line;
- increasing conflict between Nadleh Whut'en and neighbouring Nations due to competition for scarce resources; and
- increasing strain from the associated infrastructure development and human activity on habitat and animal population behaviours.

Where mine effects further reduce access to resources (e.g. animals move further away or population levels are impacted), cultural transmission and harvesting practices can decline or be lost.

Since learning processes in Aboriginal societies, including Nadleh Whut'en, are traditionally oral based, any reduced access or use of the land could negatively affect cultural transmission.

Saik'uz First Nation

Information related to the effects on Saik'uz traditional knowledge and transmission of traditional knowledge was unavailable at the time of writing.

5.4 Project Impacts on CSFNs' Socio-Economic Conditions

The following section provides the CSFNs' assessment of the socioeconomic impacts of Blackwater. Blackwater will cause the following socio-economic impacts on the CSFNs:

- economic effects, including changes to employment and labour market conditions are expected; and

- social effects, such as changes in individual and family income, training and skills development, work rotation schedule and family dynamic effects following from employment effects. Other types of social effects, such as change in land use, may also occur.

These impacts are discussed in detail below based on the information available for each CSFN at the time of writing.

Stellat'en First Nation

Blackwater will have the following social and economic effects on Stellat'en:

Social Effects

- Housing: Housing access, quality and affordability are already serious concerns for Stellat'en members on and off reserve. Blackwater could affect the housing situation further through population increases or speculation that could (i) increase the cost of living in general and reduce access to affordable housing, and (ii) reduce affordability and lengthen timelines for major repairs as a result of inflationary pressures on trades and skilled labour in the region.

- Health and social services: Among Stellat'en members, the most significant perceived Project risk is adverse health effects. Reports note that instances of depression and even suicide have been associated with psychosocial effects related to fear of accidents and long-term contamination related to mining projects. Moreover, increased income can lead to increased drug and alcohol abuse among members, which, in turn, can lead to increased risk of criminal behaviour. A further concern relates to the influx of a large, almost exclusively male workforce in an area subject to existing strong concerns about violence against women. Impacts on Stellat'en RTI and its members' ability to meaningfully practice their culture may also have adverse effects on mental and physical health. In addition to affecting cultural continuity and mental and physical health, other social determinants of health such as food and income security can be affected if decreased access to traditional food sources leads to greater reliance on more expensive and less nutritious store-bought foods.

- Safety and security: Safety concerns include (i) workplace safety, (ii) environmental safety, and (iii) physical and social safety in the community. If Blackwater negatively affects cost of living or housing access, it could have a detrimental effect on Stellat'en members' access to adequate food, shelter and clothing.

Cultural Effects

Cultural concerns are a high-priority, with an emphasis on language, place names and cultural practices. As noted above, Blackwater may adversely affect Stellat'en traditional land use and disrupt the transfer from traditional knowledge that requires members to have meaningful access to the land.

Economic Effects

Employment and training opportunities are of significant interest to Stellat'en members. However, there is a risk that initial opportunities will not translate into future opportunities for advancement and long-term job security. Adopting and achieving substantial Aboriginal hiring targets for employment at Blackwater may increase successful rates of hiring and retention of local Stellat'en members.

Stellat'en members have also expressed an interest for implementing community-driven education and training based on community needs and priorities. These programs must be accessible for Stellat'en members and reflect real-time vocational needs.

Without adequate mitigations, Blackwater could exacerbate existing inequalities, excluding members from Project benefits. Mitigation measures could include the development of education and training programs that empower Stellat'en members to pursue trades and social infrastructure careers.

Camp Effects

Work camps and an influx of people in the area will lead to increased traffic and pressure on waste, water and sewage systems. Further, road safety may worsen further on the nearby notorious "Highway of Tears".

Nadleh Whut'en First Nation

Most of the potential benefits of industrial development and the cash economy in the region have bypassed Nadleh Whut'en members, driving a large gap in income and well-being between members without jobs, and those with jobs and the wider regional population. This gap is evident across indicators of well-being from education and income to mental health. The cumulative effects are evident, with members reporting reduced access to traditional resources and culture. With these vulnerabilities, cultural engagement, family and community cohesion, and other social determinants of Aboriginal health and resilience are increasingly important.

Blackwater will have the following social and economic effects on Nadleh Whut'en:

Social Effects

The pre-Project level of vulnerability is important as mines can strengthen cohesion in families when there are limited prior vulnerabilities; however, when the existing level of vulnerability is high, more money can also weaken vulnerable families, exacerbate social issues and undermine family cohesion.

- Health and social services: There can be increased demand on health and other social services through increased population and/or negative health effects (mental and physical) as a result of industrial projects. For example, industrial projects can be associated with poorer overall mental health and increased addictions.

- Infrastructure and community sustainability: Short-term industrial development can lead to unsustainable excess investment in infrastructure creating boom/bust scenarios for local communities.

- Safety and security: The higher risk of accidents on busier roads, increased drug and other offences and an increase in domestic violence, as well as workplace based accident and injury, can all reduce safety. Women are particularly vulnerable as inequality rises, housing options are limited, there is a higher population of younger and transient males, and employment options for women are limited.

- Inequalities: With industrial expansion, gaps in income and well-being can grow within communities, between communities and between Aboriginal and non-aboriginal communities. Income inequality is also a key social determinant of health.

The negative indicators to social well-being described above mean that, should Blackwater proceed, Nadleh Whut'en could see a significant reduction in quality of life of its members. Although there can be positive effects from increased income and employment, without adequate mitigations and supports, there is a substantially higher risk to safety, health and risky behaviours.

Cultural Effects

- In-migration associated with the prosperity of mining projects as well as project employees can mean increased concentration of hunters and recreational users in a relatively small area, increasing competition as well as avoidance by local First Nations.

- Concurrently, Project employment means that less time can be spent on the land exercising Aboriginal rights and interests, including hunting and fishing. A study of the Slave Lake Metis community, for example, found 71 percent of workers employed by the mine reported less time on the land.

Economic Effects

- Some of the positive benefits of industrial development in Indigenous communities can include: increased income security, improved self-esteem, improved food

security and resiliency in terms of ability to sustain traditional cultures. However, positive economic effects such as direct, indirect and induced employment and income can be quite limited in instances where industry chooses to use "fly in, fly out" workers. Those workers are not generally entering the local community and therefore do not stimulate the local economy.

- Negative economic effects include: unrealistic expectations for growth; economic dependence and reduced diversity; and negative effects on traditional and rights-based economic activity such as trapping, guiding, and arts and crafts.

- Blackwater may lead to a temporary positive increase in employment in the construction phase followed by a dramatic decrease in local employment after the construction phase is complete. Such rapid economic growth, followed by rapid decline, has been shown to cause numerous adverse effects. For example, research in similar industrial and regional contexts in the United States indicates that, overall, communities that have experienced a resource boom are worse off in the long term than those that did not have resource wealth and development.

Camp Effects

- Fly over effect: Some resource communities may not experience economic benefits of the construction and operation of a new mine, a phenomenon referred to as the fly-over effect. For example, in northern B.C., some companies fly their employees in for work and bus them directly between the regional centre/airport and the industrial camp; as a result, the employees never enter the adjacent community. In other cases, a non-local company purchases and delivers food for workers, sometimes from out of the region entirely.

- Health care: The impact of camp-based worksites on local health care services varies. Some camps offer nurses, doctors and other services on site for regular health care needs as well as employee assistance programs.

- Social: The social effects of a largely male, transient workforce in the region depend on the access to local communities by workers. Social effects associated with such in-migration and demographic changes require ongoing monitoring and adaptive management.

- Transportation: Increased transportation volumes from both camp construction and operations can have adverse effects on safety for local community members as well as wildlife. The effects of transportation go beyond local traffic volumes, as location of parking lots and access to personal vehicles are important considerations in camp design. For example, bussing workers from a parking lot into camp reduces the likelihood of hunting and fishing equipment coming in and offers more control over recreational access. However, it may also reduce purchases by workers of local services and supplies that would otherwise be accessed on a daily basis depending on bus schedules.

- Cumulative effects: Cumulative effects are an important concern for camp impacts. Depending on the intensity of development in the region, the needs of industrial camps can exceed local capacities. Corresponding effects vary depending on the type, planning, and location of a particular project, and corresponding camp.

Saik'uz First Nation

Information regarding the socio-economic effects of Blackwater on Saik'uz was not available at the time of writing.

5.5 Project Impacts on Governance Components of the CSFNs' RTI

This section presents the results of CSFNs' assessment of Blackwater's impacts on the governance components of their RTI.

The CSFNs have the right to determine how lands within their Territories will be used, particularly in terms of resource extraction and related developments that alter and/or alienate lands from their preferred use and their ability to exercise their RTI. The CSFNs also i have the right to proactively use and manage the lands, water, air, and resources within their Territories.

As set out above, CSFN members continue to use and manage the lands, water, air, and resources in a manner reflective of their historical and inherent role as stewards of their Territories, including by using their detailed collective (traditional) knowledge and historical occupation of their Territories to maintain an understanding of their overall health and to ensure their long-term sustainability.

Blackwater has the potential to cause adverse effects to the lands, water, air, and resources in the CSFNs Territories, and corresponding adverse impacts to the CSFNs' RTI.

Importantly, B.C., New Gold and the CSFNs are working together to recognize and accommodate the CSFNs' role in deciding how the lands, water, and resources in their Territories will be used and managed. B.C. is doing so through the collaboration with CSFNs on this EA, commitments for future collaboration during the permitting stage and life of mine, as well as through the current G2G negotiations with the CSFNs outside of the EA process. New Gold is doing so through IBA negotiations with CSFNs. Both of these efforts are aimed at seeking consensus with CSFNs in relation to Blackwater.

There remains a need to secure CSFNs' ongoing ability to discharge its stewardship responsibilities and obligations through EAC terms and conditions, terms and conditions for future Project-related permits, as well as G2G agreement(s) and the IBA.

The CSFNs note that the accommodation of the CSFNs' RTI, including their governance rights, through the implementation of the Collaboration Plan and the application of collaborative decision-making processes throughout this is EA is only a partial accommodation of their RTI which falls short of the standard of free, prior, and informed consent set out in the United Nations Declaration on the Rights of Indigenous People.

Accordingly, it is the CSFNs' view that, (i) the parties must move to joint decision-making on the EA and future regulatory processes, including reviews of applications for authorizations for Blackwater, and (ii) adequate economic accommodation and compensation must be secured for the CSFNs.

5.6 Summary of CSFNs' Assessment of Project Impacts

As outlined in this section 5, the CSFNs' Territories have been the subject of substantial historical development and alteration that have resulted in adverse environmental effects and impacts on the CSFNs' RTI. The infestation of the MPB and related forest health crisis was responded to in a manner that maximized the available economic value of the infected/dead component of the forests, understanding the economic value of those components would decline post-infestation. Further, climate change trends have contributed to aquatic and terrestrial issues that are adverse to the ecological integrity of the CSFNs' Territories and their RTI. As a result of the forest health issues and large scale salvage logging that has ensued since 2002, the CSFNs' Territories have been heavily altered. The economic benefits that were created from salvage logging and that have been generated by other industrial activities have largely bypassed the CSFNs and their members, as demonstrated above in the descriptions of the community profiles.

The combined impacts of the forestry and other activities have resulted in a highly altered landscape and extensive cumulative environmental affects within the CSFNs' Territories. When assessed via quantifiable disturbance indicators that are known to correlate with risks associated with environmental health, ecological function and biodiversity, risk is classified as high in many instances (Delong 2016, Toth and Tung 2016, Toth and Tung 2017, Daust and Price 2017). Available monitoring records for a variety fish and wildlife confirm that the predicted high-risk levels have manifested, and the status/health of many species within the CSFNs' Territories is declining and/or poor. This includes many species that are highly important to the CSFNs' RTI, including traditional cultural practices. **Thus, the CSFNs view their current ability to meaningfully exercise their RTI as highly constrained**.

When considering the potential effects of land and resource use decisions on the CSFNs' RTI, this "current state of affairs" provides the context through which the "Seriousness of Impacts" on the CSFNs' RTI must be assessed. Given the highly constrained nature and therefore "sensitive" current state, any effects that incrementally contribute to factors linked to causation (e.g. cumulative environmental effects), are likely to be characterized as impacts on the "Serious" end of the spectrum. In order for a project to be supported by the CSFNs and "Certifiable" within this unfortunate context, the full suite of accommodation measures, including impact avoidance, mitigation, offsetting, compensation and economic accommodation measures, must be implemented. This context also infers that impact avoidance and mitigative measures may dampen adverse effects, but remaining residual effects may still be incremental to causation factors that have exceeded significance and/or high risk thresholds, and therefore impacts may still be characterized as Serious. **Alterations of Blackwater, including the re-alignment of the transmission line, do not eliminate residual effects, and impacts remain characterized as Serious.**

In recognition of this context and the underlying policy and regulatory deficiencies that have facilitated it, B.C. and the CSFNs are working through their G2G negotiation and reconciliation processes to implement forest management measures intended to recover and/or maintain biodiversity objectives, understanding that the timeframe over which "recovery" is anticipated is long-term.

6. ACCOMODATION MEASURES AND EA CONDITIONS

Accommodation includes mitigation, including avoidance (spatial or temporal or both), and effect-minimization measures, and compensation, including offsetting activities, and other measures (business/economic opportunities, education/training opportunities, financial benefits, etc.). Accommodation discussions are informed by New Gold's proposed mitigation measures, the EAO's proposed conditions, conditions included in the federal EA Decision Statement, and the Eco Report.

6.1 New Gold's Proposed Mitigation Measures

Prior to conducting a residual effects assessment New Gold applied or proposed measures to accommodate impacts to the CSFNs' RTI, including but not limited to the following:

- Re-alignment of the transmission line in order to avoid important harvesting areas (i.e. effects on the current use of lands and resources for traditional purposes) and avoid elevating disturbance indicators within areas of the CSFNs' Territories that have yet to reach or exceed thresholds for moderate or high risk to biodiversity/ ecosystem health (i.e. effects of the transmission line on increased access and mobility, and core intact habitat). That approach included following existing rights-of-way wherever practicable;

- Implementation of a Country Food Monitoring Plan;
- Implementation of a 'no hunting, fishing, and gathering' policy for workers at the mine site;
- Use of vegetation and coarse woody debris to form visual barriers on cutlines, trails or other linear features (i.e. transmission line) to reduce predator access and efficiency;
- Avoidance of gathering sites along linear features where possible;
- Implementation of a caribou awareness program and protocols for mine workers;
- Payment of compensation to affected trapline holders in accordance with industry and provincial protocols with associated proof of lost revenue;
- Implementing progressive reclamation using local natural vegetation wherever possible;
- Providing opportunities for Aboriginal peoples to participate on New Gold's proposed Environmental Monitoring Board so that a presence on the land within their traditional territory can be maintained;

- Access management to minimize increased access of non-Aboriginal harvesters;
- Developing alternative access plans with Aboriginal groups;
- Implementing a chance find procedure and a process for reporting to applicable Aboriginal groups with respect to the physical remains of cultural sites, such as cabins, archaeological sites, culturally modified trees, and trails as outlined in the Archaeology and Heritage Resources Management Plan;
- Avoiding known campsites; and
- Implementing reclamation and closure plans to allow cultural practices to resume following closure of Blackwater.

New Gold's commitment to work collaboratively with the CSFNs to consider routing the transmission line in a manner that respected the unique contexts of the CSFNs' Territories and the Nation's interests (at considerable cost) demonstrated good faith.

The CSFNs and New Gold have committed to work collaboratively to implement access control measures on the transmission line RoW. The EAO and CSFNs collaborated to include in the proposed EAC condition for a Wildlife Management and Monitoring Plan a requirement for a vegetation and access management plan along the transmission line RoW.

6.2 Compensation

The CSFNs have assessed that the current environmental state of the CSFNs' Territories and the current state of many biological indicators therein, which are central to the exercise of the CSFNs' RTI, are indicative of past and ongoing management regimes that have not considered and have had adverse effects on the CSFNs' RTI. The legacy of natural resource development in and around the CSFNs' Territories has, in CSFNs' view, led to the current state that is not easily or quickly reversible, and some adverse effects are likely to continue to worsen even without further disturbance.

The CSFNs are of the view that economic accommodation and compensation are required to address the serious residual impacts that Blackwater will visit upon the CSFNs' RTI even after the EAC conditions are taken into account. These include the serious residual impacts to the economic and governance elements of the CSFNs' Aboriginal title. For example, proceeding with Blackwater would: (i) prevent CSFN members from using their lands, water, and resources in the areas of the Territories affected by Blackwater for their economic benefit; and (ii) worsen the already constrained state of their ability to harvest fish, wildlife, plants, and other resources in their Territories.

6.2.1 Off-Setting

The Eco Report identified that the high density of linear features (largely roads) within the CSFNs' Territories is implicated in the decline of a number of important species to the CSFNs and their RTI, including moose. Linear features increase access for humans

and predators resulting in increased wildlife mortality through predation, hunting, poaching and conflict, while also increasing disturbances and dislocations of wildlife from habitats and diminishing habitat suitability for some species. They also facilitate increased exploitation of other resources and increase the efficiency of predators such as wolves. The Eco Report noted that the adverse effects associated with road density are a direct contributor to the diminished state of several species of wildlife important to the CSFNs and their RTI.

As described in Section 5, the CSFNs' have assessed that their Territories have been heavily impacted by the MPB outbreak and associated high levels of salvage logging. This has resulted in:

- extensive areas of young plantation forest, and a reduction in the amount of old and mature forests. Both conditions alter the characteristics of available terrestrial/wildlife habitats; and,

- acceleration of climate change trends such as altered stream hydrology and warmer summer water temperatures.

These effects, along with broader climate change trends, have adversely affected key fish and wildlife resources fundamental to the CSFNs, including salmon, moose and caribou. The CSFNs note that forest health issues and salvage harvesting have also severely impacted the future economic potential of the CSFNs' Territories.

The CSFNs have identified many opportunities for specific habitat and fish/wildlife restoration and enhancement projects within the CSFNs' Territories that could counter the adverse effects summarized above, resulting in improvements to the current state of the CSFNs' Territories, the resources and ecosystems therein, and their members' abilities to meaningfully exercise their RTI.

(a) Road Decommissioning

A focused regime of road decommissioning with the intent to reduce the associated adverse effects (i.e. eliminate access, reduce predator use/travel and sight-lines, etc.) applied to key geographical areas with the CSFNs' Territories has the potential to produce beneficial results for biodiversity. The CSFNs and B.C. have developed tools through their G2G process that can guide the selection of areas and candidate roads.

The CSFNs propose that CSFNs, B.C. and New Gold engage in the development of a plan to support road decommissioning. Funding to support implementation should be incorporated into an ongoing stewardship fund. The road decommissioning work is appropriate given the additional/incremental linear feature effects that will result from the transmission line.

(b) Stewardship Legacy Fund

There are substantial opportunities for large and small-scale habitat enhancement projects that could produce wide-ranging benefits, including treating impacted forests to

minimize the threat of uncontrolled burns, replacing canopy cover, and re-establishing riparian zones with living, mature trees. Benefits generated could include terrestrial and wildlife habitat enhancement, wildfire threat mitigation and carbon sequestration.

There are also specific conservation issues that could benefit from additional resourcing and CSFN engagement. This includes specific sockeye and chinook stocks that require conservation-based enhancement action.

Current key priorities for the CSFNs include:

- Wildlife habitat enhancement (linked to road decommissioning described above); and

- Sockeye and chinook stock productivity improvement initiatives.

It is the CSFNs' view that New Gold and B.C./Canada should commit to resourcing an ongoing stewardship legacy fund that supports the CSFNs' interests in undertaking activities of this nature to help fulfil what the CSFNs' view as outstanding accommodation on Blackwater.

6.2.2 Socio-Cultural and Economic Benefits

The CSFNs have identified that New Gold and B.C. are uniquely capable of providing a range of accommodative-compensation for Blackwater and corresponding impacts on the CSFNs' RTI.

(a) New Gold

In respect of New Gold, the range of accommodative-compensation measures include:

- Life skills/employment readiness training, skills training/capacity development, and employment opportunities and targets for CSFN members;

- Set-aside contracting and business opportunities for CSFNs;

- Powerline ownership;

- Exploration and mine development partnership options;

- Revenue stream; and

- Cultural and stewardship enhancement initiatives.

The CSFNs are of the view that the residual impacts to the CSFNs' RTI and the proposed use of CSFNs' Aboriginal title lands for Blackwater must be accommodated through financial compensation and other forms of accommodation. This normally occurs through an impact benefits agreement (IBA) between a proponent and impacted

Indigenous groups. While New Gold and the CSFNs are engaged in IBA negotiations, no agreements have been reached at this time.

As a result, the CFNs state that the serious residual impacts to the CSFNs' RTI have not yet been adequately accommodated.

(b) B.C. and Canada

The CSFNs have been requesting that B.C. agree to establish a G2G table with them in relation to Blackwater for some time.

The main purpose of the table would be to discuss the economic and stewardship accommodation that B.C. and Canada could provide to the CSFNs in exchange for their support of Blackwater. The CSFNs are looking to take an innovative approach to the issue of economic accommodation given that the mine site for Blackwater is not in the CSFNs' Territories (although key Project infrastructure including the proposed transmission line and the Klusklus Forest Service Road are located within the CSFNs' Territories). Some examples of potential forms of economic and stewardship accommodation that the CSFNs would like to discuss with B.C. and Canada include:

1. Exploring options for converting the transmission line from a temporary to a permanent line to facilitate CSFNs' ownership;

2. Extending the transmission line from the mine site to the Lhoosk'uz Dene Nation and Ulkatcho First Nation communities to electrify those communities;

3. Obtaining EPAs for renewable energy generation projects in the CSFNs' Territories;

4. Negotiating an Economic and Community Development Agreement (ECDA) for Blackwater; and

5. Obtaining grants of Crown land in fee simple (and corresponding commitments to re-habilitate and/or protect the ecosystems on that land) to compensate the CSFNs for the lands being used for the transmission line.

The CSFNs propose to negotiate a short negotiation protocol with B.C. and Canada to create the requisite G2G table and secure capacity funding to support the CSFNs' participation at such table.

The CSFNs have urged that this request is time sensitive. The G2G table should be activated as soon as possible to ensure that a meaningful accommodation package is developed and agreed to in a timely way.

For the reasons set out above in s. 6.2.2(a), the CSFNs conclude that financial compensation or other form of economic accommodation is required. In the G2G context, such accommodation is typically provided through ECDAs and other revenue sharing agreements.

The CSFNs, B.C., and Canada have not yet initiated any revenue or other benefit sharing negotiations. **As a result, the CSFNs conclude that the serious residual impacts caused by Blackwater on the CSFNs' RTI have not yet been adequately accommodated.**

6.3 EA Conditions

6.3.1 Summary of EA Condition Development Process

The Collaboration Agreement adopted by CSFNs and EAO for Blackwater contains a commitment by CSFNs and EAO to work collaboratively to draft and work towards consensus on proposed EAC conditions (should it be issued) related to the CSFNs' RTI.

The Agency, EAO, and the CSFNs worked towards a collaborative assessment and consensus on conclusions regarding the severity of potential adverse impacts on the CSFNs' RTI. These parties then collaboratively developed potential federal and proposed provincial conditions to the corresponding EA authorizations to address or reduce those impacts where possible.

During the preparation of the Agency's draft EA Report and the EAO's Assessment Report, the CSFNs raised concerns that the Agency was not collaboratively developing the potential federal conditions and the 30-day comment period on the draft EA report and potential conditions was not enough time. Accordingly, on December 4, 2018, the CSFNs requested a 45-day extension to the federal timeline from the federal Minister of Environment and Climate Change. This request was not officially granted however the Agency altered its workplan within the remaining time available to allow for an additional 45 days of collaborative work on conditions.

The CSFNs also requested a 45-day extension to the provincial EA from the EAO to allow for the completion of the collaborative drafting of the provincial conditions as well as finalisation of the assessment of impacts of Blackwater on the CSFNs' RTI. The EAO responded that the request was not an unreasonable amount of time within which to attempt to reach consensus, or at least exhaust the opportunities to do so, and extended the provincial EA workplan timeframe by 45 days to discuss the draft provincial conditions, which postponed the date of referral to provincial Ministers for decision.

The Agency and EAO offered additional engagement on the development of conditions, including nine days of in-person meetings and six teleconferences in January 2019, with additional opportunities in February and March 2019 to discuss the draft provincial conditions. The Agency and EAO maintained and shared documents to track verbal and written comments to the CSFNs in order to document changes as a result of the ongoing dialogue, and provided rationales when changes were not made as requested.

The Agency made a number of changes to the potential federal conditions in response to comments and concerns from the CSFNs and others, including:

- A requirement for the Proponent to strive to reach consensus with Indigenous groups where consultation is a requirement of a federal condition;

- Changes to the Indigenous consultation conditions;

- Reviews of draft documents that are to be prepared by the Proponent if Blackwater is approved;

- Requirements for the Proponent to notify or provide specified information to Indigenous groups;

- The inclusion of the *Yinka Dene Water Law* in a condition related to water treatment;

- Specific provisions for monitoring potential contaminants in country foods and in a chance find procedure for cultural or heritage finds; and

- An independent environmental monitor for the potential federal conditions, who is responsible for observing, recording, and reporting on the implementation of the conditions, and who will advise the Proponent, the Agency and Indigenous groups if, in its view, the Proponent's activities do not comply with the conditions.

EAO made a number of changes to the draft provincial conditions in response to comments from the CSFNs and others, including:

- The inclusion of certain minimum requirements for the Construction Environmental Management Plan;

- A stand-alone condition regarding the Adaptive Management Plan, including qualitative and quantitative triggers for the development of new or additional mitigation measures;

- Specific measures within the Aboriginal Group Engagement Plan and the Aboriginal Group Monitoring Plan, including details about how the Proponent must retain Aboriginal monitors;

- A Cultural and Spiritual Resources Management Plan to identify and protect areas of cultural and spiritual importance and measures to deal with chance finds;

- Defining and incorporating the *Yinka Dene Water Law* into the Water Quality Management and Aquatic Effects Monitoring Plan conditions;

- A Mine Waste and Water Management Plan that looks to address a number of key issues specific to this EA around acid rock drainage / metal leaching management;

- The addition of a plan to avoid potential adverse effects from sedimentation in CSFNs' identified Class 1 waterbodies as a result of construction and maintenance on the transmission line;

- Baseline water quality data collection, reporting, and monitoring in waterbodies of importance to the CSFNs that overlap with Blackwater; and

- Transmission Line Routing Plan that addresses multiple routing options of the transmission line, the differing effects, and ensuring the right mitigations are applied for the final route.

On January 24, 2019 the CSFNs sent a second request to the Minister to extend the timelines of the federal EA by 45 days (for which the previous request was not granted). The CSFNs requested this time to finalize the work of co-developing the federal conditions with the goal of minimizing the adverse effects of Blackwater, and to carry out internal meetings and discussions with CSFN leadership and communities to inform whether to support the EA conclusions on environmental effects and impacts to their RTI. On February 15, 2019 the Minister approved a 45-day timeline extension for the federal EA of Blackwater.

Since the approval of the 45-day timeline extension, each of the CSFNs have carried out further internal engagement with their leadership and communities regarding the EA conclusions and potential/proposed conditions. Saik'uz had a community meeting in March 2019, at which time Chief and Council discussed the draft conditions and overall EA with their membership. Nadleh Whut'en has been carrying out regular engagement at its leadership table regarding the EA and draft conditions. Finally, Stellat'en has also carried out regular engagement with its leadership and membership. All three Nations have actively engaged both within the EA process and with their members on the application of the *Yinka Dene Water Law* in the EA process.

6.3.2 CSFNs' view of EA Conditions

On the conditions for the federal EA authorization, the CSFNs are generally pleased with the results of the collaborative discussions between the Agency, the CSFNs and the other Aboriginal groups, and appreciate the efforts carried out by the Agency staff to advance these conditions. In particular, the CSFNs are pleased that the conditions in the Federal Decision Statement issued on April 15, 2019, include a specific condition incorporating the *Yinka Dene Water Law* and requirements for the Proponent to strive to reach consensus on various matters with Indigenous groups, including the CSFNs.

The CSFNs remain concerned regarding the limited oversight over, and lack of approval on, a change of the Proponent or to the designated Project. In this regard, the CSFNs have repeatedly indicated the importance of the relationship that the CSFNs are building with New Gold (the current Proponent), and concerns regarding the potential for a new entity to take over Blackwater that may not take a proactive approach to relationship building and/or not have the technical experience and financial stability to carry out Blackwater in a mindful manner.

The CSFNs are also concerned that the federal conditions currently allow the Proponent to make changes to the designated project without formal approval (albeit after having carried out some consultation activities where the Proponent considers that the change may result in adverse environmental effects). The designated Project is what has been

assessed in the EA process, and changes thereto should undergo similar assessments. The CSFNs strongly recommend that these considerations be taken into account, with changes made to address these outstanding concerns.

On the draft provincial EAC conditions, the CSFNs are also generally pleased with the results of the collaborative discussions between EAO, the CSFNs and the other Aboriginal groups, and appreciate the efforts carried out by EAO staff. The CSFNs do, however, remain concerned regarding the conditions on transfer of the EAC and of Blackwater, as described above with respect to the federal conditions.

6.4 CSFNs' Conclusions on Adequacy of Consultation and Accommodation

The honour of the Crown is informed by the case law, the Province's commitment to collaborative decision-making in the Collaboration Agreement, and by this government's commitments to implement: (i) the United Nations Declaration on the Rights of Indigenous Peoples without reservation (Article 32(2) is of direct application here); (ii) the Truth and Reconciliation Commission's Calls to Action; and (iii) the Province's own 10 Principles that Guide the Province of British Columbia's Relationship with Indigenous Peoples. In particular, Principles 6 and 7 are applicable to these circumstances and provide as follows:

> Principle 6. The Province of British Columbia recognizes that meaningful engagement with Indigenous peoples aims to secure their free, prior and informed consent when B.C. proposes to take actions which impact them and their rights, including their lands, territories and resources.
>
> Principle 7. The Province of British Columbia recognizes that respecting and implementing rights is essential and that any infringement of section 35 rights must by law meet a high threshold of justification which includes Indigenous perspectives and satisfies the Crown's fiduciary obligations.

In view of these circumstances, CSFNs are of the view that the honour of the Crown requires that the Province (i) obtain the CSFNs' consent before issuing an EAC, or (ii) "meet a high threshold of justification", which cannot be met at this time. Central to both of those issues, in CSFNs' view, is the economic accommodation and compensation the Province must provide to the CSFNs to address the serious, residual impacts to the CSFNs' RTI set out above.

The CSFNs have been engaged in the EA process since October 2012. The "pre-collaboration" period consisted of a status quo EA consultation process; i.e. the Proponent led engagement on the basis of assumed good faith, but with an inaccurate assessment of how the CSFNs would be impacted by Blackwater. This limited the productivity of the engagement.

The CSFNs, B.C., Canada and the Proponent benefited from the collaborative process that was implemented to guide the relationship of the parties within the EA process. The collaboration supported an open and transparent flow of information between the agencies and the CSFNs, and with New Gold. The parties were able to regulate the speed of the process to adaptively manage issues, concerns and new information.

The CSFNs' assessment of Blackwater's effects and their potential impacts on the CSFNs' RTI (Eco Report) was key to reconciling information and perspectives between the parties. The Eco Report provided guidance to accommodation discussions, including mitigation and compensation measures and opportunities. The CSFNs review of the CEMs found that alterations to Blackwater subsequent to the submission of the Application/EIS, including the re-alignment of the transmission line, do not alter the findings of the Eco Report.

The Proponent's good-faith commitment to engage in routing the transmission line with the CSFNs' guidance was indicative of the post-collaboration relationship. The changes to the transmission line reflect the interests of the CSFNs, and provide some mitigation of specific matters of concern (i.e. minimizing the adverse effects of additional disturbance and fragmentation within an already highly altered landscape, avoiding important areas). However, **the environmental effects and impacts on the CSFNs' RTI from the re-aligned transmission line route cannot be fully mitigated, and accommodation and compensation is required.**

The CSFNs are presently pursuing accommodative-agreements with the Proponent and B.C. and Canada in relation to Blackwater. However, no such agreement(s) is in place—**meaning that the serious residual impacts Blackwater will have upon the CSFNs' RTI have not yet been adequately accommodated**. **In other words, the CSFNs are of the view that neither B.C. nor Canada has adequately discharged its duty to consult and accommodate the CSFNs at this time.** The CSFNs are of the view that the honour of the Crown is at stake and more work is required before it can be upheld in respect of a decision by B.C. or Canada to issue EA authorizations for Blackwater.

7. WEIGHING OF RESIDUAL IMPACTS

In B.C.'s view, the Crown has a responsibility to weigh the potential impacts and accommodations on the CSFNs' RTI with other societal interests, including the social, environmental and economic benefits of Blackwater. This section sets out some relevant factors that Ministers can consider in determining whether the Crown's duty to accommodate has been fulfilled. Given the collaborative context of this EA, the CSFNs have provided their perspectives on Blackwater and its EA certification, and expects the Crown to contemplate those perspectives through the lens of collaboration and its reconciliation and recognition objectives.

The following sections provide a summary of New Gold's assessment of the forecasted economic impacts of Blackwater, Blackwater's regional context/importance, the potential benefits of Blackwater for the CSFNs, and weighing of overall Project benefits and risks.

7.1 Forecasted Project Economic Impacts

Blackwater is expected to have a two-year construction phase, followed by 17 years of operations. After the mine closes, reclamation activities are expected to continue for approximately 24 years. Monitoring and post-closure activities are expected to run for an extended period after closure.

The initial capital cost of construction is estimated at $1.814 billion over the two-year construction period, with approximately 88 percent of construction expenditures expected to made within B.C. ($1.294 billion, excluding contingencies), including $398 million within central B.C.

Operating costs, over the life of mine are expected to be $314 million, of which $207 million are expected be expended in B.C.

At peak, as many as 1,500 workers may be at the work site. Total construction labour will comprise 1.2 million hours of direct labour, and another 4.7 million hours of contract labour. This represents the equivalent of about 2,436 PYs and it is estimated that 20 percent of the BC portion of total labour would amount to 485 PY. Construction is expected to generate $296 million of household income for people directly employed in Blackwater.

During operations, Blackwater is estimated to employ approximately 495 people, with 80 percent of these (396) being B.C. residents, including 320 residents of central B.C.

Project closure activities are expected to create 363 PY of direct employment for B.C. residents, 479 PY of indirect employment, and 116 PY of induced employment.

During Project construction, $296 million in household income is expected to be generated for people directly employed with wages, including benefits, averaging $120,000 per year. During Project operations, household income for people directly employed in Blackwater is expected to total $43 million. During this phase, wages, including benefits, will average $110,000 per PY. Finally, during closure, Blackwater is expected to provide average salaries of $75,000 per PY.

The following revenues are forecast to accrue from Blackwater to federal, provincial and local/regional governments:

- During construction, total federal government revenues (including direct, indirect and induced revenues) are estimated at $86 million, total provincial government revenues (including direct, indirect and induced revenues) are estimated at $82 million, and total local/regional government revenues are estimated at $13 million.

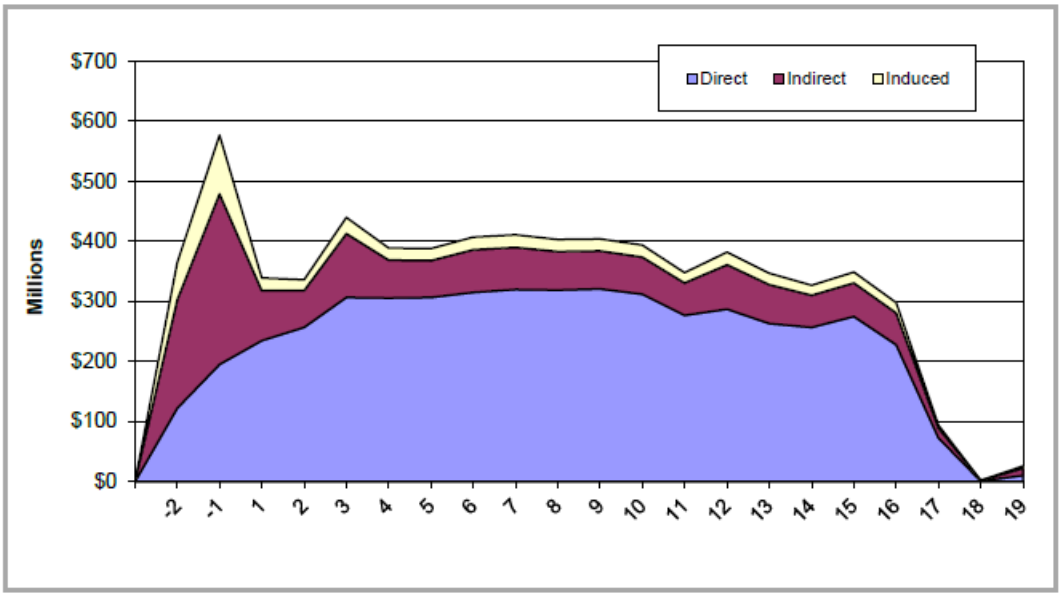
- During operations, federal government revenues (including direct, indirect and induced revenues) are estimated at $33 million per yea, provincial government revenues (including direct, indirect and induced revenues) are estimated at $21 million per year, and regional government revenues are estimated at $4 million per year.

- During closure, the direct effect on federal revenues is estimated at $6 million, total provincial government revenues are estimated at $7 million, and local and regional government revenues are estimated at $1 million.

Over its entire life, Blackwater is expected to create nearly 30,000 PYs of employment for B.C. residents. Total tax revenues over the life of Blackwater are estimated to amount to approximately $1.2 billion, of which $656 million are anticipated to accrue to the federal government and $83 million to local governments. Total revenues for B.C. are estimated at approximately $511 million, which includes $450 million in taxes and $61 million in royalties.

Blackwater's forecasted direct, indirect and induced contributions to Provincial GDP for a 3-year construction period, 17-years of operations, and years 1 and 2 of closure, is presented in Figure 5.

Figure 5: Project Effects on Provincial GDP Over the Life of Blackwater



7.2 Project Socio-Economic Contributions

As described above, Blackwater is expected to contribute to social and economic well-being in B.C., especially in central B.C., from Project expenditures on labour, goods, and services. Project employment and business opportunities are also expected to 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, Blackwater may also improve economic and community stability, including by incrementally contributing to the rebalancing of the economic asymmetry that exists between the CSFNs' communities and surrounding non-aboriginal communities.

The District of Vanderhoof, the Village of Fraser Lake, and the City of Prince George are expected to be the major urban beneficiaries of Blackwater, although Project benefits are also anticipated to spill over into other communities, both Aboriginal and non-

aboriginal, within central B.C., within the broader province, and within the rest of Canada.

Blackwater is intended to be self-contained, with its own accommodations, water and sewage facilities, access roads and electrical transmission line. The sole use of local or regional facilities is anticipated to be for disposal of some Project-generated wastes. The payment of tippage fees will result in no net costs to the regional governments. Blackwater is not anticipated to use other local or regional facilities, with no direct costs accruing from Blackwater on local or regional government infrastructure.

Blackwater's potential economic stimulation effects are particularly important given its regional context. In particular, Blackwater could help replace some of the regional employment losses that have occurred within the local forestry industry (B.C. Stats, 2013; Statistics Canada, 2007, 2013) as a result of processing efficiencies and commodity price fluctuations. Further, uplifts to the Allowable Annual Cut (AAC) that were implemented within the Prince George Timber Supply Area beginning in 2002 in response to the MPB epidemic and the intent to maximize the economic value of infested stands, have severely impacted mid-term[2] timber supply (B.C. FLNORD 2017). Gradual reductions from the uplift began in 2012 and were continued in the most recent determination in 2017 (33 percent reduction), with a further 12 percent reduction planned for 2022.

The CSFNs have indicated that the implications of the forest health issues, previous uplifts and declining AAC on the existing forestry industry in the area of Vanderhoof are evident now and are expected to degrade further on an annual basis. This has and will continue to result in shortages of available timber/fibre for local processing facilities, relative to current levels. The creation of Project construction and operation jobs, and associated use of local businesses, is expected to help supplement and diversify employment and business opportunities in the region, making the regional economy less dependent on the existing forestry sector.

7.3 Project Benefits to the CSFNs

As described above, the CSFNs have identified that their Territories and RTI are already substantially adversely affected from large scale forest health issues, MPB salvage harvesting, and other historical and ongoing resource development and extraction activities. The CSFNs have indicated that economic benefits from some previous activities have largely bypassed their communities and members. The CSFNs are concerned that Blackwater has the potential to incrementally contribute to a worsening of this current state.

Accordingly, the CSFNs participated in the EA of Blackwater's effects and impacts. Throughout their participation, the CSFNs have consistently articulated their

[2] Mid term refers to that portion of a harvest projection when dead pine is no longer an economically viable source of timber and before regenerating pine stands have reached harvestable condition

perspectives on Blackwater's adverse effects and potential serious and residual impacts to their RTI.

As a result of some of the CSFNs' concerns regarding impacts from the transmission line, the CSFNs and the Proponent collaboratively (and iteratively) identified a re-routing of that line to avoid areas of significant concern and reduce its adverse environmental effects on their Territories and RTI. The re-alignment is a mitigation and accommodation measure that reduces the potential for the transmission line to adversely impact CSFNs' RTI, but the CSFNs maintain that a long linear development in an already fragmented habitat remains a serious residual impact on their RTI.

The CSFNs are in the process of negotiating accommodative measures with the Proponent and hope to negotiate accommodative measures with Canada. In that regard, B.C. has provided the CSFNs with a commitment to continue working with them on a mandate to seek an economic benefits package in relation to Blackwater, should it proceed. However, no such mandate has yet been secured, and B.C. has also not provided the CSFNs with a firm commitment that an economic benefits package will be provided that is satisfactory to the CSFNs.

Concurrently, as set out above, no accommodation agreements have yet been finalized. **As a result, the CSFNs have concluded that Blackwater's serious residual impacts on their RTI have not yet been adequately accommodated.**

7.4 CSFNs' Conclusions on Weighing of Potential Impacts on their RTI

The CSFNs' assessment of the current state of their Territories and RTI, along with Blackwater's potential impacts on their RTI (as presented in the Eco Report) indicate that Blackwater's adverse environmental effects would be incremental to cumulative environment effects that are already at exceedingly high levels, and linked to causation in their constrained ability to exercise their RTI.

Following the completion of the Eco Report, the CSFNs reviewed New Gold's CEMs to consider changes to Blackwater made subsequent to the submission of the Application/EIS, including the re-alignment of the transmission line. That review found that alterations to Blackwater subsequent to the submission of the Application/EIS, including the re-alignment of the transmission line, did not alter the findings of the Eco Report. While the re-alignment of the transmission line avoids and reduces its environmental effects and adverse impacts on the CSFNs' RTI, residual effects from the transmission line and Project as a whole remain as all residual effects are not eliminated.

Further, based on their RTI, the CSFNs have expressed that they have a right to benefit from uses of the land and resources within their Territories. This includes deriving benefits from the use of their Territories and pursuing economic development opportunities in a variety of ways; whether related or unrelated to modern forms of natural resource development and extraction. In addition, this encompasses accessing and using natural resources by preferred means, which uses include harvesting wild

foods for the contemporary CSFNs communities and their ancestors, as well as for sale, trade, or barter similarly to such uses by their ancestors.

The CSFNs have determined that Blackwater has the potential to impact the economic elements of their RTI. For the reasons set out above, the CSFNs have determined that proceeding with Blackwater would: (i) prevent their members from using the lands, water and resources in the Blackwater area for their economic benefit; and (ii) worsen the already constrained state of their members' abilities to harvest fish, wildlife, plants, and other resources in their Territories.

If, however, accommodative agreements are concluded, Blackwater has the potential to provide significant economic benefits to the CSFNs and their members, including through: (i) stewardship and cultural initiatives: (ii) employment opportunities; (iii) contracting opportunities; and (iv) revenue sharing arrangements.

Importantly, CSFNs, B.C., and New Gold are taking steps to seek to address the CSFNs' economic development interests. **In conclusion, as no accommodation agreements have yet been finalized, the CSFNs are hereby recommending to the provincial Ministers that they exercise their discretion pursuant to s. 17(3)(c)(iii) of the *Environmental Assessment Act* to order that further assessment be carried out in connection with the required economic accommodation and compensation owing to the CSFNs with respect to Blackwater proposed in their Territories and corresponding serious and residual impacts on their RTI.**

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Appendix A

CSFNs Blackwater Collaboration Plan

BACKGROUND:

New Gold Inc. (the "**Proponent**") is pursuing provincial and federal environmental assessment ("**EA**") certification of an open pit gold and silver mine located 160 km south west of Prince George - the proposed Blackwater Gold Project ("**Project**"). The following components of the Project are proposed to be located in the Territories as defined in the Collaboration Agreement referenced below, of Nadleh Whut'en, Saik'uz and Stellat'en First Nations (collectively, the "**Carrier Sekani First Nations**" or "**CSFNs**"): (i) a transmission line and associated access that will provide power to the proposed mine site; and (ii) vehicular access routes to the mine site (existing and proposed new roads). Construction and operation of the mine portion of the Project, although not located within CSFNs' Territories, could also cause downstream effects and corresponding adverse impacts within CSFNs' Territories.

COLLABORATIVE CONTEXT:

British Columbia ("**BC**") and the CSFNs signed a Collaboration Agreement in April 2015 (the "**Collaboration Agreement**"). The Collaboration Agreement provides a framework for BC and the CSFNs to engage in collaborative decision-making for major projects. Key aspects of that framework include seeking (i) to develop consensus recommendations in relation to the design and implementation of EAs and regulatory review processes in relation to major approvals, and (ii) consensus in relation to decisions on major approvals.

The Environmental Assessment Office ("**EAO**") and the CSFNs (collectively, the "**Parties**") agree to treat the Project as a major project within the meaning of that term in the Collaboration Agreement. They also recognize that (i) the EA of the Project was initiated before the Collaboration Agreement came into force and has been ongoing for some time, and (ii) BC and the CSFNs have not finalized how the collaborative decision-making framework will be applied to major projects.

The Parties have therefore drafted and agreed to this Blackwater Collaboration Plan (the "**Plan**") to facilitate their collaboration on recommendations related to the EA process and decisions in relation to the Project to ensure that the EA is carried out in accordance with the spirit and intent of the Collaboration Agreement, including addressing the potential adverse effects of the Project on any CSFNs' Aboriginal title, rights, and interests in accordance with the Collaboration Agreement ("**CSFNs' Aboriginal title, rights, and interests**"). For ease of reference, a schematic showing conceptual factors relating to the CSFNs' Aboriginal title, rights, and interests is included in Appendix B.

The Plan is unique and specific to this Project and to the remaining stages of the EA at the time the Collaboration Plan discussions were initiated.

The primary focus of the Plan is to facilitate the Parties' collaboration on recommendations related to the potential Project impacts to CSFNs' Aboriginal title, rights, and interests that are primarily related to:

- construction of the proposed transmission line and required access roads;
- construction and operation of the Project in relation to potential downstream impacts on water quality;
- vehicles accessing the mine site through CSFNs' Territories via the existing Kluskus Forest Service Road; and
- other potential Project effects, including but not limited to:
    - cumulative effects, including consideration of information generated by the collaborative Environmental Stewardship Initiative;
    - loss of moose habitat or effects of increased access and predation; and
    - changes to CSFNs' access to the area, and/or management of increased access by the public.

PRINCIPLES:

- In the interest of avoiding conflict, producing durable outcomes, and facilitating mutual economic development objectives, the Collaboration Agreement commits the Parties to seek consensus in relation to decisions on major projects.
- Collaboration can facilitate BC discharging its constitutional duty to consult the CSFNs and accommodate CSFNs' Aboriginal title, rights, and interests. However, the focus of collaboration will be on the Parties working together on a government-to-government basis.
- The collaborative process for the Project will be informed by its unique circumstances – i.e. that its EA started before the Collaboration Agreement came into force, and the nature of its potential impacts on CSFNs' Aboriginal title, rights, and interests.
- Collaboration on a major project requires a predictable, practical, and timely process that appropriately addresses the Parties' interests.

- The Parties agree that third party interests, sufficiency of information, administrative fairness obligations and constitutional obligations to the CSFNs inform the collaborative process set out in this Plan.

- The Parties will avoid taking positions and will attempt to resolve issues in an interest-based manner.

- The Parties will, within the context of their respective mandates and authorities, continue to require the Proponent to support meaningful participation of CSFNs in the EA process.

- The Parties will treat the Plan as a living document. They may incorporate new collaboration ideas into the Plan if and as they arise and are agreed to by the Parties. Such ideas may also inform EA reform discussions contemplated by the Collaboration Agreement.

- The CSFNs have agreed to work collectively for the purposes of completing technical work necessary to engage in the EA process for the Project and this Plan. However, each CSFN will make its own decisions in relation to the Project.

- The Parties agree to be guided by the Principles described in Section 2 of the Collaboration Agreement and Section 3.1 of the Environmental and Socio-Cultural Initiatives Agreement in implementing this Plan.

OBJECTIVES OF THE BLACKWATER COLLABORATION PLAN:

This Plan provides the framework for the Parties to work collaboratively in seeking consensus in relation to EA decisions for the Project. The Parties recognize that different levels of collaboration may be required for the various decisions that BC will make in relation to the EA of the Project. The Plan is intended to guide the Parties' work to identify the mechanisms, measures, and activities through which they will facilitate the collaborative outcomes envisioned throughout the EA process for the Project.

COLLABORATION STEPS:

Progress and collaborative measures to be pursued and to be considered are captured under the following two headings:

1) Blackwater Collaboration Plan Development; and
2) Collaborative Activities and Mechanisms.

Each of these are described in detail below.

1) Blackwater Collaboration Plan Development:

The Parties have established the "**Blackwater Collaboration Team**", as set out below, to develop and implement this Plan. The team consists of representatives of:

2. Nadleh Whut'en First Nation;
3. Saik'uz First Nation;
4. Stellat'en First Nation; and
5. The EAO.

2) Collaborative Activities and Mechanisms

a) CSFNs Screening Period – The Parties will make use of the time available prior to the EAO's screening decision for the CSFNs to assess the potential for the Project to adversely impact CSFNs' Aboriginal title, rights, and interests. This work will continue into the Application Review phase.
b) Best Available Information – The Parties will collaboratively develop approaches and options to support the integration of the best available traditional use and socio-economic information in the assessment of the Application.
c) Financial Resources – The Parties will collaboratively seek financial resources necessary to:
    i) support the CSFNs in undertaking an assessment of the Project's effects on CSFNs' Aboriginal title, rights, and interests; and
    ii) support the CSFNs' costs related to engaging in this Plan. The EAO has provided additional capacity funding to support this.
d) Engagement with Proponent – The Parties will meet with the Proponent to review and understand:
    i) the Project's key design components;
    ii) changes the Proponent made to the Application in its most recent versions; and,
    iii) the Proponent's understanding of CSFNs' Aboriginal title, rights, and interests, and their effects assessment findings in relation to those title, rights, and interests.
e) Federal Review Components – The Parties will meet with the Canadian Environmental Assessment Agency ("**CEAA**") to discuss how to integrate relevant elements of the federal review into the implementation of the Plan.
f) Information Requirements – The Parties will work towards developing a consensus approach to understanding and addressing information requirements for the purposes of the EA, where CSFNs are of the view that these are not adequately addressed in the Application.

g) Transmission Road Information – The Parties will work towards developing consensus recommendations on whether the final materials provided by the Proponent address the application information requirements related to transmission line access roads.
h) Information Requirements for Review – The Parties will work towards developing consensus recommendations for additional information requirements (including time deadlines for that information to be provided and potential consequences if the Proponent does not adhere to the deadlines) for the EAO to include in its letter communicating the evaluation decision to the Proponent if the Application is accepted for review.
i) Community Engagement – The Parties will conduct community engagement meetings during early Application Review (within the Public Comment period) if requested by any of the CSFNs.
j) Information during Application Review – The Parties will work towards identifying other information requirements during the Application Review phase that are important for completing the assessment of the Application.
k) Information subject to Time Constraints – Where additional information identified in paragraph 2(j) is not available in a time frame to allow it to be adequately considered during Application Review, the Parties will work towards developing consensus recommendations on requests for timeline extensions or suspensions, or consensus recommendations for alternative approaches to address the limits to information or analysis.
l) Ongoing Meetings – The Parties will hold ongoing meetings, including with the Proponent and CEAA (as appropriate), to review the implications of the Plan for Application Review and opportunities going forward.
m) Broader Collaboration Discussions – The Parties will meet as required with Ministry of Energy, Mines and Petroleum Resources, Major Mines Office, Ministry of Environment and Climate Change Strategy, Ministry of Forests, Lands and Natural Resource Operations and Rural Development, and Ministry of Indigenous Relations and Reconciliation to consider broader collaboration required on the Project, including permitting and life of mine.
n) Impacts to Aboriginal Title, Rights, and Interests – The Parties will discuss how they may collaborate during the Application Review phase to assess and consider the Project's potential impacts to CSFNs' Aboriginal title, rights, and interests, including:
    i) reviewing existing EAO methodology to consider impacts to CSFNs' Aboriginal title, rights, and interests and discussion of opportunities for enhancement; and
    ii) receiving and considering a report from CSFNs relating to their views on the impacts of the Project to CSFNs' Aboriginal title, rights and interests.

o) Linear Corridor Sub-Working Group – The Parties will establish a Linear Corridor Sub-Working Group to jointly assess potential impacts of the transmission line and access roads to CSFNs' Aboriginal title, rights, and interests, and consider how such effects can be avoided, or where it is not possible to avoid, mitigated and/or accommodated.

p) Water Quality Sub-Working Group – The Parties will establish a Water Quality Sub-Working Group to (i) discuss assessment of potential impacts on water quality arising from Project construction and operation, including by carefully reviewing the Proponent's assessments of alternative means for tailings management, and (ii) discuss how the *Yinka Dene 'Uza'hné Surface Water Management Policy* and *Yinka Dene 'Uza'hné Guide to Surface Water Quality Standards* (collectively, the "**Yinka Dene Water Law**") can be incorporated into the EA for the Project.

q) Avoidance, Mitigation and Accommodation – The Parties (and the Proponent where invited by the Parties) will discuss the potential for the Project to impact CSFNs' Aboriginal title, rights, and interests and how those effects will be avoided, or mitigated and/or accommodated if unavoidable.

r) Part C Drafting – The Parties will collaboratively develop Part C – Effects to CSFNs' Aboriginal title, rights and interests - of the EAO's Blackwater Assessment Report (the "**Assessment Report**").

s) Collaborative Work on Conditions – The Parties will collaboratively draft and work towards consensus on proposed EA Certificate conditions (should one be issued) related to:
   i) construction of the proposed transmission line and required access roads;
   ii) construction and operation of the Project in relation to potential downstream impacts on water quality, including how to incorporate the Yinka Dene Water Law;
   iii) vehicles accessing the mine site through CSFNs' Territories via the existing Kluskus Forest Service Road; and
   iv) other potential Project effects, including but not limited to:
      - cumulative effects, including consideration of the information generated by the collaborative Environmental Stewardship Initiative,
      - loss of moose habitat or effects of increased access and predation, and
      - changes to CSFNs' access to the area and/or management of increased access by the public.

t) Involvement of Other Parties – The Parties will include the Proponent, key Working Group members, and government agencies as appropriate and available to support their discussions.

u) Assessment Report – The Parties will work towards development of consensus conclusions in the Assessment Report on:

i) Project-related impacts to CSFNs' Aboriginal title, rights, and interests;
ii) the adequacy of consultation and accommodation with CSFNs; and
iii) any other recommendations related to CSFNs' Aboriginal title, rights, and interests.

v) Issue Resolution Process – Where the Parties are unable to reach consensus on issues relating to paragraphs 2(r), (s), and (u), they will implement the issue resolution process set out in Appendix A.

w) Consensus Recommendations – The Parties will seek to develop consensus recommendations to the Ministers in relation to the issues set out in paragraph 2(s) and the decision the Ministers will make under s. 17(3)(c) of the *Environmental Assessment Act* ("**Act**"). As part of that process, CSFNs' representatives, the EAO's Project Assessment Lead, and the EAO Executive Director ("**ED**") will meet, at either Parties' request, no later than 10 days before the anticipated date that the assessment decision package will be referred to the Ministers. The Parties may bring other representatives from their respective organizations to attend the meeting, as needed.

x) Other Impacts – The Parties acknowledge that the ED's recommendations will also need to consider the Project more broadly than only the impacts related to the CSFNs' Aboriginal title, rights, and interests, including the extent to which the Project is likely to cause significant adverse environmental effects, the adequacy of consultation and accommodation in relation to other First Nations, and other matters in the public interest.

y) Procedural Fairness – The Parties also acknowledge that the ED must consider matters of procedural fairness and may need to share the discussion with the CSFNs with the Proponent or other parties where matters discussed may materially impact the Proponent's or other parties' interest(s) or where matters agreed to are contradictory to what is in the Assessment Report. The ED will provide notice to the CSFNs before sharing any such information, and provide the CSFNs with an opportunity to requests limits to such sharing, which the ED will consider before sharing such information. As well, the Parties agree that discussions may not be shared publicly until the Ministers' decision is announced, at which time documentation of the discussion will form a part of the public record.

z) Separate Submissions – The CSFNs will have an opportunity to provide a separate submission to Ministers.

aa) Meeting of Leaders – If the ED and the CSFNs do not reach consensus on recommendations to the Ministers on matters referenced in (w), the ED will recommend to the Ministers that they offer to meet with the CSFNs prior to making a decision on whether to issue a Certificate. The purpose of this meeting

is to provide CSFNs an opportunity to express directly to the Ministers the reasons underlying their position on the issuance of a Certificate for the Project.

bb) If the Ministers offer to meet with CSFNs and that offer is accepted by the CSFNs within five business days of the offer being made, the EAO will work with the CSFNs to arrange for that meeting. The CSFNs must make themselves available to meet within the legislated timeframe for the Ministers to make a decision. The EAO will notify the Proponent of the meeting.

cc) The Parties acknowledge that the Ministers must consider matters of procedural fairness and may need to share the discussion with the CSFNs with the Proponent or other parties where matters discussed may materially impact the Proponent's or other parties' interest(s) or where matters agreed to are contradictory to content in the Assessment Report or recommendations from the ED. The Ministers will provide notice to the CSFNs before sharing any such information, and provide the CSFNs with an opportunity to requests limits to such sharing, which the Ministers will consider before sharing such information.

dd) Ongoing Collaboration – The Parties will continue to discuss opportunities for collaboration in relation to the EA of the Project.

Appendix A - Issue Resolution Process

SECTION 1– SEEKING CONSENSUS

1.1 **Consensus.** The Parties will seek to reach consensus on the issues identified in paragraphs 2(r), (s) and (u) of the Collaboration Plan.

SECTION 2– ISSUE RESOLUTION PROCESS

2.1 **Issue Resolution Process.** Where the Parties are unable to reach consensus under 1.1, either Party may trigger the following process (the "**Issue Resolution Process**") not less than 30 days prior to the anticipated referral date to attempt to resolve the outstanding issue(s).

2.2 **Notice.** Either Party may initiate the Issue Resolution Process by providing written notice (the "**Notice**") to the Issue Resolution Group that includes:

i. a description of the outstanding issue;

ii. the applicable CSFNs' Aboriginal title, rights, and interests; and

iii. potential measures to resolve the issue in a manner that addresses the applicable interests.

2.3 **Issue Resolution Group.** The Issue Resolution Group will consist of the Chiefs of the relevant CSFNs, the representatives of the CSFNs on the Blackwater Collaboration Team, the Assistant Deputy Minister, Environmental Assessment Operations and the EAO Project Assessment Lead (the "**Issue Resolution Group**"). The Parties may bring other representatives from their respective organizations to attend the meeting of the Issue Resolution Group, as needed.

2.4 **Meeting of the Issue Resolution Group.** Unless one or more of the suggested solutions provided in the Notice is agreeable to each applicable Party, the Issue Resolution Group will meet and attempt to resolve the outstanding issue(s) within 10 days of receiving the Notice under section 2.2 (not less than 20 days prior to the anticipated referral date).

2.5 **End of Issue Resolution Process**. Where the Issue Resolution Group is unable to resolve the issue within 10 days of receiving the Notice, each Party may proceed with its decision-making process.

SECTION 3- ASSESSMENT REPORT

3.1 **Assessment Report**. Where the Parties reach consensus under section 1.1, this will be recorded in Part C of the Assessment Report.

3.2 **Issue Resolution Results.** Where the Issue Resolution Process is triggered, the results of the Issue Resolution Process, any consensus views and any non-consensus views of any Party, will be recorded in a report ("**Issue Resolution Report**"), and its content incorporated into the Assessment Report.

3.3 **Separate Submissions.** Nothing in this Issue Resolution Process precludes any CSFN from making a separate submission to Ministers, to be received by the EAO not less than 10 days prior to the anticipated referral date. The CSFNs may request an additional 5 days to prepare their separate submission to Ministers, and the EAO will not unreasonably deny this request.

SECTION 4 – PROPONENT PARTICIPATION

4.1 **Proponent Participation.** The Parties may agree to invite the Proponent to participate in the Issue Resolution Process.

4.2 **Information Sharing**. The Parties acknowledge that any of the following may be provided to the Proponent at the relevant stage in the Issue Resolution Process, where it may materially impact the Proponent's interest(s):

i. the Assessment Report;

ii. a high-level summary of the Notice provided under section 2.2;

iii. proposed solutions suggested for the Issues Resolution Report to resolve the outstanding issue(s);

iv. the Issues Resolution Report; and

v. any separate submissions.

Appendix B – Conceptual Factors Relating to Aboriginal Title, Rights and Interests of the CSFNs