DRAFT Assessment Report for the Eskay Creek Revitalization Project

WITH RESPECT TO THE APPLICATION BY ESKAY CREEK MINING LIMITED, A WHOLLY OWNED SUBSIDIARY OF SKEENA RESOURCES LIMITED, FOR AN ENVIRONMENTAL ASSESSMENT CERTIFICATE PURSUANT TO THE *ENVIRONMENTAL ASSESSMENT ACT* (2018) AND THE *IMPACT ASSESSMENT ACT* (2019) AS A SUBSTITUTED ASSESSMENT

WRITTEN BY
THE BRITISH COLUMBIA ENVIRONMENTAL ASSESSMENT OFFICE

[AUGUST 2025]

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BRITISH COLUMBIA
EAO | Environmental Assessment Office

PREFACE

When a major project is proposed in British Columbia, it may be subject to both a federal impact assessment and a provincial environmental assessment. In British Columbia, environmental assessments are managed by the Environmental Assessment Office (EAO), a neutral regulatory agency within the provincial government that works with and seeks input from scientific professionals, First Nations, proponents, the public, local governments, and federal and provincial agencies.

The environmental assessment process ensures that any potential environmental, economic, social, cultural and health effects that may occur during the lifetime of a major project are thoroughly assessed. The EAO follows a clearly defined process in the *Environmental Assessment Act* to conduct the assessment of a major project and produce a detailed Assessment Report, which includes recommendations regarding whether to issue an Environmental Assessment Certificate. That report is then given to provincial Ministers to decide whether the project should proceed and if so, under what conditions.

You can learn more about the environmental assessment process *here*. Information and records relating to environmental assessments are available on the EAO's website at *www.eao.gov.bc.ca*. Questions or comments can be directed to:

Environmental Assessment Office
PO Box 9426 Stn Prov Govt
Victoria BC V8W 9V1
Email: *eaoinfo@gov.bc.ca*

The Impact Assessment Agency of Canada (IAAC), a federal body accountable to the Minister of Environment and Climate Change, is responsible for conducting federal impact assessments under the Impact Assessment Act. You can learn more about the impact assessment process *here*. Information and records relating to federal impact assessments are available on IAAC's *Canadian Impact Assessment Registry*. Questions or comments can be directed to:

Impact Assessment Agency of Canada, Pacific and Yukon Office
210A – 757 West Hastings Street
Vancouver BC V6C 3M2
Email: *pacificandyukonregion-regiondupacifiqueetduyukon@iaac-aeic.gc.ca*

When both an environmental assessment under the *Environment Assessment Act* and impact assessment under the *Impact Assessment Act* are required, the *Impact Assessment Cooperation Agreement between Canada and British Columbia* sets out the administrative processes required from both the EAO and IAAC to ensure an efficient and effective assessment process, including the use of substitution. Under substitution, there is a single review process (the provincial environmental assessment), designed to meet both provincial and federal legislative requirements, thereby enabling two decisions (provincial and federal).

ACKNOWLEDGMENTS

The Environmental Assessment Office would like to acknowledge and thank the people who participated in this substituted environmental assessment. We are grateful to the First Nations in whose territory this assessment took place and who participated in the review of this assessment, community members, technical advisors, local government members, consultants, staff, and all of those who helped this process run fairly and efficiently and who provided the important evidence and advice required to provide a comprehensive assessment for the provincial and federal decision makers. Thank you for your passion, contributions, and effort.

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ACRONYMS & ABBREVIATIONS

AA	Assessment Area
the Act	*Environmental Assessment Act, 2018*
AIA	Archaeological Impact Assessments
AOI	Areas of Interest
(original) Application	Application for an Environmental Assessment Certificate received from Skeena Resources Limited in August of 2024
Revised Application	Revised Application for an Environmental Assessment Certificate received from Skeena Resources Limited in April of 2025
AQO	Air Quality Objective
ASF	Albino Storage Facility
ATTAC	Alaska Tribal Transboundary Advisory Committee
B.C.	British Columbia
CAC	Community Advisory Committee
$CaCO_3$	calcium carbonate
CCME	Canadian Council of Ministers of the Environment
CEAO	Chief Executive Assessment Officer
Certificate	environmental assessment certificate
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
COPC	contaminants of potential concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
dBA	A-weighted decibel
dBA Ldn	day-night average sound level
Declaration Act Agreement	the *Declaration Act Consent Decision-Making Agreement for the Eskay Creek Project*
DFO	Fisheries and Oceans Canada
DO	dissolved oxygen
DPM	diesel particulate matter
EAO	Environmental Assessment Office
ECCC	Environment and Climate Change Canada
ECML	Eskay Creek Mining Limited, a wholly owned subsidiary of Skeena Resources Limited
ECRP	Eskay Creek Revitalization Project
ECS	Ministry of Energy and Climate Solutions

EMA	*Environmental Management Act*
ENV	Ministry of Environment and Parks
ERCB	Energy Resources Conservation Board
FIA	Fossil Impact Assessment
FIFO	Fly-in/Fly-out
GBA Plus	Gender Based Analysis Plus
GHG	greenhouse gas
Gitanyow	Gitanyow Nation
ha	hectare
%HA	Percent Highly Annoyed
HHRA	Human Health Risk Assessment
HHRA Study Area	Human Health Risk Assessment Study Area
HHMMP	Human Health Management and Monitoring Program
HMSP	Health and Medical Services Plan
HQ	hazard quotients
Hybrid AIR	the *Hybrid Application Information Requirements*
IAA	*Impact Assessment Act*
IAAC	Impact Assessment Agency of Canada
ILCR	incremental lifetime cancer risk
Indigenous Interests	Section 35 rights as well as on any broader interests related to a First Nation
km	kilometre
kV	kilovolt
LMW	Lower Mine Workings
m	metre
m^3	cubic metres
mm	millimetre
mg/kg	milligrams per kilometre
mg/L	milligrams per litre
MCM	Ministry of Mining and Critical Minerals
ML/ARD	metal leaching and acid rock drainage
MNBC	Métis Nation British Columbia
MPOI	Maximum Point of Impingement
MRSA	Mine Rock Storage Area
MW Ponds	Mine Water Ponds
MWTP	Mine Water Treatment Plant

N_2O	nitrous oxide
Nisga'a Treaty	the *Nisga'a Final Agreement*
NLG	Nisga'a Lisims Government
NO_2	nitrogen dioxide
NPAG	non-potentially acid generating
NRCan	Natural Resources Canada
NTLRU	non-traditional land and resource use
PAG	potentially acid generating
PCP	Public comment period
PHAC	The Public Health Agency of Canada
$PM_{2.5}$	particles with a diameter of 2.5 micrometres or less
PM_{10}	particles with a diameter of 10 micrometres or less
POI	Parameters of Interest
RDKS	Regional District of Kitimat-Stikine
SACC	Strategic Assessment of Climate Change
Section 35 rights	Aboriginal rights or Treaty rights, as recognized and affirmed by Section 35 of the *Constitution Act*, 1982
Skeena	Skeena Resources Limited
SEITC	Southeast Alaska Indigenous Transboundary Commission
TAC	Technical Advisory Committee
TCG	Tahltan Central Government
THREAT	Tahltan Heritage Resources Environmental Assessment Team
TMSF	Tom MacKay Storage Facility
U.S.	United States
WLRS	Ministry of Water, Land and Resource Stewardship
WSAP	Wilp Sustainability Assessment Process
WTP	Water Treatment Plant
2SLGBTQQIA+	Two-spirit, lesbian, gay, bisexual, trans, queer, questioning, intersex, asexual plus

EXECUTIVE SUMMARY

Overview of the Assessment Report

This Assessment Report summarizes the findings and recommendations of the environmental assessment for the Eskay Creek Revitalization project (ECRP), an open pit gold-silver mine proposed by Eskay Creek Mining Limited, a wholly owned subsidiary of Skeena Resources Limited (Skeena). This Report outlines key issues, engagement with Indigenous nations, environmental, social, health, economic and cultural effects, including cumulative effects, and proposed measures to mitigate potential adverse impacts. This report aims to inform the provincial Ministers responsible for making a decision on whether to issue an environmental assessment certificate and the federal Minister of Environment and Climate Change (or Governor in Council) for decision-making under the *Impact Assessment Act*.

Project Details

Skeena is proposing to restart mining operations at the former Eskay Creek Mine in northwestern British Columbia (B.C.), using conventional open-pit methods to produce gold and silver concentrate for export to overseas smelters. The ECRP would yield 0.20–0.25 million ounces of gold and 5.5–7.0 million ounces of silver annually, contributing to global precious metals supply and creating economic opportunities for local communities and Indigenous nations. Ore would be processed onsite and concentrate trucked along Highways 37 and 37A to port facilities in Stewart for overseas shipment.

Located within the Regional District of Kitimat-Stikine, the proposed mine site overlaps with the territory of the Tahltan Nation, whose consent is required under a *Declaration Act Agreement*. The proposed transportation route also intersects with other Indigenous nation territories, including Tsetsaut Skii km Lax Ha, and Gitanyow Nation, as well as Nisga'a Lands, the Nass Wildlife Area, and the Nass Area, and use areas of the Métis Nation of British Columbia. ECRP would utilize existing infrastructure from the former mine and add new facilities, including material, ore processing, and water management systems.

Regulatory Review

ECRP is subject to an environmental assessment under B.C.'s *Environmental Assessment Act* and an impact assessment under Canada's *Impact Assessment Act*. On November 29, 2022, the federal Minister of Environment and Climate Change approved the substitution of the federal impact assessment to the Province of B.C. The Environmental Assessment Office (EAO) conducted the substituted assessment to meet both provincial and federal requirements, thereby enabling decisions under both B.C.'s *Environmental Assessment Act* and Canada's *Impact Assessment Act*. The EAO prepared this Assessment Report in consultation with a technical advisory committee, which included federal, provincial and local government representatives with the mandates and skill sets relevant to the review of the Application, as well as representatives of Indigenous nations potentially affected by ECRP activities. The Impact Assessment Agency of Canada also provided advice to the EAO in relation to fulfilling requirements of the *Impact Assessment Act*.

Assessment of Effects

The EAO assessed all effects as required by the *Environmental Assessment Act* and effects within federal jurisdiction required under the *Impact Assessment Act.* This assessment was informed by the Revised Application provided by Skeena

as well as comments received from Indigenous nations, the Technical Advisory Committee, the Community Advisory Committee, the Alaska Tribes Transboundary Advisory Committee, and the public.

The EAO assessed effects on valued components that were identified as potentially affected by ECRP, specifically: air quality, noise and vibration, groundwater, surface water, fish and fish habitat, terrain and soils, vegetation and ecosystems, wildlife and wildlife habitat, human health, infrastructure and services, non-traditional land and resource use, visual resources, employment and economy, and heritage resources. In its assessment, the EAO concluded whether any adverse effects to these valued components would be significant.

The EAO also assessed potential effects to other assessment matters required under provincial legislation, including: risks and uncertainties associated with effects, interactions between effects, disproportionate effects on distinct human populations, consistency with land use plans, effects on biophysical factors that support ecosystem function, greenhouse gas emissions, effects of the environment on the project, risks of malfunctions and accidents, alternative means of carrying out the project, effects on current and future generations, and ECRP's contribution to sustainability in B.C.

The EAO also assessed potential effects on federal assessment matters, specifically: an adverse change to fish and fish habitat and migratory birds. The EAO also assessed adverse federal effects with respect to the Indigenous peoples of Canada, specifically: an adverse impact resulting from any changes to the environment on cultural and physical heritage, current use of lands and resources for traditional purposes, and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, and a change to health, social or economic conditions. The EAO determined whether adverse federal effects are likely to be, to some extent, significant, and if so, to what extent.

Indigenous Nations

On June 6, 2022, the Tahltan Central Government and the Province entered into the first consent-based decision-making agreement under the *Declaration on the Rights of Indigenous Peoples Act* for ECRP, known as the *Declaration Act Agreement*. Under the Declaration Act Agreement, TCG conducted their own assessment of ECRP (the Tahltan Risk Assessment) to support a Tahltan Leadership decision as to whether to consent to ECRP proceeding. The Tahltan Risk Assessment incorporates Tahltan requirements for scope, criteria, methods, and assessment standards and practices. TCG also had the ability to propose their own terms and conditions in order to inform their Consent Decision. The EAO and TCG worked closely together to assess potential effects to Tahltan Nation and its interests, and to appropriately mitigate and reduce those effects.

The highway transportation route between the mine site and the port at Stewart, by which Skeena would transport concentrate, supplies and personnel for the ECRP, overlaps the Nisga'a Nass Area and Nass Wildlife Area, as well as the territory of Tsetsaut Skii km Lax Ha and Gitanyow Nation. The EAO also worked collaboratively with the Nisga'a Nation, as represented by Nisga'a Lisims Government, under the Nisga'a Final Agreement, and engaged with Tsetsaut Skii km Lax Ha and Gitanyow Nation throughout the environmental assessment.

The EAO also consulted with Métis Nation British Columbia, on behalf of the federal Crown as part of the substituted assessment.

The EAO, on behalf of the provincial and federal Crown, consulted with these First Nations throughout the substituted assessment process. The Impact Assessment Agency of Canada worked in coordination with the EAO on consultation activities leading up to the substitution decision and throughout the effects assessment phase.

Key Issues

Several key issues arose during the assessment process. To mitigate potential adverse effects, Skeena proposed a suite of mitigation measures as part of project design and operations. Additionally, the EAO has proposed provincial conditions as legally binding requirements in the event an environmental assessment certificate is issued. The EAO also recommended federal Key Mitigation Measures and Follow-up Programs to the Impact Assessment Agency of Canada to inform federal decision making under the *Impact Assessment Act*. If approved, the ECRP would also require a number of additional provincial, federal and municipal approvals and permits that would impose additional requirements.

Effects on Water Quality: The ECRP's location within the upper Unuk River watershed raised substantial concerns about effects on water quality and quantity, especially related to drinking water, groundwater/surface water interactions, cultural practices, and health of fish and aquatic habitat. Skeena revised its plan from two to one optimized water treatment plant and committed to monitoring programs and adaptive management. However, uncertainty remains around the undefined duration of required water treatment, which Tahltan Nation viewed as "in perpetuity" and inconsistent with their sustainability goals. The EAO concluded that, with extensive mitigation measures and conditions, the ECRP would not cause significant adverse residual or cumulative effects on water resources.

Effects on Fish and Fish Habitat: Healthy fish populations are central to local food security, cultural well-being, and ecological integrity, making potential impacts to fish and fish habitat a key issue. Concerns regarding possible fish spawning near the site, selenium contamination, and downstream effects on fish consumers were raised, and Skeena responded with updated water treatment and seepage control measures, site-specific selenium bioaccumulation modelling, and revisions to their aquatic effects monitoring program. The EAO determined that with these additional mitigation and monitoring commitments, and proposed provincial and federal Certificate conditions, significant adverse residual or cumulative effects on fish and fish habitat are not expected.

Socio-Community Effects: While the ECRP is anticipated to bring positive economic benefits such as jobs, revenue, and business opportunities, concerns were raised about socio-community impacts, particularly for Indigenous communities near the ECRP. This could include risks of gender-based violence, healthcare infrastructure strain, and mental health impacts associated with transient workforces. Skeena committed to zero-tolerance policies for violence and harassment, fly-in-fly-out staffing to limit migration to local communities, local hiring, and supports for mental health, along with a socio-economic monitoring plan and the creation of a Tahltan Community Liaison Committee. The EAO concluded that, with federal, provincial, and Tahltan conditions in place, the ECRP is not expected to result in significant adverse residual or cumulative socio-community impacts.

Increased Traffic on Highways 37 and 37A: The ECRP would rely on the existing Eskay Creek Mine Access Road, which connects to Highway 37, and Highways 37 and 37A to transport concentrate, equipment and personnel. These highways are critical for Indigenous access to cultural harvesting areas. Traffic-related impacts are a concern, including increased air pollution, wildlife collisions, noise, and effects on community well-being. Skeena committed to setting speed limits, installing signage, and incorporating traffic-related mitigation measures into its plans. Noise and vibration effects were

determined to be within acceptable levels, though community concerns about noise were carried forward to be addressed through the Tahltan Community Liaison Committee and EAO's proposed conditions. With these mitigations, the EAO concluded that significant adverse residual or cumulative effects from traffic, including on wildlife, vegetation, noise, and community health, are not anticipated.

Long-term Impacts to Land, Water and People: Concerns from the Indigenous nations focused on the long-term legacy of the ECRP, including permanent habitat loss, soil and water impacts, and implications for Indigenous communities beyond mine closure. Tahltan Nation raised persistent concerns about uncertainties in reclamation and restoration and the potential for perpetual water treatment, questioning alignment with the Tahltan Sustainability Requirements. Skeena acknowledged these concerns and committed to ongoing engagement on reclamation and closure planning through *Mines Act* requirements and Tahltan conditions, including provisions for future generations. The EAO recognized long-term impacts as a key issue but concluded that with integrated reclamation planning, monitoring, and proposed provincial and federal conditions, significant adverse residual or cumulative long-term effects are not expected.

Conclusions

The EAO carefully considered all information submitted by Skeena, Indigenous nations, local governments, the Alaska Tribal Transboundary Advisory Committee, the Community Advisory Committee, the Technical Advisory Committee, and the public. Based on a thorough analysis of the assessment materials, the proposed mitigation measures, acceptable implementation of the proposed provincial conditions, the recommended federal Key Mitigation Measures and Follow-up Programs under the *Impact Assessment Act*, and the permitting and other regulatory requirements that the ECRP would be subject to, the EAO has determined that the ECRP is not likely to result in significant adverse project-specific effects or contribute significantly to adverse cumulative effects. The ECRP also has the potential to provide significant economic benefits, particularly for the Tahltan Nation and other Indigenous communities as well as local communities.

In reaching its conclusions, the EAO considered the effects in federal jurisdiction under the *Impact Assessment Act* and concluded that adverse residual and cumulative federal effects are not significant for aquatic species, migratory birds, and greenhouse gas emissions. With respect to the Indigenous peoples of Canada, the EAO determined adverse residual, and cumulative federal effects are not significant for physical and cultural heritage, any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, the current use of lands and resources for traditional purposes, and health, social or economic conditions.

Based on the assessment, the EAO is of the view that:

- Provincial requirements for the ECRP established through proposed Certificate conditions and subsequent permitting processes would minimize adverse effects on the environment;
- The ECRP would foster a sound economy by providing continuing and new employment, contracting, and training opportunities, by generating higher wages in the region, and would contribute financial support to Indigenous nations and taking steps towards the goal of economic reconciliation with Tahltan Nation; and
- While the ECRP would have potential adverse effects on water quality, fish, traffic, and socio-community, it would also contribute to the well-being of British Columbians and their communities, including Indigenous nation communities, by managing the effects of the ECRP on topics important to Indigenous nation and local communities, by capacity building within Indigenous nation communities and by ensuring Tahltan Nation perspectives and interests are integrated in construction, operation and decommissioning of the ECRP.

1.0 PURPOSE OF THIS ASSESSMENT REPORT

This Assessment Report (Report) provides the findings and recommendations of the environmental assessment conducted by the Environmental Assessment Office (EAO) for the Eskay Creek Revitalization Project (ECRP)'s *Revised Application* for an Environmental Assessment Certificate (Revised Application), submitted by Eskay Creek Mining Limited (ECML), a wholly owned subsidiary of Skeena Resources Limited (Skeena), on April 14, 2025.

This Report is provided to the provincial Ministers who are responsible for making the decision whether or not to issue an environmental assessment certificate for the ECRP under *Section 29* of the *Environmental Assessment Act* (2018) (the Act). For mining projects, the deciding provincial Ministers are the Minister of Environment and Parks and the Minister of Mining and Critical Minerals (together referred to as 'the Ministers').

This Report is also submitted to the federal Minister of Environment and Climate Change to inform their decision making, fulfilling the requirements of both the federal *Impact Assessment Act* (2019) (IAA), the Act, and the conditions for substitution outlined in the *Notice of Substitution Approval* under the IAA.

1.1 Reader's Guide to this Report

This Report describes:

- An overview of the ECRP (*Section 2.0*) and context of the region and regulatory environment (*Section 3.0*);
- The EAO's environmental assessment process (*Section 4.0*) including other assessment matters based on *Impact Assessment Act* requirements including those outlined in the *Notice of Substitution Approval* (*Appendix 13.0*);
- The engagement undertaken with all advisors and stakeholders, including the Technical Advisory Committee, Community Advisory Committee, the public, and local governments (*Section 5.0*);
- The engagement with Indigenous peoples, including the EAO's efforts to seek consensus with Tahltan Central Government, Nisga'a Lisims Government (NLG), notices of consent or lack of consent, and a summary of the effects to these Indigenous peoples including Métis Nation British Columbia (MNBC) and the Alaska Tribal Transboundary Advisory Committee (ATTAC) on behalf of Canada (*Section 6.0*);
- The predicted effects of the ECRP (*Section 7.0*);
- The key concerns raised during the environmental assessment (*Section 8.0*);
- The proposed Environmental Assessment Certificate (Certificate) conditions (*Section 9.0*) and EAO's recommended key mitigation measures and follow-up programs under the IAA (*Appendix 2*);
- The contribution of the ECRP to sustainability in British Columbia (B.C.) (*Section 10.0*); and
- The EAO's conclusions (*Section 11.0*).

This Report does not replicate the content presented in Skeena's *Revised Application*. In the preparation of this Report, the following information has been considered:

- Skeena's Revised Application, which includes supplemental information provided by Skeena during the Application Review phase of the assessment;
- Advice and comments provided by the Technical Advisory Committee, Community Advisory Committee, Indigenous People, local governments, and the public on the Application, supplemental information, Revised Application, and a draft of this Report;
- Requirements of and conclusions under the federal IAA (*Appendix 13*); and

- Requirements of the *Declaration Act Consent Decision-Making Agreement for the Eskay Creek Project* (Declaration Act Agreement).

1.2 The Purposes of the Environmental Assessment Office

The *purposes of the EAO* are to carry out its responsibilities under the Act, to promote sustainability by protecting the environment and fostering a sound economy and the well-being of British Columbians and their communities, and to support reconciliation with Indigenous peoples in B.C. Through its work with Indigenous peoples, the EAO is committed to advancing reconciliation by supporting the implementation of the *United Nations Declaration on the Rights of Indigenous Peoples*.

This Report and the environmental assessment process for the ECRP are intended to support the fulfillment of the purposes of the EAO, specific to this project.

2.0 PROJECT OVERVIEW

2.1 Proponent Description

Skeena is a precious metals developer that owns several exploration stage mineral properties in the Golden Triangle and Liard Mining Division of British Columbia, in addition to a 100 percent interest in the Eskay Creek mine and the nearby past-producing Snip underground gold mine. Skeena is a Canadian company headquartered in Vancouver.

Contact information for Skeena is provided below:

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2.2 Project Description and Schedule

According to Skeena, the purpose of the ECRP would be to restart mining as a conventional truck and shovel open pit operation at the past-producing Eskay Creek Mine and produce gold and silver concentrate for shipment to overseas smelters, supplying precious metals to global industrial markets and providing additional employment and business opportunities to local communities and First Nations. The ECRP is expected to produce an average annual production of 0.20 to 0.25 million ounces of gold and 5.5 to 7.0 million ounces of silver.

The proposed mine site is located within the Regional District of Kitimat-Stikine (RDKS) in northwestern B.C. on provincial Crown land, approximately 83 kilometres (km) northwest of Stewart and 40 km from the B.C.-Alaska border.

Figure 1: General project location (From: https://skeenaeskaycreek.com/)

Tahltan Nation and Tsetsaut Skii km Lax Ha have asserted traditional territories that overlap the proposed mine site and/or its ancillary infrastructure. The proposed mine site is fully located within the Tahltan Consent Area as defined by the *Declaration Act Agreement* requiring the consent of Tahltan Nation for the ECRP to proceed per subsection 7(b) of the Act. Forestry tenures also occur in the vicinity of the ECRP, including timber supply areas, occupant licences to cut, and a woodland licence held by Tahltan Nation; other tenures in the vicinity of the ECRP include range tenures, guide outfitter licences, and Tahltan and Tsetsaut Skii km Lax Ha trap lines.

Figure 2: Aerial view of ECRP (Provided by EAO Staff)

The existing road transportation route by which Skeena would transport concentrate, supplies and personnel overlaps the asserted traditional territories of the Tahltan Nation, Tsetsaut Skii km Lax Ha, and Gitanyow Nation, as well as Nisga'a Lands, the Nass Wildlife Area, Nass Area, and use areas of the MNBC.

The ECRP would encompass an area that includes many facilities that were part of the previous Eskay Creek Mine, as well as additional infrastructure constructed as part of initial exploration activities. For a full list of existing infrastructure to be utilized by the ECRP, see *Table 1.4-1* of the Revised Application. Electricity for the ECRP would be supplied through a transmission line [permitted under an authorization from the Ministry of Water, Land and Resource Stewardship (WLRS)], and access to the ECRP would be provided by the Eskay Creek Mine Access Road, an existing 59 km all-season gravel road connected to provincial Highway 37. The ECRP footprint would be approximately 731 hectares (ha), of which approximately 521 ha would be new disturbance.

During Operations, ore is proposed to be mined from the North and South Pits, hauled to ore stockpiles or processed directly in the process plant[1] to recover gold-silver concentrate. The concentrate would be trucked to existing offsite port facilities in the District of Stewart along provincial Highway 37 and 37A, for shipping overseas. Waste rock from the open

[1] The process plant and its associated infrastructure would be located west of the North Pit and include crushing, comminution, and flotation circuits as well as concentrate dewatering and tailings disposal facilities with tailings generated in the process plant being pumped to the Tom MacKay Storage Facility.

pits designated as non-potentially acid generating would be used as construction material or hauled to the Mine Rock Storage Area (MRSA) located west of the North Pit. Waste rock designated as potentially acid generating would be hauled to the Tom MacKay Storage Facility (TMSF)[2] for permanent disposal.

Water management infrastructure will include a series of temporary and semi-permanent sumps and pumps, vertical perimeter dewatering wells, and pipelines in addition to the Mine Water Treatment Plant (MWTP). A full summary of all Project components, including new and existing components that will be expanded is provided as *Table 1.4-2* in the Revised Application and summarized in Table 1.

Table 1: Anticipated Schedule and Associated Activities

Phase	Activities	Anticipated Start	Anticipated End
Construction	• Construction of facilities • TMSF North Dam embankment development • North Pit stripping and blasting • Water management structure construction • MWTP Stage 1 water treatment and Stage 2 commissioning and water treatment • Process Plant commissioning	Spring/Summer 2025	2026
Operations	• Milling and waste deposition (i.e., MRSA, TMSF) • Continued TMSF North Dam embankment development • TMSF South Dam and East Saddle Dam embankment development • North and South Pit stripping and mining • South Pit passive flooding and backfilling • Ore processing • TMSF non-contact water diversion structures and systems construction • Water management structure construction • Waste deposition (e.g., MRSA, TMSF) • North Pit passive flooding • MWTP Stage 3 commissioning and water treatment • Progressive reclamation of the MRSA	2027	2039
Reclamation and Closure	• Water treatment • Active reclamation and closure, including dismantling and removal of facilities, reclamation cover placement, and revegetation	2040	2042
Post-closure	• Water treatment, noting that Skeena has confirmed that active water treatment will be required in perpetuity • Post-closure monitoring	≥2043	≥2043
Notes: ≥ = greater than or equal to The timing of these phases may change based on the feasibility of engineering and permitting approval timelines.			

[2] A historical facility that will be expanded to accommodate PAG Tailings, PAG waste rock, as well as site contact water and additional storm inflow.

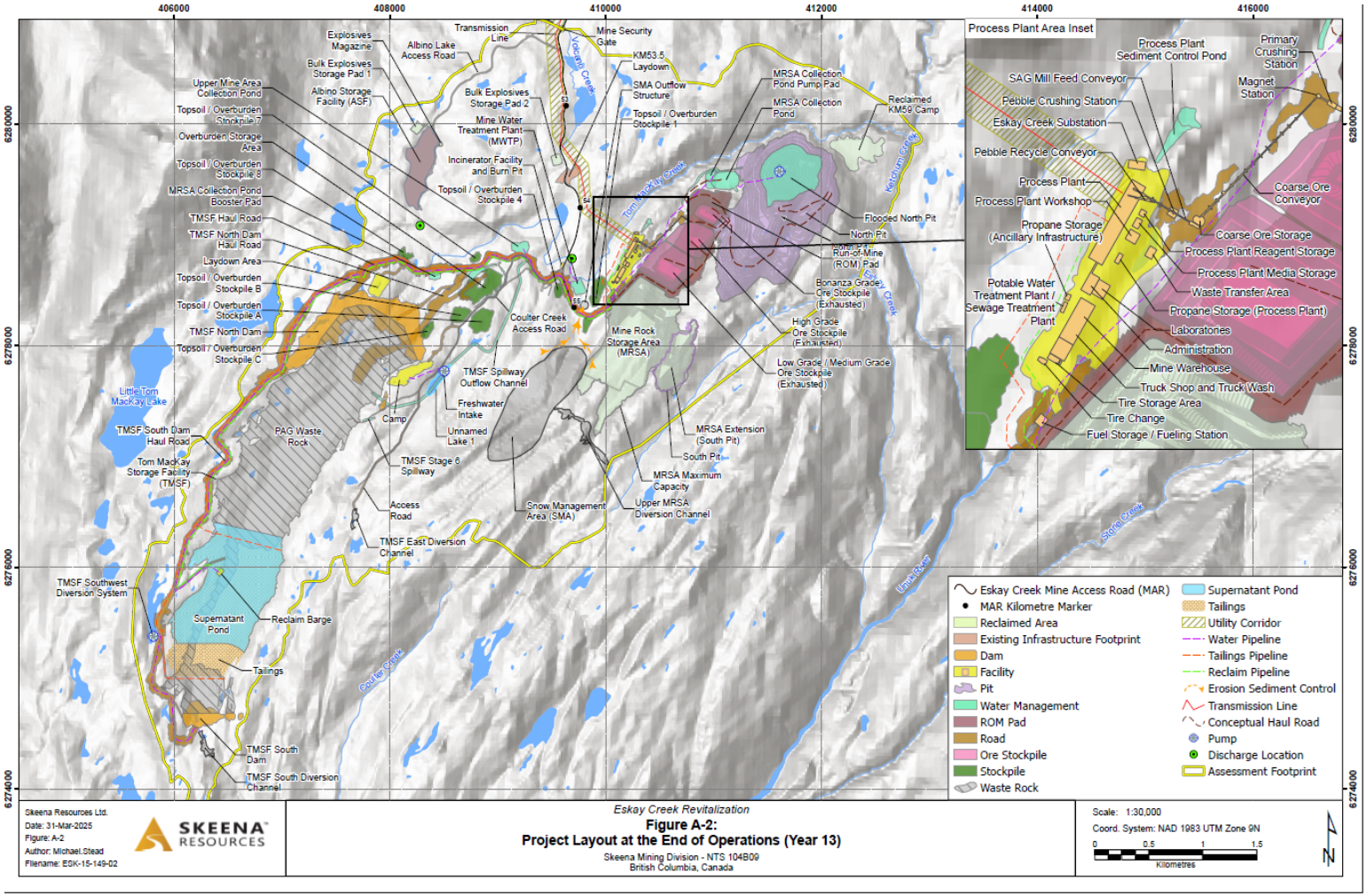


Figure 3: ECRP's Layout at the End of Operations

2.3 Purpose and Need for the Designated Project

Paragraph 22(1)(d) of the IAA specifies that the assessment of a designated project must consider the purpose and need for the designated project. Skeena identified this facility as its flagship mine and a key element in its economic and social development strategy.

Skeena noted that the objective of the ECRP is to undertake responsible and sustainable resource extraction from a previously mined deposit and to foster economic growth and prosperity in B.C., while supporting capacity building, employment, and benefits to local Indigenous people and communities. Skeena is of the view that international demand for gold and silver has created market conditions favourable for the ECRP, development of which would provide local and regional employment and business opportunities, contribute to the development of infrastructure and skills training in local and regional communities, and generate tax revenue for local, provincial, and federal governments.

2.4 Alternatives to the ECRP

Paragraph 22(1)(f) of the IAA requires the assessment consider any alternatives to the designated project that are technically and economically feasible and are directly related to the designated project.

Subsection 2.3 above discusses the purpose and need for the ECRP. Skeena considered three technically and economically feasible alternatives to the ECRP:

- Not undertaking the ECRP, which would provide none of the socio-economic benefits associated with the development of the ECRP;
- Changing the timing of the ECRP, which would delay positive socio-economic effects but generally have the same effects as the proposed Project; and
- Changing the location of the ECRP, which is not possible without foregoing many of the benefits associated with the ECRP as proposed, with Skeena stating they are not aware of any viable alternative sites of similar scale and with comparable existing infrastructure and productivity.

2.5 Project Anticipated Expenditures

Skeena estimated the ECRP's total capital cost from construction through reclamation and closure is 1,073 million Canadian dollars, and the estimated total operating cost is 2,763 million Canadian dollars.

3.0 Regional And Regulatory Context

The purpose of this section is to provide the reader with summary information about the region where the ECRP is proposed.

3.1 First Nations

The ECRP is proposed within or near the asserted or established territories of Tahltan Nation, Nisga'a Nation, Tsetsaut Skii km Lax Ha, and Gitanyow Nation. The EAO consulted with each of these groups, in the manner preferred by the nation.

Through the environmental assessment process, the EAO seeks to understand what the ECRP's effects could be on each First Nation and its asserted or established Aboriginal rights or Treaty rights, as recognized and affirmed by Section 35 of the *Constitution Act*, 1982 (Section 35 rights). Descriptions of the EAO's engagement process and activities with First Nations and Nisga'a Nation is described in *Section 6.0* of this Report.

Tahltan Nation, as represented by Tahltan Central Government (TCG), is a decision maker pursuant to a *Declaration Act Agreement*, and is also a participating Indigenous nation as defined in the Act. The Tahltan Nation assessment and decision-making process is described in *Section* 3.4.1.1.

The ECRP was also assessed under paragraphs 8(e) and 8(f) of Chapter 10 of the *Nisga'a Final Agreement* (Nisga'a Treaty), the ECRP, and additional information was gathered to inform Canada's assessment of the potential effects of the ECRP on the Nisga'a Nation, and whether the requirements under Chapter 10 of the Nisga'a Treaty have been met.

3.1.1 Southeast Alaska Indigenous Transboundary Commission

Seven Alaska Tribes were identified as having the potential to be affected by the ECRP based on their proximity to the Unuk River watershed: Craig Tribal Association, Hydaburg Cooperative Association, Ketchikan Indian Community, Klawock Association, Metlakatla Indian Community, Organized Village of Kasaan, and the Organized Village of Saxman. These Alaska Tribes have asserted cultural and subsistence rights across the entirety of the Unuk River watershed from the marine waters in Alaska to the river's headwaters in B.C. The EAO engaged with Southeast Alaska Indigenous Transboundary Commission (SEITC) as the chosen representative of these seven Alaska Tribes through a committee established by the Chief Executive Assessment Officer (the Alaska Tribal Transboundary Advisory Committee or ATTAC) to provide their views on potential trans-boundary effects, provide input on draft environmental assessment documents, and advise the EAO on potential impacts of the ECRP on the asserted Section 35 rights of the seven Alaska Tribes.

3.2 Community

The ERCP is in a remote area, with the following communities being the closest to the ECRP:

Figure 5: Village of Iskut (Photo Credit: Tad McIlwraith)

Iskut: Located off Highway 37, Iskut is home to approximately 400 residents, most of whom are indigenous. The town includes a post office, a gas station and a grocery store, and is the primary base for guided adventures into the Mount Edziza and Spatsizi Plateau Parks wilderness areas. Camping, hiking, fishing, and whitewater rafting are popular in in the surrounding area. the ECRP would be located 135 km north of Iskut (170 km via road).

Telegraph Creek: Originally inhabited as a winter home Tahltan settlement, Telegraph Creek is located at the foot of a steep bank on the Stikine River. In the mid 1800s, it became a trailhead for trails to the Klondike goldfields and a Hudson Bay Trading post was established in 1900. The community was also a staging point for two telegraph lines. Currently the main reserves of the Tahltan First Nation are located in Telegraph Creek and the town is home to about 400 residents (including approximately 350 of Tahltan ancestry) and several historical buildings. River boating, paddling and camping are common in the area around the community. The ECRP would be located 142 km north of Telegraph Creek (362 km via road).

Figure 4: Viewpoint near Telegraph Creek (Provided by EAO Staff)

Dease Lake: Located off Highway 37 at the south end of its namesake lake, Dease Lake (Known as Tatl'ah by Tahltan) is a small community of approximately 300, approximately 50 of which live on Dease Lake 9 Reserve Land under the governance of Tahltan First Nation. The incorporated town (originally established in 1837 as a Hudson's Bay Company trading post) has a school, various stores, a fuel and service station, a hotel, and a Northern Lights College campus. The town sees a large influx of tourists during the summer and offers guide/outfitting, boat, canoe and all-terrain vehicle rentals, helicopter tours, fishing, hunting and other wilderness activities. The Tahltan Band council is based in Dease Lake. The ECRP would be located 190 km northeast of Dease Lake (253 km via road).

Figure 6: View of a Dease Lake road. Provided by EAO staff.

District of Stewart: A district municipality situated across from Alaska's Misty Fiords National Park at the end of the Portland Canal, the District of Stewart (Stewart) has a year-round population of approximately 500. Stewart was founded in 1902, and the town has a long history with mineral exploration. Stewart now attracts large numbers of tourists, featuring the Stewart Historical Museum, several restored heritage buildings, as well as a variety of fishing, hiking and tour experiences. The ECRP would be located 83 km northwest of Stewart (261 km via road).

City of Terrace: The largest community in the RDKS, supporting about 12,300 residents, the city sits adjacent to the Skeena River at the intersection of the Skeena, Kitimat and Kitsumkalum valleys. Terrace was first inhabited in the late 1800s, incorporated as a village municipality in 1927, and the area has a rich history including large scale lumber and farming to supply northern communities by rail. Terrace, with the advantage of the Northwest Regional Airport, now serves as a retail, government and service centre in the region; but tourism focusing on outdoor adventures and sports fishing is also important to Terrace's economy. The ECRP would be located 265 km northwest of Terrace (451 km via road).

Smithers: Located at the base of Hudson Bay Mountain (called Dzilh Yez in Witsuwit'en), the town of Smithers has a population of approximately 5,400 and is a service hub for the Bulkley Valley. Originally founded as the divisional headquarters of the Grand Trunk Pacific Railway in 1913, Smithers has grown through mineral and agricultural development and now offers fishing, backcountry and cross-country skiing, hunting, golfing, hiking, and horseback riding; as well as an art gallery, a museum, regular musical and theatrical performances, and an active sporting community. The ERCP would be located 295 km northwest of Smithers (467 km via road).

3.3 Geography and Ecology

The ECRP's proposed location is on the Prout Plateau between the Unuk and Iskut Rivers, in a transitional zone between the wet coastal region and the drier interior formed of rugged mountains and narrow valleys. The area is dominated by heather, dwarf shrub species and stunted conifer trees and supports a variety of animal life. The ECRP's footprint would be approximately 731 ha, including 521 ha of new disturbance.

Tom MacKay Lake, Little Tom MacKay Lake, Albino Lake, and several smaller lakes, within the ECRP's area or directly adjacent to it, form part of the Tom MacKay Creek drainage system, which empties into the Unuk River before flowing southwest across the Alaska border to the Pacific Ocean at Burroughs Bay. The existing Eskay Creek Mine Access Road and Transmission Line passes through the Volcano Creek watershed, which drains into the Iskut River (a major tributary of the Stikine), an area of moist productive forest that includes hemlock, fir and spruce. Both the Unuk and Stikine Rivers are designated Transboundary Waters in Schedule 3 of the *International Boundary Waters Treaty Act*.

3.4 Regulatory Environment

3.4.1 B.C. Environmental Assessment and Federal Impact Assessment

The ECRP was not automatically subject to an environmental assessment pursuant to the *Reviewable Projects Regulation* because the previous Eskay Creek Mine has two valid Certificates, meaning that changes would normally be handled through a Certificate amendment process. However, Tahltan Central Government submitted *a designation application* to the Minister of Environment and Climate Change Strategy (now the Minister of Environment and Parks) requesting the ECRP be designated as a reviewable project under *Section 11* of the Act. This request was based on the significance of the ECRP's area to Tahltan, the potential impacts to major waterways, the age of the previous Eskay Creek Mine Certificates and related needs for a higher level of scrutiny, more detailed assessments and deeper consultation than was required by the previous assessments. Skeena submitted *a letter of support for the designation of Eskay Creek*. The EAO's Chief Executive Assessment Officer (CEAO) considered these submissions, as well as the *EAO's Evaluation of Designation Request Application* before designating the ECRP as a reviewable project in light of the unique circumstances of the ECRP and the fact that the assessment processes which resulted in the previous Certificates were substantially different than that required under the current Act.

The ECRP also requires an assessment under the federal IAA as its proposed ore input capacity and area of expansion exceed the 5,000 tonnes/day thresholds for a new metal mill and the expansion of an existing metal mine as described in the *Physical Activities Regulation* (SOR/2019-285).

The federal Minister of Environment substituted the federal impact assessment to B.C., with the understanding that the assessment must meet the requirements of the IAA and would be conducted by the EAO in accordance with the *Impact Assessment Cooperation Agreement between Canada and British Columbia* (Cooperation Agreement). Ultimately, substitution results in a single assessment process designed to support the separate decisions by provincial and federal decision makers, as well as supporting Indigenous peoples' decision making. This means that the EAO has prepared this assessment report on behalf of B.C. and Canada, and each government makes their own decisions whether to grant approval of the ECRP based on the considerations defined in each of their respective Acts.[3] Both Canada and B.C. retain their duty to consult and, where appropriate, accommodate Indigenous peoples.

3.4.1.1 Tahltan Nation Assessment and Consent Decision

The ECRP assessment is being carried out in accordance with the consent-based decision-making agreement signed by TCG and the Province under the Declaration on the Rights of Indigenous Peoples Act for Eskay Creek, known as the *Declaration Act Agreement*. The ERCP may not proceed without the consent of Tahltan Nation. Tahltan Nation has conducted their own assessment of the ECRP (the Tahltan Risk Assessment) to support a Tahltan Leadership decision as to whether to consent to the ECRP proceeding. The Tahltan Risk Assessment is guided by the Tahltan Impact Assessment Policy, which defines Tahltan requirements for scope, criteria, methods, and assessment standards and practices. This has been integrated into a hybrid regulatory process which supports Tahltan Nation decision-making while being consistent with the requirements of the substituted environmental assessment process. As a participating Indigenous nation, TCG has also undertaken an assessment of effects on the Tahltan Nation and their rights under Section 19(4) of the Act.

3.4.2 Land Use Plans

The ECRP would be located on provincial Crown land mineral tenures and leases held by Skeena. The following land and resource use plans are relevant to the ECRP site, the larger watershed and/or the Eskay Creek Mine Access Road:

[3] See the *Notice of Substitution Approval under the Impact Assessment Act* for more details

- **Cassiar Iskut-Stikine Land and Resource Management Plan:** encompassing 5.2 million ha and developed through a collaborative working committee including representatives of Tahltan Nation, B.C. government and the public. the ECRP sits within the geographical boundaries of this plan and aligns with its general management direction which
- supports opportunities for mineral exploration and development, including road resource development, outside of protected areas;
- **Nass South Sustainable Resource Management Plan:** covers approximately 382,751 ha in the Nass watershed adjacent to ECRP Area and was developed to address sustainable management of land, water, and resources in the area with input from the B.C. government, Nisga'a Lisims Government, Gitanyow Nation and members of the public. The plan allows for existing mineral tenures and road development, such as those proposed for ECRP; and
- **Tahltan Stewardship Plan:** Developed by the TCG Lands Department and approved by the July 2024 Annual General Assembly of the Tahltan Nation in Dease Lake, the Tahltan Stewardship Plan outlines Tahltan principles for caring for and stewarding all land within Tahltan Territory. ECRP sits within the territorial boundaries of this plan and Skeena has committed to continuing to engage with TCG to understand the Tahltan Stewardship Plan as it relates to the ECRP.

Section 3.5 of the Revised Application describes the Land and Resource Management Plans and Policies in detail as they relate to the ECRP. For the EAO's assessment of the ECRP's impacts on land and resource use, refer to *Section 17.10: Non-Traditional Land and Resource Use*.

3.4.3 Regulatory Coordination

In addition to the substituted provincial environmental assessment approval and Tahltan Nation approval, the ECRP would need various authorizations from federal, provincial, and local governments. See the *Joint Permitting/Regulatory Coordination Plan* for more details.

3.4.4 Other Projects in the Region

Skeena identified 34 past, present, and reasonably foreseeable future projects and activities in the region that have the potential to interact cumulatively with one of more valued components that are potentially affected by the ECRP. These projects were considered where cumulative effects were assessed and are summarized in Table 2 below and shown in Figure 7 and Figure 8.

Table 2: Past, Present and Future Projects for Potential Cumulative Interaction with ECRP

Name	Current Status
Past Projects	
Eskay Creek Mine (historical)	Care and maintenance
Tulsequah Chief Mine	Closed
Kitsault Mine*	Certificate issued, in care and maintenance
Snip Mine*	Closed and reclaimed in 1999, current exploration activities
Present Projects	
Costal GasLink Pipeline	Certificate issued, under construction
Rio Tinto BC Works	Operating
Liquefied Natural Gas (LNG) Canada Export Terminal	Certificate issued, under construction
Long Lake Hydroelectric	Operating
Northwest Transmission Line	Operating
Silvertip Mine Project*	Care and maintenance / Potential expansion not yet under review

Name	Current Status
Red Chris Mine*	Mine is Operating / Proposed Expansion is under Amendment Review by the EAO
Premier Gold Mine	Operating
Volcano Creek Hydroelectric	Operating
Brucejack Mine	Operating
Forrest Kerr Hydroelectric	Operating
McLymont Creek Hydroelectric	Operating
Reasonably Foreseeable Future Projects	
Pacific Trail Pipelines	Certificate issued, project not yet constructed
Cedar LNG Project	Certificate issued, project not yet constructed
Sik-E-Dakh Sewage Collection and Treatment Facility	IAAC assessment in progress
Ridley Island Export Logistics Project	Construction
Vopak Pacific Canada (now Ridley Island Energy Export Facility)	Certificate issued, project not yet constructed
New Polaris Gold Mine	Environmental assessment in progress
Tenas	Environmental assessment in progress
Eskay Creek Mine Technical Sample	Joint *Mines Act*/*Environmental Management Act* Application submitted December 2023
Galore Creek Mine	Certificate issued, project not yet constructed
Ksi Lisims LNG	Waiting on Certificate decision
KSM Mine	Certificate issued, project not yet constructed
Kutcho Mine	Original Certificate Application withdrawn, re-entered process but currently inactive
Red Mountain Project	Certificate issued, project not yet constructed
Storie Moly Mine	Exploration
Goldwedge Mine	Submitted Joint *Mines Act*/ *Environmental Management Act* Application for bulk sample in September 2023
Note: *projects associated with more than one activity, counted twice by Skeena for the purposes of the total projects and activities considered in their assessment of cumulative effects	

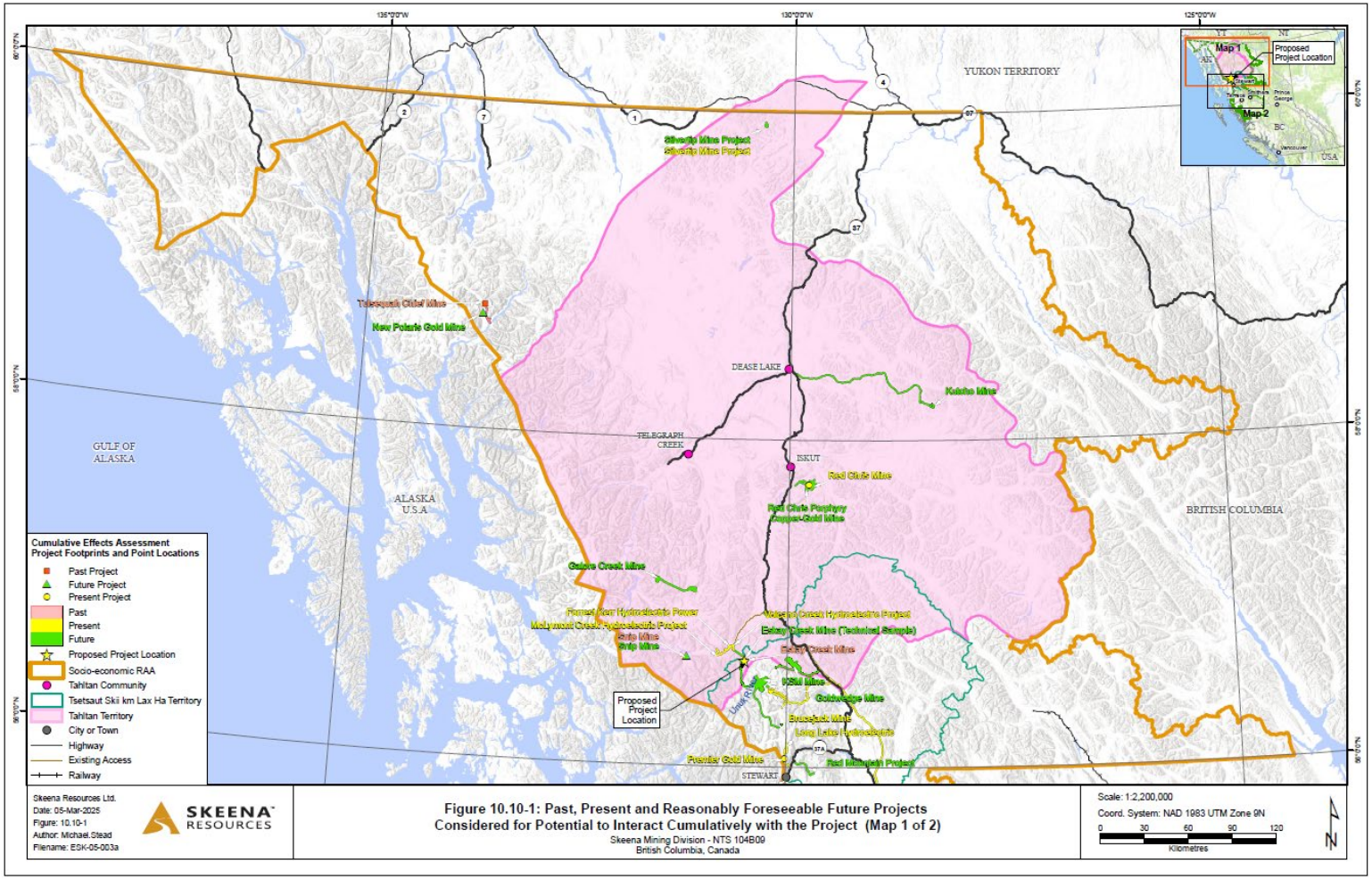
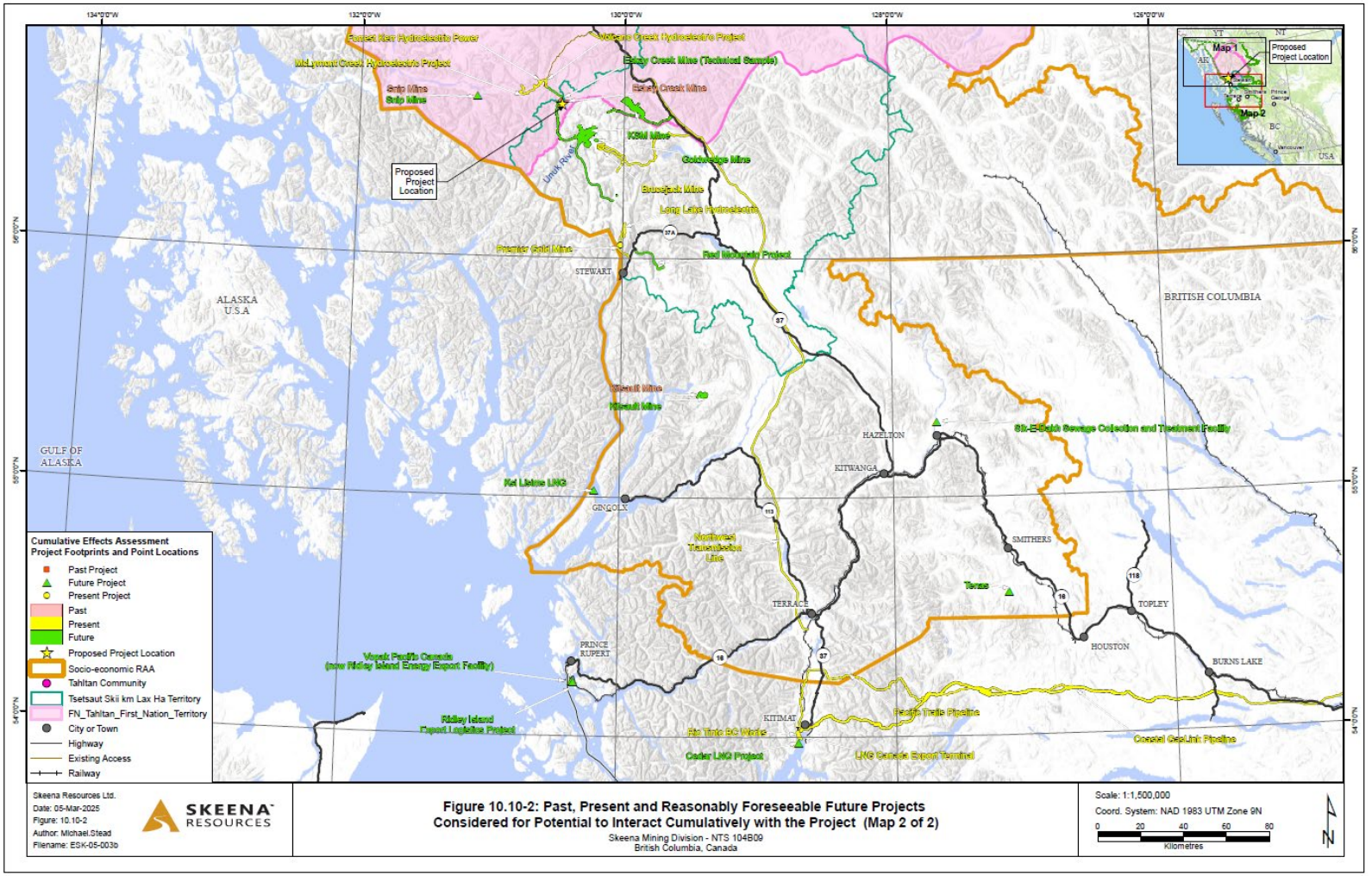


Figure 7: Past, Present and Future Projects Considered for Cumulative Effects with ECRP


Proposed Project Location
Eskay Creek Mine (Technical Sample)
Red Chris Creek Mine
KSM Mine
Goldwedge Mine
Brucejack Mine
Long Lake Hydroelectric
Premier Gold Mine
Red Mountain Project
STEWART
ALASKA U.S.A
BRITISH COLUMBIA
GULF OF ALASKA
HAZELTON
KITWANGA
SMITHERS
TERRACE
PRINCE RUPERT
KITIMAT
TOPLEY
HOUSTON
BURNS LAKE
Kitsault Mine
Kitsault Mine
Sik-E-Dakh Sewage Collection and Treatment Facility
Kitsault Mine
Kitsault Mine
Kitsault Mine

4.0 The Environmental Assessment Process

The Act and its regulations establish the legal framework for the environmental assessment process for proposed major projects in B.C. The environmental assessment process as defined by the Act includes eight phases, as shown in Figure 9 below, with the inclusion of key process steps required by the *Declaration Act Agreement*. See *Appendix 1* for an overview of the phases of the environmental assessment process.

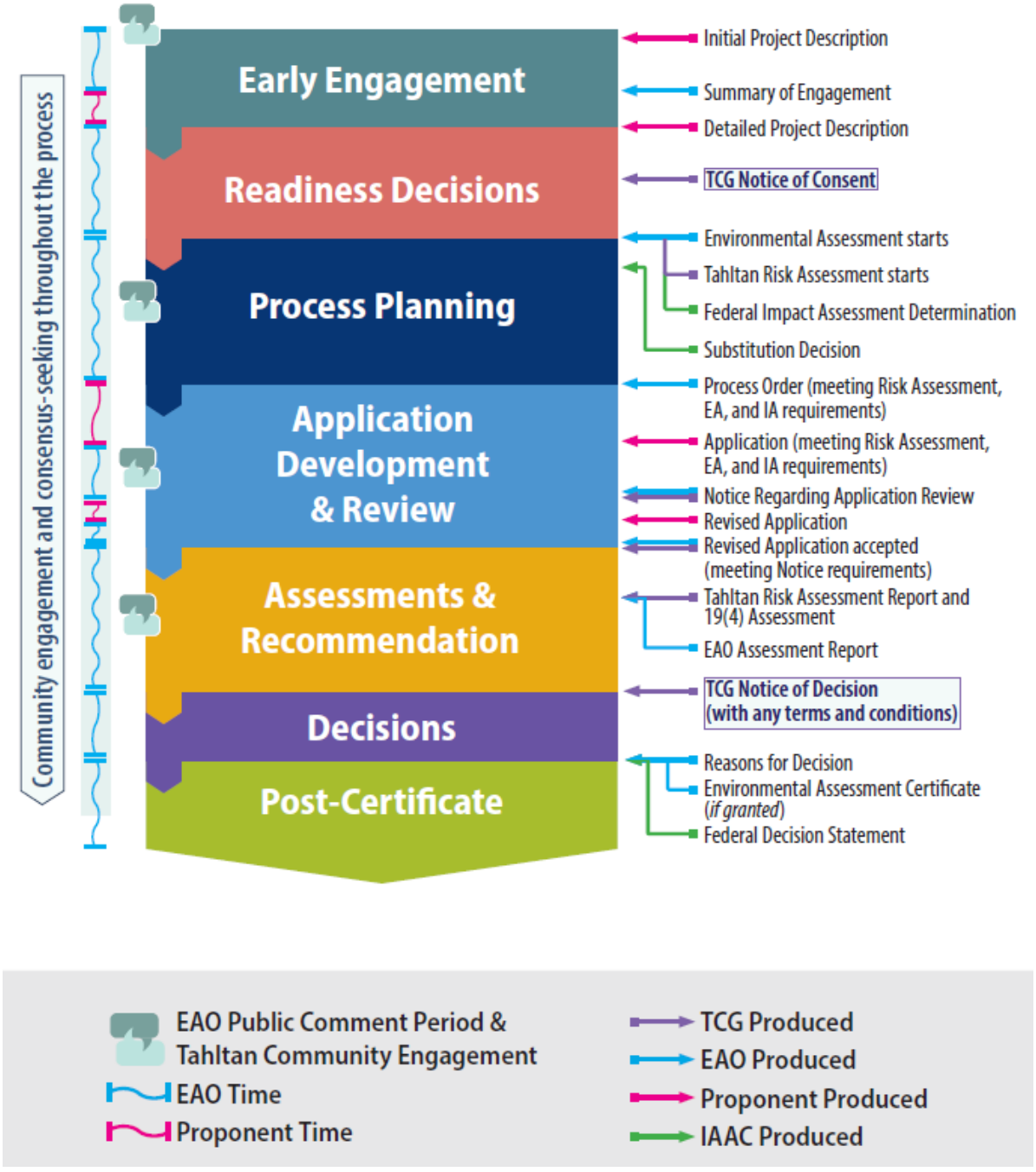


Figure 9: Environmental Assessment and TCG Processes for ECRP

Table 3. Milestones during the Environmental Assessment of the ECRP

Dates	Milestones
Pre-Environmental Assessment	
July 16, 2021	Tahltan Central Government requests the ECRP be designated as a reviewable project
July 30, 2021	The EAO's Chief Executive Assessment Officer *designates* the ECRP as a reviewable project
Early Engagement	
July 19, 2021	Proponent submits *Initial Project Description* and *Engagement Plan* to the EAO
July 30, 2021	Proponent submits *Initial Project Description* to IAAC
August 6, 2021	The EAO *requests* substitution should a federal impact assessment be required
July 30, 2021	Tahltan Central Government identified that they wish to be participating Indigenous nation
October 28, 2021	The EAO and IAAC issue a *Joint Summary of Issues and Engagement* document, which also identifies the participating Indigenous nations for this environmental assessment
June 6, 2022	TCG and the Government of B.C. finalize the *Declaration Act Agreement*
August 10, 2022	The Proponent submits a *Detailed Project Description* to the EAO and IAAC
Readiness Decision	
August 12, 2022	The EAO posts the *Detailed Project Description*
November 18, 2022	The EAO issues a *Notice of Decision* and posts reasons for decision
Process Planning	
November 18, 2022	IAAC posts *Notice of Impact Assessment Decision with Reasons*, stating that that a federal Impact Assessment is required for the ECRP
November 29, 2022	IAAC posts the *Notice of Substitution Approval under the IAA*, granting substitution of the conduct of the Impact Assessment to the Province of B.C.
April 18, 2023	The EAO issues the *Process Order* to Proponent
Application Development and Review	
August 21, 2024	Proponent submits *Application*
February 18, 2025	The EAO and TCG issued a *Notice to Proponent regarding Application Review*
April 14, 2025	Proponent submits the *Revised Application* to the EAO
May 30, 2025	The EAO and TCG accept the *Revised Application* for assessment
Effects Assessment	
[Date]	TCG refers decision materials to their Board of Directors
[Date]	The EAO refers decision materials to provincial Ministers for a decision on whether to issue a Certificate

Dates	Milestones
[Date]	The EAO submits a final Assessment Report to the federal Minister to inform the federal decision

5.0 PARTICIPANT ENGAGEMENT

5.1 Technical Advisory Committee

The EAO established a Technical Advisory Committee (TAC), made up of federal, provincial, and local government representatives with the mandates and expertise relevant to the review of the ECRP, as well as representatives of the TCG, the State of Alaska, and U.S. federal agencies. The list of groups represented on the TAC is available in *Appendix 4* - List of Parties on the Technical Advisory Committee.

The purpose of the TAC was to advise the EAO and TCG on technical matters related to the assessment and review the Application, Revised Application, and any supplemental materials. The EAO sought and considered advice from the TAC to understand and assess any potential effects associated with the ECRP. TAC members were responsible for providing timely advice to the EAO and TCG throughout the assessment.

The EAO reviewed the adequacy of Skeena responses to all comments received from TAC members and held various meetings with TAC members to discuss outstanding issues and concerns. In the development of this Report, proposed provincial Certificate conditions, and the EAO's recommended key mitigation measures and follow-up programs under the IAA (see *Appendix 13*), the EAO considered all comments and issues raised during the environmental assessment. The EAO also developed the Regulatory Coordination Issues Tracking Table that describes the key topics and issues that were raised during the assessment and how these were addressed in the assessment, or would be addressed by a subsequent permitting process, other regulatory process, or government initiative. The document will be provided to the statutory decision makers to show how issues have been addressed and where they are being carried forward to another regulatory process.

The full set of comments from the TAC and the resolution of issues is provided in the *Application Review Issues Tracking Table*. The key concerns are described in each of the valued component assessments are detailed in *Appendix 6*.

5.1.1 Local Governments

The EAO invited representatives from the District of Stewart, the Regional District of Kitimat-Stikine and the Town of Smithers to join the TAC, due to these communities' locations as regional centres closest to the ECRP and kept them updated on project reviews and milestones.

Paragraph 22(1)(o) of the IAA specifies that the assessment of a designated project must consider comments from jurisdictions received during consultation. Representatives of local governments were provided opportunities to review documents and submit comments as members of the TAC, however the EAO did not receive formal comments during the environmental assessment from local governments.

5.1.2 U.S. Federal and State Governments

Since the ECRP would be located approximately 40 km from the Alaska border and because of potential for transboundary effects, the EAO engaged with the following state and federal agencies as members of the TAC:

- Alaska Department of Environmental Conservation;
- Alaska Department of Fish and Game;
- Alaska Department of Natural Resources;
- National Oceanic and Atmospheric Administration Fisheries (Juneau);

- U.S. Department of Interior;
- U.S. Environmental Protection Agency; and
- U.S. Fish and Wildlife Service (Anchorage).

As members of the TAC, these representatives were provided opportunities to review documents and provide comments. Comments from these representatives focused on water quality management during Operations and through Closure, including impacts to fish, the effects of climate change, and wildlife monitoring and management. These concerns were directly responded to by Skeena and were addressed through updates to the Revised Application and related management plans. These concerns were also considered by the EAO in this Report and the proposed Certificate conditions.

5.2 Public Engagement

Public consultation is an important aspect of the environmental assessment process. Public participation in the environmental assessment process helps ensure that community values and public goals are considered in project planning and decision-making. Public comments also help the EAO ensure that all potential adverse effects of a project are captured and appropriately assessed. The IAA also specifies that the assessment of a designated project must consider comments received from the public.

The EAO conducts its own public consultation and also requires proponents consult with the public and demonstrate how public and community knowledge was considered. The EAO required Skeena to prepare a *Public Engagement Plan*, which laid out Skeena's consultation objectives and activities. Through the course of the environmental assessment, Skeena submitted multiple Public Consultation Reports to the EAO. The first *Public Engagement Report* was submitted following the Application Review public comment period, and the second *Public Engagement Report* was submitted with the Revised Application.

The EAO held four public comment periods for the ECRP that included virtual and/or in-person open houses as shown in Table 3, below. The virtual open houses each included a presentation by the EAO on the current and upcoming phases of the environmental assessment process, a presentation by Skeena on the ECRP, as relevant to the current phase, and an opportunity to ask questions online to the EAO, IAAC, TCG and Skeena. TCG also presented on Tahltan government structure, the Tahltan Heritage Resources Environmental Assessment Team (THREAT), and environmental assessment history in their territory. In addition to public comment periods and virtual information sessions the EAO collaborated with Tahltan to hold virtual and in-person community information sessions for the Tahltan communities closest to the ECRP.

Table 4. Public Comment Periods and Open Houses

Phase	Comment Period Dates	Number of Comments	Date of Open Houses	Number of Attendees
Early Engagement	August 30-September 29, 2021	2	**Virtual Information Session** September 16, 2021, 2:00-3:30pm	25 total
			Virtual Information Session September 21, 2021, 5:00-6:30pm	
			Tahltan Community Virtual Information Session September 22, 2021	14
Process Planning	January 17-February 16, 2023	10	**Virtual Information Session** January 31, 2023, 6:00-8:00pm	6
			Virtual Information Session February 2, 2023, 2:00-4:00pm	16

Phase	Comment Period Dates	Number of Comments	Date of Open Houses	Number of Attendees
			Tahltan Community In-Person Information Sessions February 15 (Telegraph Creek), February 16 (Iskut), and February 17 (Dease Lake), 2023	10-30 members each session
Application Review	October 15-November 14, 2024	16	**Tahltan Community In-Person Information Sessions** October 8 (Iskut), October 9 (Dease Lake), and October 10 (Telegraph Creek), 2024	XX
			Virtual Information Session November 5, 2024, 6:00-8:00pm	19
			Virtual Information Session November 7, 2024, 12:00-2:00pm	30
Effects Assessment	August 26-September 25, 2025	*TBD*	**Tahltan Community In-Person Information Sessions** September [3-5] (Iskut), September [3-5], and September [3-5] (Telegraph Creek), 2025	*TBD*
			No Virtual Information Sessions were held during the Effects Assessment phase	

The EAO received public comments mainly from individuals or groups from communities in Alaska and northwestern B.C. and most of the attendees to virtual public comment periods were from these communities or were mining industry professionals or consultants. The key concerns raised during the four public engagement opportunities included:

- **Water quality:** Concerns about water quality monitoring data accuracy and requests that up-to-date water quality data be provided for the cumulative effects assessment, as well as concerns about the amounts of suspended sediment in the water, groundwater seepage and Skeena's plans for water treatment during operations and past closure;
- **Fish and fish habitat:** Concerns about gaps in species dataset and about selenium and other metals and chemicals contaminating fish tissue and impacting human health when consumed;
- **Reclamation and closure:** Concerns about the sufficiency and provincial requirements for financial security for long-term reclamation and closure and water treatment in perpetuity;
- **Climate change:** Concerns about the ECRP's ability to withstand climate change conditions such as drought and fires;
- **Project design:** Requests for more details about the Mine Rock Storage Area and breakdown of non-potentially acid generating materials and pits, and about the design of the Tom MacKay Storage Facility and concerns about the environmental effect of a dam malfunction;
- **Transboundary impacts:** Concerns about the cumulative and downstream effects on Alaska Tribes and communities; and
- **Project benefits:** Questions about the ECRP's benefits relative to the impacts of mining.

The EAO prepared documents for each phase, together with IAAC and/or TCG: The *Joint Summary of Issues and Engagement* reflects comments collected during Early Engagement; comments collected during Process Planning are noted in the EAO's *Summary of Engagement* and comments provided during Application Review were documented in the EAO and TCG's *Joint Notice Regarding Application Review* and detailed responses were provided in Skeena's *Public Engagement Report*. The full text of all public comments received during each of the public comment periods is available on *EAO's Project Information Centre*.

To assist the public to participate in the federal impact assessment of the ECRP, IAAC provided public participant funding to a total of four different groups in the Process Planning and Application Review phases. IAAC will be considering the public comments on the draft potential federal conditions submitted during the EAO's Effects Assessment public comment period in federal decision-making for the ECRP.

5.2.1 Community Advisory Committee

The EAO may establish a Community Advisory Committee (CAC) for environmental assessments, where there is sufficient public interest, to provide insight and advice to the EAO on potential effects of a project on nearby communities. In addition, Paragraph 22(1)(m) of the IAA specifies that the assessment must consider community knowledge.

Interest from the general public in participating in the CAC for the ECRP assessment was low. Six members of the public registered to receive project updates, and the EAO established an email subscription-level CAC to keep interested members of the public aware of upcoming public comment periods, when and where key documents are posted, and other engagement opportunities. The EAO developed the *CAC Terms of Reference* establishing the goals and roles of the CAC and circulated these to members.

6.0 Indigenous Nation Engagement

The Governments of B.C. and Canada have a constitutional duty to consult and, where appropriate, accommodate First Nations where they have Section 35 rights that may be adversely impacted by provincial government decisions. *Section 25(1)* of the Act also requires that the effects of a project on Indigenous nations and their Section 35 rights (collectively, "Indigenous Interests") must be assessed in every assessment.

In substituted environmental assessments, the EAO is responsible for carrying out consultation with Indigenous peoples identified by IAAC, consistent with the *Notice of Substitution Approval*. As per the Cooperation Agreement, Canada and B.C. each retain the responsibility to ensure that the duty to consult and, where appropriate, accommodate has been satisfied, including determining the Indigenous peoples to be consulted and determining the scope, content and adequacy of consultation, and that their respective treaty obligations have been satisfied and complied with in respect of the environmental assessment. IAAC had the opportunity to participate in consultation activities and regularly did so.

6.1 Proponent-Led Engagement Activities with First Nations

As part of the *Assessment Plan*, the EAO directed Skeena to undertake certain procedural aspects of consultation during the environmental assessment with First Nations. The Assessment Plan also required Skeena to develop and share drafts of the Indigenous Engagement and Collaboration Plan and Reports with First Nations at prescribed milestones during the environmental assessment. These documents were reviewed by First Nations and revised by Skeena based on input received from and concerns expressed by First Nations prior to being submitted to the EAO. These documents enabled the EAO to:

- Understand Skeena's engagement and consultation plan and subsequent efforts and the perspectives of the First Nations related to those efforts;
- Understand any issues and concerns identified by First Nations to Skeena and how Skeena has made efforts to respond to or address these issues;

- Evaluate Skeena's consultation and engagement plan for subsequent consultation activities required with First Nations during Application Review; and
- Direct Skeena to take additional measures to satisfy the EAO and/or First Nation concerns/questions, when applicable.

Skeena engaged directly with First Nations throughout the environmental assessment for the purposes of information sharing and issues resolution. Skeena engaged with First Nations according to their preferences. Examples of Skeena's engagement activities with First Nations included:

- Providing regularly scheduled project updates, conference calls and meetings with First Nation administrative staff, consultants, elders, and other parties as requested by the First Nation leadership or technical staff;
- Conducting community meetings and presentations where requested;
- Holding joint workshops on technical, social and process matters;
- Holding site tours;
- Facilitating opportunities to participate in collecting information, as well as review and input into said information;
- Co-developing appropriate sections of the Certificate Application; and
- Developing and signing of confidentiality and/or capacity funding agreements.

Skeena recognized that each First Nation is best positioned to identify and engage with their memberships and attempted to reflect those nation-specific efforts within the Revised Application. The Revised Application assessed a combination of the following effects that varied on a nation-by-nation basis:

- Potential socio-cultural benefits and/or impacts, including (but not limited to) to employment, education and housing;
- Adverse environmental effects on residents' health and well-being;
- Potential for changes to land use experiences and practices, including (but not limited to) impacts to cultural use sites and trails, and changes in access to lands;
- Impacts to the harvesting of plant and animal foods, and medicines; and
- Impacts to wildlife and wildlife habitat.

Skeena also engaged directly with Gitanyow Nation to apply the Gitanyow Wilp Sustainability Process outside of the environmental assessment process, and that timelines would be aligned to the extent practicable.

The above list does not fully reflect all the effects associated with Tahltan Nation values assessed in Skeena's Revised Application. As a decision maker for the ECRP, Tahltan Nation participated in co-designing a hybrid regulatory process that reflects Tahltan-specific requirements and Skeena was required to assess the potential effects of the ECRP as-related to the Tahltan Risk Assessment Factors and Sustainability Requirements. These analyses can be found throughout the Effects Assessment sections of the Revised Application and are summarized in *Section 4.6* of the Revised Application.

6.2 EAO-Led Engagement Activities

For all First Nations potentially affected by the ECRP, the assessment of potential effects of the ECRP are on Section 35 rights as well as on any broader interests related to a First Nation (collectively, "Indigenous Interests"). Further details on the assessment of effects to Indigenous Interests for each First Nation is listed below, and additional information is provided in the First Nation specific sections of this Report.

EAO-led engagement activities supported the reconciliation purposes of the Act and served to fulfill the Crown's duty to consult. TCG and the EAO worked together during the environmental assessment process with the goal of seeking to achieve consensus on key issues and documents in order to support TCG, provincial and federal decision-making.

The EAO worked collaboratively with First Nations on their First Nation assessments, as captured in the *Assessment Plan*, and this work included:

- The TCG and the EAO co-drafted the assessment in *Section 16.1*, and Tahltan Nation independently produced the Tahltan Risk Assessment to support their own consent decision;
- The EAO and the Nisga'a Lisims Government collaboratively produced the Nisga'a Nation assessment (found in *Section 16.2*) as required by paragraphs 8(e) and 8(f) of Chapter 10 of the *Nisga'a Final Agreement*;
- The EAO drafted the Tsetsaut Skii km Lax Ha assessment (found in *Section 16.3*) with opportunities for iterative review and input by Tsetsaut Skii km Lax Ha; and
- Gitanyow Nation conducted its Wilp Sustainability Assessment Process (WSAP) in parallel with the provincial environmental assessment process (found in *Section 16.4*) and provided the WSAP report to the EAO.

On behalf of IAAC, the EAO also drafted the Métis Nation of British Columbia (found in *Section 16.5*) assessment with opportunities to review and provide input on the draft referral materials.

6.3 TCG as a Participating Indigenous Nation

As well as being a decision maker under the *Declaration Act Agreement,* the Tahltan Central Government, representing the Tahltan Nation, was confirmed as a participating Indigenous nation as defined in the Act for the ECRP environmental assessment. The scope of engagement with TCG was identified in the *Process Order* that included specific information necessary to assess effects of the ECRP on the TCG's Indigenous Interests, the level of involvement of the TCG on the TAC and its sub-committees, the timing and nature of specific engagement activities, and whether the TCG wished to conduct certain aspects of the effects assessment to their Indigenous Interests. Tahltan Central Government's involvement as a participating Indigenous nation complemented its role as a decision maker for the ECRP.

The Process Order, which included the *Hybrid Application Information Requirements* (Hybrid AIR), integrated the requirements of the Tahltan Risk Assessment and the assessment of the effects to Nisga'a Nation's Treaty interests into the requirements of the substituted Environmental Assessment process. A goal of engagement with the TCG throughout the ECRP environmental assessment was to build a shared understanding of the Tahltan Nation's history, culture, traditions and connection to the land and resources. This included how the TCG has determined its priorities, visions, governance, and land use planning aspirations into the future.

Collaboration between the EAO and TCG included the following:

- Participation in the TAC;
- Regular government-to-government meetings;
- Opportunities to identify Indigenous Interests that may be adversely affected by the ECRP and to discuss potential measures to avoid, mitigate, address or otherwise accommodate potential adverse effects on those interests, as appropriate;
- Opportunities to participate in issue/topic-specific TAC sessions with the EAO;
- Opportunities to review and comment on key document drafts and/or co-draft sections of key documents, where appropriate and desired by the TCG, including: the Initial Project Description, Detailed Project Description, Readiness Decision Report, Process Order, the ECRP Application, supplemental materials and topic-specific memos, Revised Application, Assessment Report, the draft Certificate (including the proposed Certified Project Description and Certificate conditions);
- Co-drafting the assessment on their Interests within the EAO's Assessment Report as per section 19(4) of the Act;

- Consensus-seeking opportunities at each phase of the environmental assessment; and
- The EAO and IAAC provided TCG with grants/funding for their involvement in the environmental assessment.

Refer to *Section 16.1* for the EAO and TCG's co-developed detailed assessment.

6.4 B.C. First Nations and Treaty Nations

6.4.1 Nisga'a Lisims Government

The Nisga'a Nation is a collection of approximately 6,000 people in four clans which are organized into wilps[4] that are governed by one or more chiefs and speak the Nisga'a language, which is in the Tsimshian family of languages. Nisga'a people have lived in the Nass River Valley since time immemorial and Nisga'a Treaty Areas and Nisga'a Lands are defined in the *Nisga'a Final Agreement* in 2000.

A portion of the highway transportation route, principally between the mine site and the port at Stewart, by which Skeena would transport concentrate, supplies and personnel for the ECRP overlaps the Nisga'a Nass Area and Nass Wildlife Area, requiring the EAO to assess the potential effects of the ECRP to the Nisga'a Nation's treaty rights and, as a substituted project, to provide information to support federal decision making to as to whether the requirements under Chapter 10 of the *Nisga'a Final Agreement* have been met. Nisga'a Nation is represented in the environmental assessment by the Nisga'a Lisims Government (NLG), Nisga'a Nation's democratic, representative government based on traditional Nisga'a culture and values. The EAO engaged with the NLG in a variety of ways, including by incorporating Nisga'a Treaty requirements into the Hybrid AIR, engaging in regular calls and meetings with representatives of the NLG (with or without Skeena as appropriate) to discuss issues, by seeking consensus at key points during the environmental assessment, and by collaboratively producing the Nisga'a Nation assessment in *Section 16.2* of this report as required by paragraphs 8(e) and 8(f) of Chapter 10 of the *Nisga'a Final Agreement*.

6.4.2 Tsetsaut Skii km Lax Ha

Tsetsaut Skii km Lax Ha are within the Athapaskan-speaking family of Indigenous peoples and the Nation currently numbers around 35 members with their asserted territory extending from the north side of the Cranberry River, along the Nass and Bell-Irving rivers to Beaver Pond in Ningunsaw Pass. This territory overlaps some of the ECRP transportation route and mine site. Tsetsaut Skii km Lax Ha use of the land and water in their territory includes food harvesting, recreation and traditional practices. Tsetsaut Skii km Lax Ha follow a matrilineal hereditary governance system, whereby the hereditary chief, Skii km Lax Ha, has final decision-making authority and Skeena's engagement with Tsetsaut Skii km Lax Ha has been with its political leadership: Skii km Lax Ha (Chief Darlene Simpson) and wing chiefs. The EAO and IAAC provided funding to support Tsetsaut Skii km Lax Ha's engagement in the environmental assessment process and the EAO has worked collaboratively with Tsetsaut Skii km Lax Ha throughout the assessment process, meeting monthly or bi-monthly throughout each environmental assessment phase to discuss concerns and issues, and drafting the Tsetsaut Skii km Lax Ha assessment in *Section 16.3* with opportunities for iterative review and input from Tsetsaut Skii km Lax Ha.

[4] A "wilp" refers to a family group or house who own territory and are governed by one or more chiefs.

6.4.3 Gitanyow Nation

The Gitanyow Nation (Gitanyow) is composed of approximately 850 members in eight Wilps organized into two Pdeek (or clans) who inhabit an approximately 17,000 square km traditional territory in northwestern B.C. near the Nass River. Gitanyow people are part of the larger Gitksan culture and speak Git Gyeets (in the Tsimshian family of languages closely related to Nisga'a). The Gitanyow Wilps have operated politically independent of the larger Gitksan people for several decades with the Gitanyow Huwilp Society negotiating government-to-government agreements and economic partnerships with the provincial and federal governments.

The highway transportation route by which Skeena would transport concentrate, supplies and personnel along Highway 37 and 37A passes through Gitanyow's territory and the ECRP was deemed reviewable under Section 16 of the *Gitanyow Wilp Sustainability Assessment Process*. The EAO acknowledges Gitanyow's WSAP, an assessment process based in Gitanyow law that applies to projects potentially impacting Gitanyow. Gitanyow informed the EAO that they would work directly with Skeena to apply the WSAP to ECRP but requested the EAO update them at key milestones of the environmental assessment process. Gitnayow independently produced the Gitanyow Wilp Sustainability Assessment Report provided in *Section 16.4*.

6.5 Alaska Tribes

The ECRP's location within the upper portion of the transboundary Unuk River watershed has potential to impact communities downstream, across the Alaska border. The EAO identified seven Alaska Tribes for engagement: the Craig Tribal Association, Hydaburg Cooperative Association, Ketchikan Indian Community, Klawock Association, Metlakatla Indian Community, Organized Village of Kasaan, and the Organized Village of Saxman.

The EAO commenced engagement with the Southeast Alaska Indigenous Transboundary Commission (SEITC) in 2021, as a representative of the seven potentially affected Tribes. The SEITC is a consortium of 15 sovereign Alaska Tribes (including Tlingit, Haida and Tsimshian Nations) that serves to uphold the rights of these Nations and support their stewardship of lands, waterways and sacred sites. The EAO engaged with the SEITC at key milestones of the environmental assessment process, including by conducting regular meetings between the SEITC and the EAO and by providing the opportunity for the SEITC and representatives of the seven Alaska Tribes to review and comment on draft documents. This engagement approach was codified in the establishment of the Alaska Tribal Transboundary Advisory Committee (ATTAC)[5] to advise the EAO on the potential transboundary effects of the ECRP on the seven member Tribes throughout the environmental assessment.[6]

[5] under *Section 22* of the Act.

[6] For more details see the ATTAC Terms of Reference: *https://projects.eao.gov.bc.ca/api/public/document/66ec761fcbcd330022f8385a/download/Eskay%20Creek%20-%20ATTAC%20Terms%20of%20Reference.pdf*

6.6 Métis Nation British Columbia[7]

MNBC is the Métis governing body in B.C. that represents the interests of Métis citizens in B.C. Prior to the ECRP's substitution, IAAC formally invited MNBC to comment on the potential impact assessment of the ECRP and, following approval of the substitution request, the EAO has consulted with MNBC on behalf of the Government of Canada, including offering to meet with MNBC representatives to discuss issues and concerns and notifying MNBC of the five key milestones outlined in the EAO's *Assessment Plan*. The EAO drafted the Métis Nation assessment, on behalf of IAAC, in *Section 16.5* with opportunities for MNBC to review and provide input on the draft referral materials.

6.7 Indigenous Knowledge

The Act establishes that one of the purposes of the EAO is to use the best available science, Indigenous knowledge[8] and local knowledge in decision-making under the Act. The IAA also requires the consideration of Indigenous knowledge provided with respect to the designated project. To meet the requirements of the Act and paragraph 22(1)(g) of the IAA, the EAO required that the best available science, Indigenous knowledge and local knowledge be considered and integrated throughout the assessment process. Refer also to *Section 6.7* for Indigenous knowledge provided with respect to the ECRP.

The EAO recognizes that First Nations are best positioned to identify the sources of information, including Indigenous knowledge, appropriate for the use in the assessment of the ECRP. Indigenous knowledge is the subset of a First Nation's knowledge that the First Nation decides, through representatives chosen by themselves in accordance with their own procedures, is appropriate to be used in an environmental assessment. The Revised Application described how scientific, Indigenous, and local knowledge was used in the assessment. During all phases of the environmental assessment, the EAO provided opportunities for the inclusion of Indigenous knowledge from Indigenous nations and has integrated it throughout the assessment.

7.0 Predicted Effects of the ECRP

The EAO completed a detailed assessment of effects on the valued components, Indigenous Interests, and other assessment matters, as described under *Section 25* of the Act. The matters, or topics, to be assessed were determined by the EAO, in consultation with the TAC and the public, and through consensus seeking with the participating Indigenous nations, through the *Hybrid AIR* set out by the EAO for the ECRP. These assessments incorporated information submitted by Skeena, advice from the TAC and CAC, local information and concerns raised by the public, and Indigenous knowledge provided by the participating Indigenous nations. A list of the factors assessed and where to find more detailed information is provided below in Table 5.

[7] In accordance with the substitution conditions and the Cooperation Agreement, the EAO delivered the procedural aspects of consultation with MNBC on behalf of the Government of Canada and directed the Proponents to undertake specific consultation activities with MNBC to meet the federal requirements of the Cooperation Agreement. Any consultation activities conducted by B.C. with Métis or organizations representing Métis within B.C. under a substituted impact assessment should be understood to have been conducted on behalf of the Government of Canada and should not be construed in any way as an acknowledgement by B.C. that it owes a duty of consultation or accommodation to Métis within B.C. under Section 35 of the *Constitution Act*.

[8] Within the context of environmental assessments, Indigenous knowledge is a unique way of knowing that is held by Indigenous Knowledge holders that pertains to the area within which a project may occur, including how that project may interact with the environment and people in the region. Indigenous knowledge not only informs how projects should be delivered and their relationship to the land but also informs Indigenous decision-making.

Appendix 6 provides the detailed assessment of potential effects of the ECRP on each of the key concerns, identifies mitigation measures, including the EAO's recommended key mitigation measures and follow-up program under the IAA, discusses the key issues raised, and reaches conclusions on the significance of residual effects on each valued component and other required assessment matters, as required by Section 25 of the Act and the factors set out in subsection 22(1) of the IAA. The assessment and conclusion for federal effects are found in Appendix 13.

Table 5. Valued Components, Indigenous Interests, and Other Assessment Factors Assessed

Environmental Effects	Economic, Social, Health and Cultural Effects
Section 17.1: Air Quality *Section 17.2: Noise and Vibration* *Section 17.3: Groundwater* *Section 17.4: Surface Water* *Section 17.5: Fish and Fish Habitat* *Section 17.6: Terrain and Soils* *Section 17.7: Vegetation and Ecosystems, Wildlife and Wildlife Habitat* *Appendix 8: Summary of Effects on Biophysical Factors that Support Ecosystem Function* *Appendix 10: Climate Change & Greenhouse Gas Emissions* *Appendix 12: Potential Changes to the Project Caused by the Environment*	*Section 17.8: Human Health* *Section 17.9: Infrastructure and Services* *Section 17.10: Non-Traditional Land and Resource Use* *Section 17.11: Visual Resources* *Section 17.12: Employment and Economy* *Section 17.13: Heritage Resources* *Appendix 9: Effects on Current and Future Generations*
Other Assessment Factors	**Effects to Indigenous Interests**
Appendix 7: Risks of Malfunctions and Accidents *Appendix 11: Alternative Means of Carrying out the Project*	*Section 16.1: Tahltan Nation* *Section 16.2: Nisga'a Nation* *Section 16.3: Tsetsaut Skii km Lax Ha* *Section 16.4: Gitanyow Nation* *Section 16.5: Métis Nation B.C.* *Section 16.5: Alaska Tribes*

8.0 Key Concerns Identified in the EAO's Assessment of Effects

The matters, or topics, to be assessed were determined by the EAO, in consultation with the TAC and the public, and through consensus seeking with TCG and NLG, as laid out in the Hybrid AIR for the ECRP. These assessments incorporate the factors set out in subsection 22(1) of the IAA and effects within federal jurisdiction, information submitted by Skeena, advice from the TAC and CAC, local information and concerns raised by the public, and Indigenous knowledge provided by First Nations. Key concerns, such as assessment matters, including how to identify, assess and manage potential environmental, economic, social, cultural and health effects, were considered following the EAO's Effects Assessment Policy guidance.

This section summarizes the key themes that, due to their complexity and the level of concern from the TAC, CAC, Indigenous nations and/or the public, became the main focus areas for the ECRP environmental assessment.

8.1 Effects on Water Quality

The ECRP's location surrounded by creeks and small lakes within the upper Unuk River watershed (the Unuk being a transboundary river) led to extensive discussions on potential effects of the Project on water quality/quantity over the operational and post-closure life of the mine. Tahltan Nation emphasized the importance of easy access to a clean water supply for consumption and cultural well-being. Key concerns from Tahltan Nation, which were also raised by other First Nations, provincial and federal ministries and the ATTAC, centred around to the likelihood and risks associated with

seepage, the understanding of surface water/groundwater interactions, the plans for water treatment and the potential water quality/quantity related effects to aquatic resources and human health.

Skeena's Application, submitted in August 2024, proposed a series of water treatment plants. They revised this plan during the Application Review phase and presented an Optimized Water Management Plan that changed the ECRP design to have one water treatment plant, which was generally considered an improved design by the relevant experts on the TAC. In addition, Skeena responded to the water quality concerns from environmental assessment reviewers with a variety of updates and proposed mitigations measures in their Revised Application to address new rock exposure, dust contamination and seepage to local creeks and has committed to developing an instrumentation, monitoring, and a trigger response plan to be included through its *Mines Act* permit. In addition, Skeena committed to addressing uncertainty through developing ground water/surface water interaction studies and monitoring. These concerns around groundwater and surface water are key considerations for the EAO in proposed Conditions 16, 17 and 18 and for Tahltan in Tahltan Condition X. Skeena stated that it has designed the ECRP with sustainability objectives in mind, and that in line with the Mine Site Water Management Plan, Skeena would manage contact and non-contact water separately throughout all phases and divert non-contact water away from the mine site.

Notwithstanding the general view that the Water Optimization was an improvement, TCG and Tsetsaut Skii km Lax Ha raised concerns with the lack of a defined duration for water treatment being required. TCG views this perpetual water treatment as excluding its community from the site for safety reasons and sees long-term post-closure operation of water treatment plants as a barrier to fully meeting Tahltan Sustainability Requirements. MCM and the Ministry of Environment and Parks (ENV) confirmed that, if the ECRP proceeds, Skeena will be required to update their Water Treatment Technology Readiness Assessment and Mine Water Treatment Design Report under their *Mines Act*/EMA Permit Application. Additionally, the EAO is proposing Condition 16: Water Quality and Quantity Model Validation Report in order to monitor and verify potential impacts to water predicted in the Revised Application, and Tahltan has integrated long-term co-management into Tahltan Condition X.

Skeena is working with First Nations and provincial subject matter experts on plans to mitigate effects to water, however, mitigations are still in development and consequently there is still uncertainty about their effectiveness. Uncertainty exists regarding predictions of groundwater flow and related seepage pathways to the environment, with further studies planned to further enhance understanding of the interactions between surface water and groundwater. In consideration of the extensive mitigations put in place across provincial, federal and Tahltan conditions and the additional mitigation commitments made by Skeena in the major mines permitting process (ongoing concurrently with the environmental assessment), the EAO concluded that the ECRP would not have significant adverse residual or cumulative effects[9] on surface or groundwater. For further details on these key concerns, and related effects and mitigations see *Section 17.3: Groundwater* and *Section 17.4: Surface Water*.

8.2 Effects to Fish and Fish Habitat

Healthy and thriving fish populations support the health of local communities and wildlife, and the importance of healthy fish populations for consumption and in relation to cultural well-being was identified by Tahltan Nation as a key concern. The EAO also heard concerns during Application Review from Environment and Climate Change Canada (ECCC) and ENV around uncertainties related to effects on fish and fish habitat, from Nisga'a Nation on the potential for accidents along the transportation route to impact significant fish-bearing waterways, and from the ATTAC on the potential for health effects to fish populations downstream from the ECRP.

Due to the ECRP's location, direct impacts to water quality from the Project would affect fish and fish habitat in not only Tom MacKay Lake, Little Tom MacKay Lake and the other small lakes adjacent to the Project site, but in the larger Unuk

[9] Noting that selenium has limited potential for cumulative effects with other projects, however, selenium values are predicted to stay below B.C. Water Quality Guidelines for Aquatic Life

watershed, the Unuk river being important habitat for migratory fish. Impacts from concentrate spills have the potential to affect the Volcano Creek watershed, which feeds into the Stikine River; waters around the Portland Inlet and the District of Stewart; as well as the Bear River estuary and other waterways within the Nass area; these areas representing significant fish-bearing waters to Tahltan Nation, Tsetsaut Skii km Lax Ha and Nisga'a Nation respectively.

ENV recommended additional spawning surveys be completed in the Unuk River to understand if coho or other species routinely spawn near the mine site and if higher quality spawning habitat was missed. Additional concerns were raised regarding selenium in the water leading to increased concentrations of selenium in fish tissues, resulting in increased mortality in fish eggs and fry.

Skeena responded to these concerns with several updates to the Revised Application, largely focused on increased and updated water treatment plans, and measures to prevent seepage and water control methods. Concerns about the residual effects from the ECRP to fish, particularly increases in selenium and changes in water quality, resulted in the recommendation for site-specific selenium bioaccumulation modelling as part of a federal Follow-up Strategy (under federal Condition 3: Fish and fish habitat) and a number of updates to the Aquatic Effects Monitoring Program (which is a current requirement of the *Environmental Management Act* (EMA) permit and subject to further amendment), while a Fuel Management and Spill Prevention Plan will be prepared as part of Skeena's *Mines Act*/EMA Permit Application to address concentrate spill prevention and management. In response to these concerns, the EAO is also proposing Condition 17: Aquatic Effects Monitoring Plan to monitor potential effects to fish and fish habitat and Tahltan as integrated long-term monitoring of fish and aquatic resources into Tahltan Condition X.

The EAO concluded that the ECRP would not have significant adverse effects on fish and fish habitat. These conclusions consider the extensive mitigations and Conditions put forward by federal, provincial and Tahltan conditions. For further details on these key concerns, and related effects and mitigations see *Section 17.5: Fish and Fish Habitat*.

8.3 Socio-Community Effects

The ECRP's proposed location is nestled within a significant watershed and important harvesting areas for Tahltan Nation and Tsetsaut Skii km Lax Ha, and the ECRP's proximity to Tahltan communities led to concerns being raised by reviewers about potential effects of the ECRP to local communities as a result of a large influx of new workers during the ECRP's lifespan. The main themes around socio-community impacts which emerged from engagement include public safety, particularly for vulnerable populations; strain on social and medical services; and the necessity of an effective complaint resolution process.

Major mining projects can, and historically have, contributed to a number of socio-economic effects on the health, safety and/or security of communities in the region. While the ECRP is anticipated to have a number of positive economic effects (through job creation, tax revenues, and business opportunities in local communities), several key issues were raised by Tahltan, federal authorities and TAC members regarding socio-economic issues and means to mitigate negative effects and enhance positive effects throughout the Environmental Assessment process.

A significant concern raised by IAAC, the Public Health Agency of Canada (PHAC), Northern Health and TCG was about the potential increase in risks to Indigenous women and girls and other gender-specific impacts for vulnerable groups in relation to safety, healthcare access and mental health support. These reviewers highlighted the proximity of the ECRP to Indigenous communities, and that women and those already affected by mental health concerns may disproportionately experience effects on community cohesion and mental health if the ECRP proceeds. TCG and other parties pointed out that historical data and reports, such as the National Inquiry into Missing and Murdered Indigenous Women and Girls (MMIWG), have established a clear link between large industrial projects with transient workforces and changes in community cohesion and/or sense of safety, reduced mental well-being, and increased gender-based violence. Skeena acknowledged the importance of these concerns and highlighted the mitigations they currently have at their exploration camps and will continue once operational, including: zero-tolerance policies on substance use, violence, and harassment,

and programs offered by Skeena for promoting mental health and wellness in the labour camp. Skeena committed to identifying further gender-specific mitigations through the Socio-economic Monitoring Plan. The EAO is proposing Condition 24: Socioeconomic Management Plan to monitor and mitigate potential community effects, including to marginalized communities, and federal condition 6: Health and socio-economic conditions of Indigenous peoples also directly incorporates mitigations to protect marginalized populations including cross-cultural awareness training for employees.

The EAO heard concerns from Northern Health and Tsetsaut Skii km Lax Ha that the influx of non-local workers has the potential to strain already limited health, mental health and social services in the region. Skeena acknowledged Northern Health and Tsetsaut Skii km Lax Ha's concerns, but highlighted that impacts from in-migration from out-of-region hiring are being mitigated through a fly-in-fly-out work schedule and a focus on local hiring, additionally noting that in the event of any unanticipated effects, the Socio-economic Monitoring Plan, Health and Medical Services Plan, and the Mine Emergency Response Plan (part of the *Mines Act*/EMA permitting process) will include monitoring and adaptive management measures.

Reviewers from TCG, Health Canada, Northern Health, and Tsetsaut Skii km Lax Ha all commented on the importance of developing and implementing a complaint resolution plan to address and resolve community complaints, and for robust community consultation. Skeena has committed to establishing a Tahltan Community Liaison Committee with membership invited from the Tahltan Community Working Group, as part of the Community Effects Monitoring and Management Plan, which will be a living document revised regularly in collaboration with the TCG and in response to inputs from the Tahltan Community Liaison Committee and other feedback received from local communities and the TCG.

The EAO concluded that the ECRP would not have significant adverse residual or cumulative effects on human health, employment and economy, and infrastructure and services, and would result in positive residual effects to employment. These conclusions consider the extensive mitigations and Conditions put forward by federal, provincial and Tahltan conditions. For further details on these concerns, see *Section 17.2: Noise and Vibration*, *Section 17.8: Human Health and Section 17.9: Infrastructure and Services*.

8.4 Increased Traffic

The ECRP's main road access would be provided by the existing Eskay Creek Mine Access Road which connects the ECRP site to provincial Highway 37, with concentrate from the ECRP to be hauled along a portion of Highway 37 and 37A, which are the primary routes connecting the communities in the Local AA and Regional AA. Highway 37 is the primary transportation corridor for communities in the region and the condition and safety of the road for all users was a key topic in the assessment. The road network is vitally important for Tahltan Nation and Tsetsaut Skii km Lax Ha members to access lands and waterbodies to undertake cultural activities such as food and medicine harvesting. Reviewers such as Northern Health expressed concerns that present and future projects will overlap and interact increasing traffic impacts and the potential for traffic-related accidents. Skeena has assessed that the ECRP would increase current traffic volumes on Highway 37 and 37A between one and five percent depending on the phase, and this assessment included present projects.

TCG and other TAC reviewers raised concerns around traffic-related impacts to air quality, vegetation and wildlife, particularly around vehicle-wildlife collisions, while Northern Health raised concerns that increased traffic would contribute to increased pressures on healthcare services. These comments resulted in a number of updates to Skeena's Revised Application, additional Technical Memos and commitments by Skeena to set speed limits and install warning signage on mine roads to reduce the likelihood of collisions. In response to these concerns, the EAO is proposing Condition 24: Traffic Corridor Management Plan to mitigate potential effects from traffic and Tahltan has integrated their concerns regarding access and health and socio-cultural impacts from traffic into Tahltan Condition X.

Reviewers from the TCG, Tsetsaut Skii km Lax Ha, the ATTAC, Northern Health, and Health Canada also raised concerns regarding traffic and vehicle noise affecting the wellbeing of local community members. Skeena clarified that the reported noise levels factored in existing traffic volumes for both Construction and Operations and that vibration effects outside of the Assessment Footprint are not expected from Project activities for either phase. While these clarifications were sufficient to close the issue, concerns around noise and vibration were carried forward as issues to be addressed and resolved through the Tahltan Community Liaison Committee.

The EAO concluded that the ECRP would not have significant adverse residual or cumulative effects on noise, infrastructure and services, vegetation and ecosystems and wildlife. These conclusions consider the extensive mitigations and Conditions put forward by federal, provincial and Tahltan conditions. For further details on these concerns, see *Section 17.1: Air Quality*, *Section 17.2: Noise and Vibration*, *Section 17.7: Vegetation and Ecosystems, Wildlife and Wildlife Habitat*, *Section 17.8: Human Health* and *Section 17.9: Infrastructure and Services*.

8.5 Long-term Impacts to Land, Water and People

Impacts from major mines have the potential to last for multiple generations and create a legacy beyond closure of a project. In the context of the ECRP, the EAO heard concerns from TCG, TAC members, Tsetsaut Skii km Lax Ha and members of the public regarding the extent to which negative residual effects may persist and associated implications about the extent to which reclamation and restoration of the ECRP site will be possible. These concerns were largely focused on the magnitude of the permanent loss of higher value ecosystems, including up to 107.9 ha of old growth forests, and habitats that support culturally important plant and wildlife species, including species of conservation concern and plants and fungus harvested as food or medicine by Indigenous groups. Reviewers also raised concerns around the long-term impacts to soils and water from the ECRP, and (for TCG) long-term impacts to Indigenous communities. Long-term impacts remained a key issue throughout the Environmental Assessment process regularly discussed by federal, permitting/provincial agencies, Skeena and TCG.

TCG has consistently raised concerns regarding uncertainties associated with reclamation/restoration and the potential cumulative effects to the region. In terms of terrain and soils, TCG stated concerns with the estimates there is adequate soil available for effective closure and for water TCG consistently questioned how long-term post-closure operation of water treatment plants fulfills Tahltan Sustainability Requirements (discussed further in *Section 8.1: Water Quality*). Skeena has acknowledged these concerns and collaborative discussion and engagement with TCG and the Ministry of Mines and Critical Minerals on the Reclamation and Closure Plan (that is a requirement under the *Mines Act*) will be continuous throughout the ECRP's life as proposed in the Tahltan Reclamation and Effective Closure/ Future Generations Requirement. In addition, the EAO proposes Condition 26: End Land Use Plan, which would require Skeena to describe the ECRPs final end land use to understand long-term effects at the environmental assessment level.

TCG also highlighted the lack of commitment to positive social, cultural, and economic legacies for Indigenous communities, and stated that the ECRP has focused on mitigating negative effects, not proactively committed to long-term investments to enhance well-being in local Indigenous communities. TCG views a positive community legacy as an important counterbalance to offset negative impacts such as employment decline following mine production, residual negative effects to country foods and prolonged avoidance of the mine site and surrounding area by current and future generations because of real or perceived impacts to soil and water.

The EAO concluded that the ECRP would not have significant adverse residual or cumulative effects on terrain and soils, vegetation and ecosystems and wildlife and wildlife habitat. Reclamation and closure planning and long-term impacts to the environment and local communities was a key issue of the ECRP Environmental Assessment process and related mitigations are integrated throughout the MA/EMA Permit Amendment and into both provincial and Tahltan conditions. For further details on these concerns, see *Section 17.6: Terrain and Soils*, *Section 17.7: Vegetation and Ecosystems, Wildlife and Wildlife Habitat*, *Section 17.8: Human Health*, *Section 17.3: Groundwater* and *Appendix 10: Current and Future Generations*.

9.0 THE EAO'S PROPOSED CONDITIONS

As part of the recommendations of the CEAO to the Ministers, the EAO developed a proposed Certificate. This Certificate, if issued, would allow the ECRP to proceed to permitting and other authorizations. If the Ministers decide to issue a Certificate, it will include a certified project description and table of conditions. The certified project description outlines the components and activities of a project that are approved by the Certificate. The table of conditions sets out legally binding requirements (or, conditions) to which the Holder must adhere throughout the life of the ECRP. These conditions describe 'how' a project must be implemented. Some of the conditions are procedural requirements common to all certified projects; others are project-specific and intended to prevent or reduce adverse effects. Conditions were developed following the *EAO's Certificate Policy*.

If a Certificate is issued, the Holder must design, build, operate and decommission the ECRP in accordance with the Certificate. The EAO's Compliance and Enforcement branch would then become responsible for the verification and enforcement of the requirements in the ECRP Certificate. The Compliance and Enforcement branch of the EAO conducts compliance inspections and, where required, uses enforcement to ensure that projects are compliant with the certificate conditions. For more information on compliance and enforcement, see the *EAO's website*.

For the ECRP, the EAO has proposed the 10 standard conditions which are common to all certified projects (see box at the end of this section) and 17 project-specific conditions to prevent or reduce adverse effects identified through the environmental assessment. The following are the ECRP specific conditions and their purpose (full details will be included in the Certificate, if issued):

- Tahltan Collaboration: This condition describes the criteria Skeena would need to meet when development a plan, report or other document in collaboration with the Tahltan Central Government.
- Tahltan Satisfaction: This condition sets out the criteria for how a plan, report or other document will meet with satisfaction of Tahltan, where noted in a condition, and describes an issues resolution process for where TCG and the EAO may disagree on whether a condition is met.
- Public Information: This condition would require the Holder to share information regarding the ECRP with the public through a dedicated Project website, a phone line, and newspaper notice, or other equally effective media, if appropriate. Through these mediums, the Holder would share information such as contact information, project updates and engagement opportunities, results of monitoring programs, information about safety, and instructions for how to provide a complaint or comment.
- Net-Zero Plan: This condition would require Skeena implement its Net Zero Plan and report on Skeena's efforts to reduce GHG emissions should Operations continue past year 2050.
- Water Quality and Quantity Model Validation Report: This condition would require Skeena to verify predicted effects in the Revised Application to water quality and quantity.
- Aquatic Effects Management Plan: This condition would require Skeena to verify predicted effects in the Revised Application to fish and fish habitat to inform an Aquatic Effects Management Plan that may be required under the *Environmental Management Act*.
- Fish Tissue Baseline Report: This condition would require Skeena to provide a report on fish quality in consideration of the collection of additional fish tissue data and identification of potential contaminants of concern and baseline concentrations within fish tissue.
- Wildlife Effects Monitoring Plan: This condition would require Skeena to develop a plan for managing effects to wildlife and wildlife habitat and would include long-term monitoring requirements for bioaccumulation and metal

uptake, injury and mortality, and loss of wildlife habitat. Skeena would also be required to establish a Tahltan Wildlife Advisory Committee to resolve outstanding wildlife issues in the ECRP area.

- Air Quality Effects Monitoring Plan: This condition would require Skeena to develop a plan to mitigate effects to air quality and include commitments to updating monitoring.
- Human Health Management and Monitoring Plan: This plan would require Skeena to monitor and manage of environmental contaminants with the potential to impact human health (including both for work camp residents and local land users).
- Health and Medical Services Plan: This condition would require Skeena to develop and implement a plan for how health and medical services would be provided to workers in consideration of Northern Health guidance, and would include a plan for addressing communicable disease, disease and infection prevention, and outbreaks, in order to reduce effects to existing services near the ECRP. This plan would also require Skeena to report out on service use data at the project site.
- Socioeconomic Management Plan: This plan would require Skeena to produce a plan addressing management of potential Project-related impacts to local communities and their services, infrastructure and economy. The plan would describe regional employment strategies and training practices, measures to manage and reduce impacts associated with increased demand healthcare services, and outdoor recreation environments, and would facilitate engagement with local communities.
- Traffic Corridor Management Plan: This plan would require Skeena to manage traffic, in particular along the Highway 37 and 37A corridor, and monitor the impacts of this traffic on wildlife and other road users.
- Social Closure Plan: This condition would require Skeena to develop a plan to minimize socioeconomic effects resulting from Closure of the Project and its impact on nearby communities, including ensuring that mitigations are culturally appropriate for First Nations.
- End Land Use Plan: Although MCM typically would require a full reclamation plan as part of a *Mines Act* permit, this plan would describe the final end land use (including reclamation objectives and habitat types) to understand long-term effects at the environmental assessment level.
- Regional Cumulative Effects Initiatives: This condition would require Skeena to participate (if invited) in any social and economic management committees set up by provincial or local governments to address regional socioeconomic and environmental issues.

The following conditions are standard in most Environmental Assessment Certificates and proposed for inclusion in the ECRP Certificate:

Document Review: sets out timelines for EAO document reviews and requirements for plan implementation.

Document Updates: allows the Holder or the EAO to require the Holder to make changes to any document if it is not meeting objectives, intended effects or to be consistent with changes in industry best practice or technology.

Document Development: requires all documents to include purpose, roles and responsibilities, schedules, plans for evaluating mitigation effectiveness, schedules for reporting, schedules for document updates, and adaptive management.

Consultation: sets out the details of what consultation entails. This includes providing a written record of comments received and explanation of how they have been considered and addressed.

Compliance Verification and Reporting: allows the EAO to request information for the purposes of compliance inspection and verification and sets out requirements for compliance self-reports for Holders.

Project Status Notification: requires the Holder to provide project status notification, primary contact details, and notice when primary contact for the ECRP changes.

Compliance Notification: requires the Holder to notify the EAO in the event of any instances where it is has not fully complied with the Certificate.

Independent Environmental Monitor: requires an Independent Environmental Monitor; includes a terms of reference that sets out the expectations and requirements for the Independent Environmental Monitor. This monitor could be an Indigenous monitor.

Construction Environmental Management Plan: addresses standard issues with the potential to cause impacts to the environment during construction, including topics such as access management, a chance finds procedure for archaeological findings, management of invasive plants, and erosion and sediment control, among other topics.

Care and Maintenance Plan: sets out the requirements for the plans and conditions that would apply during a period of care and maintenance or temporary closure.

In addition to the EAO's proposed conditions, under the Declaration Act Agreement, TCG has the ability to propose additional terms and conditions to inform Tahltan's Consent Decision. The Tahltan Conditions are described in Schedule C of the Certificate and in the Tahltan Risk Assessment Report.

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10.0 CONTRIBUTION OF ECRP TO SUSTAINABILITY IN B.C.

10.1 Introduction

Section 2 of the Act includes that the EAO's purpose is to promote sustainability by protecting the environment, fostering a sound economy, and the well-being of British Columbians and their communities. Section 29 of the Act states that the CEAO must provide recommendations for the ministers for decision regarding whether a project is consistent with the promotion of sustainability. The purpose of this section is to provide the information to support this sustainability recommendation. The extent to which ECRP contributes to sustainability, as required under paragraph 22(1)(h) of the IAA, is assessed in *Appendix 13*.

In considering whether ECRP is consistent with the promotion of sustainability the EAO considered:

- Skeena's Revised Application and its corporate sustainability policies;
- Relevant regional land use plans;
- Comments provided by Technical Advisory Committee members including Indigenous nations, and responses to these comments by Skeena;
- Feedback received during public comment periods;
- The EAO's assessment of effects to valued components and to Indigenous interests, as well as the views of Indigenous nations on the EAO's assessments, including the views set out in the Tahltan Risk Assessment;
- The assessment conducted by TCG under Section 19(4) of the Act; and
- The EAO's proposed Certificate conditions.

To understand how ECRP would contribute to protecting the environment, the EAO considered the residual and cumulative effects of continued mining on environmental valued components and the provincial requirements that are in place or proposed to mitigate negative environmental effects. The EAO also considered ECRP's contribution to global environmental priorities and sustainability.

To understand how ECRP would contribute to fostering a sound economy, the EAO considered the residual and cumulative effects of continued mining on the economy valued component, including the economic benefits to the region and the Province.

To understand how ECRP would contribute to fostering the well-being of British Columbians and their communities, the EAO considered the residual and cumulative effects of continued mining on the social and health valued components, as well as the potential positive and adverse effects to communities near ECRP, including Indigenous communities.

10.2 Protecting the Environment

Mining activities resulting from ECRP could cause increased contaminants and malfunctions and/or accidents, which could subsequently cause effects to interconnected assessment matters including Air Quality, Surface Water, Terrain and Soils, Vegetation and Ecosystems, Wildlife and Wildlife Habitat, Fish and Fish Habitat, and Groundwater. These affected assessment matters then can influence broader factors, such as Non-Traditional Land and Resource Use and Current and

Future Generations. This means that any effect on Surface Water or Air Quality, for example, could trigger a cascade of effects to a number of assessment matters. In essence, this can create a chain of interconnected and cumulative impacts.

ECRP is proposed to operate on an existing mine footprint, minimizing its new disturbance footprint. This site has mitigation measures which are currently required under the existing *Mines Act* permit, including maintaining a water cover on the TMSF, managing water from the underground workings, operating the mine's water treatment facility, and running the sewage treatment plant. Skeena indicated that the treatment of mine contact water and camp sewage would mitigate any anticipated project effects. Through the proposed Certificate conditions, Skeena would be required to develop additional management and monitoring plans with the purpose of validating effects of ECRP predicted in the Revised Application, mitigating those effects and implementing adaptive management strategies. These proposed Certificate conditions include an Air Quality Monitoring Plan, Aquatic Effects Monitoring Plan, Water Quality and Quantity Model Validation Report, Fish Tissue Baseline Report, and a Wildlife Effects Monitoring Plan.

TCG and NLG expressed concerns about the potential negative effects of ECRP on soils, water, air quality, aquatic habitat, fish health, terrestrial habitat, and wildlife health. This, in turn, would affect their ability to use the land and has potential effects on cultural activities for future generations.

If a malfunction or accident were to occur, it would have the potential to affect all the assessment matters noted above. Although the potential for a malfunction and accident would be rare or unlikely, except for project motor vehicle and trucking accidents, the consequence of an accident or malfunction on the assessment matters may have negative effects on additional assessment matters.

The EAO considered both the residual and cumulative effects of ECRP on the assessment matters related to the sustainability principles, as well as the proposed Conditions to mitigate negative effects and enhance positive effects. After considering the information in Skeena's Revised Application and advice from the Technical Advisory Committee, the EAO concluded that there are no significant adverse effects to environmental valued components from ECRP.

The relevant background chapters to this principle include: *Section 17.1 Air Quality*; *Section 17.3 Groundwater*; *Section 17.4 Surface Water*; *Section 17.5 Fish and Fish Habitat*; *Section 17.6 Terrain and Soils*; *Section 17.7 Vegetation and Ecosystems, Wildlife and Wildlife Habitat*; *Section 17.10 Non-Traditional Land and Resource Use*; *Section 16 Detailed First Nation Assessments*; and *Appendix 7 Risks of Malfunctions and Accidents*.

10.3 Fostering a Sound Economy

ECRP would increase employment opportunities, with emphasis on inclusive hiring practices to reflect local demographics. ECRP would create employment opportunities across the construction, operations, reclamation, and closure phases. Project construction is anticipated to last 2 years and directly employ up to 949 person years. Operations will last 13 years and employ up to 771 person years during peak operations.

Skeena also intends to involve local suppliers, generating indirect and induced economic benefits as wages are reinvested within the community. Additionally, ECRP is negotiating an impact benefit agreement with the Tahltan, which will include provisions and opportunities to support Tahltan businesses in the bidding process. Skeena has committed to work with Indigenous stakeholders to increase Indigenous business representation, Indigenous employment opportunities and support local economic growth. ECRP would also generate tax revenue for the province, through personal income taxes, Provincial Sales Tax, corporate income tax and the BC Minerals Tax Skeena estimated that ECRP would generate

approximately $60.3 million during Construction, $1,193.4 million during Operations, and $-3.6 million during Reclamation and Closure phases in provincial tax revenues.

There is risk of disproportionate negative effects to distinct human populations from the increase of employment opportunities. Men continue to hold the majority of natural resources and trades-focused occupations; therefore, the jobs being created by ECRP are less likely to be occupied by women, people who identify as women, and non-binary people. This is also discussed further in Principle 3: The Well-being of British Columbians and Their Communities.

In the event of malfunctions or accidents, the availability of infrastructure and services, such as hospitals, ambulances and roads, could be compromised. This may disproportionately impact primary caregivers, leading to a greater reliance and interaction with limited infrastructure and services. However, as employment and economy increase, this could lead to increased resources and funding that will be put into infrastructure and services.

Both Indigenous and non-Indigenous people engage in activities such as hunting, trapping, fishing, and plant gathering. However, it's important to recognize that, due to the protected Section 35 Rights of First Nations, effects on these activities could have a disproportionate effect on Indigenous peoples. An increase in non-Indigenous land users could negatively affect the rights and practices of First Nations. ECRP may also cause restrictions or limited access to certain cultural areas. As a result, land users and harvesters might need to travel greater distances to continue these activities, which could affect nutrition and food security.

Skeena plans to prioritize local hiring and skills training, particularly for underrepresented groups. This will include a range of employment types, which can accommodate varying educational and training backgrounds. On-the-job training, a Tahltan-focused mentorship program and an internship program focused on young adults would contribute to building a skilled workforce in the region.

In order to mitigate potential adverse effects to infrastructure and services and employment and economy, the EAO proposes Condition 22 Health and Medical Services Plan and Condition 23 Socioeconomic Management Plan. Based on the information contained in Skeena's Revised Application and advice from the Technical Advisory Committee, the EAO concluded that ECRP would not have residual adverse effects to economic and social assessment matters, and would have positive residual effects on employment.

The relevant background chapters to this principle include *Section 16 Detailed First Nation Assessments*; *Section 17.9 Infrastructure and Services*; *Section 17.12 Employment and Economy*; *Appendix 7 Risks of Malfunctions and Accidents*; and *Appendix 10 Effects on Current and Future Generations*.

10.4 The Well-being of British Columbians and Their Communities

One key benefit of ECRP is the potential tax revenue generated for the Province, described in Section 10.3 Fostering a Sound Economy, above. Additionally, ECRP would create jobs that support local hiring initiatives and provide valuable employment opportunities for Indigenous people, which would yield positive benefits for the community.

Jobs from ECRP would contribute to the broader regional and provincial economy and could attract transient workers to the area. The influx of transient workers could result in challenges such as housing shortages, limited daycare availability, and economic disparities within local communities. These issues may disproportionately affect Indigenous communities, exacerbating socio-economic challenges and increasing risks related to housing insecurity, safety, and gender-based violence. These factors, in turn, can have negative repercussions on overall human health and well-being.

Households with a single income are more at risk from rising prices in housing and essential goods. Indigenous and rural communities, who often have limited access to stable housing, also face higher transportation expenses, making them more vulnerable to cost-of-living increases driven by development projects.

Skeena has proposed specific income and employment measures for workplace safety and anti-harassment policies, recruitment and selection policies, and a social closure plan to manage the socioeconomic impact as the project transitions to closure for ECRP. Skeena also has also proposed a procurement plan to increase local economic contributions as well as an Indigenous business collaboration plan. Skeena acknowledges the challenge for low-income and single-income households. It is Skeena's intention to house employees on site and offer transportation to and from the workplace to minimize increased demand on local housing stock and potential employee's ability to get to site. To assess the effectiveness of mitigation measures, the EAO has proposed a Socio-economic Management Plan, as a Condition to track employment levels and effects to housing and childcare.

Reductions in water quality and quantity could affect vegetation, ecosystems, fish populations, and their habitats, as well as wildlife, and their habitats. This, in turn, could have effects on Current and Future Generations as well as Land and Resource Use, and Human Health. Through the proposed EAC conditions, Skeena would be required to develop management plans with the purpose of mitigating, monitoring and adaptively managing the effects of ECRP, including the air, water, vegetation, wildlife, fish and fish habitat. The EAO is proposing several Certificate conditions to help manage these effects including an Air Quality Monitoring Plan, Wildlife Effects Monitoring Plan, Water Quality and Quantity Validation Report and an Aquatic Effects Monitoring Plan.

Risks to human health from ECRP would consist of potential environmental changes, effects to mental health, increased infectious disease risk, increased chronic disease and environmental exposure, accidents, injuries and road safety, changes to nutrition and food security, and pressure on health and safety infrastructure and services. Human Health is closely connected to a wide range of assessment matters. As a result, negative effects to any of these assessment matters may collectively affect Human Health. Skeena has committed to working with local communities to identify and implement appropriate mitigation, monitoring, and follow-up programs to address and monitor existing and potential mental health effects. These programs consist of health and well-being measures and environmental and social responsibility measures. The EAO has also proposed EAC conditions including a Human Health Management and Monitoring Plan and a Socioeconomic Management Plan.

Relevant chapters: *Section 16 Detailed First Nation Assessments*; *Section 17.1 Air Quality*; *Section 17.2 Noise and Vibration*; *Section 17.3 Groundwater*; *Section 17.4 Surface Water*; *Section 17.5 Fish and Fish Habitat*; *Section 17.7 Vegetation and Ecosystems, Wildlife and Wildlife Habitat*; *Section 17.8 Human Health*; *Section 17.11 Visual Resources*; *Section 17.9 Infrastructure and Services*; *Section 17.10 Non-Traditional Land and Resource Use*; *Section 17.12 Employment and Economy*; and *Appendix 7 Risks of Malfunctions and Accidents*.

10.5 Sustainability Conclusion

Considering the above principles and analysis, the EAO is of the view that:

1. Provincial requirements for ECRP established through proposed Certificate Conditions and regulatory processes under the *Mines Act* and *Environmental Management Act* would minimize adverse effects on the environment while maintaining new land disturbance within the existing mine footprint to the extent possible;

2. ECRP would foster a sound economy by providing continuing and new employment, contracting, and training opportunities, and would contribute financial support to First Nations organizations as well as provide tax revenue and employment to B.C. citizens; and
3. While ECRP may have effects on First Nations and their interests, it would also contribute to the well-being of British Columbians and their communities, including First Nations communities, by managing the effects of ECRP in areas important to First Nations and local communities, by capacity building within First Nations communities and by ensuring that Indigenous knowledge, perspectives and interests are integrated in the mine development.

The EAO has administered the ECRP EA to allow for a clear understanding of ECRP's contribution to the promotion of sustainability. The EAO notes that, while ECRP is overall expected to have a positive contribution to sustainability, uncertainty remains related to some mitigation measures and interactions between assessment matters. Should a Certificate be issued for ECRP, the EAO and other regulatory agencies will provide oversight through Certificate Conditions and permit requirements. [Placeholder for sustainability recommendation].

11.0 The EAO's Conclusions

Based on:

- Information contained in Skeena's Revised Application, as well as supplemental information provided by Indigenous groups, the Technical Advisory Committee, the Community Advisory Committee and the Alaska Tribes Technical Advisory Committee (ATTAC);
- Skeena's, the EAO's and IAAC's consultation and engagement with Indigenous peoples, provincial and local government agencies, as well as the public;
- Comments received during the ECRP environmental assessment made by Indigenous peoples, provincial, federal and local government agencies as members of the EAO's Technical Advisory Committee, as well as Skeena's and the EAO's responses to those comments;
- Comments received during the ECRP public comment periods and from members of the Community Advisory Committee, and Skeena's responses to those issues;
- Issues raised by Indigenous groups regarding the potential effects of the ECRP on their Indigenous Interests, as well as Skeena's responses and best efforts to address those issues;
- The design of the ECRP as specified in the EAO's proposed Certified Project Description (Schedule A of the Certificate, if issued) which authorizes the ECRP's components and activities that may occur;
- Mitigation measures identified in the EAO's proposed Table of Conditions (Schedule B of the Certificate, if issued) to be implemented by Skeena during all phases of the ECRP;
- The EAO's recommended mitigation measures and Follow-Up Programs under the IAA intended to inform federal conditions that would be implemented by Skeena during all phases of the ECRP; and
- Permitting and other regulatory requirements that the ECRP would be subject to if it receives a Certificate.

Considering Indigenous peoples' views of the ECRP including that:

- [To be updated when the views of First Nations are received]

The EAO is satisfied that:

- The environmental assessment process has adequately identified and assessed potential adverse environmental, economic, social, cultural and health effects of the ECRP, having regard to the proposed conditions set out in the Table of Conditions (Schedule B of the Certificate, if issued);
- The ECRP is expected to result in positive residual effects to changes to employment and changes to economic benefits;
- Other assessment matters have been adequately assessed, including: risks and uncertainties associated with effects, interactions between effects, the risks of malfunctions and accidents, disproportionate effects on distinct human populations, effects on biophysical factors that support ecosystem functions, effects on current and future generations, contributions to sustainability, consistency with land use plans, greenhouse gas emissions, alternative means for carrying out the ECRP, and potential changes to the ECRP that may be caused by the environment;
- Consultation with provincial and federal departments, local governments and the public has been adequately carried out;
- Issues identified by the Technical Advisory Committee and Community Advisory Committee, as well as members of the public which were within scope of the environmental assessment, were adequately and reasonably addressed during Application Review;
- The ECRP would result in adverse residual or cumulative effects to environmental, social, cultural and health components, but with the application of mitigation measures and legally binding conditions, these effects would not be significant;
- Provincial requirements for the ECRP established through proposed Certificate conditions and subsequent permitting processes would minimize adverse effects on the environment; and
- The ECRP would foster a sound economy by increasing employment opportunities and generating tax revenue for the Province;
- The consultation, engagement and consensus-seeking efforts between the EAO and First Nations have been carried out in good faith;
- The potential for adverse effects to First Nations and their interests within the scope of the environmental assessment have been avoided, minimized or otherwise accommodated to a reasonable level;
- The provincial Crown has fulfilled its legal obligations to consult and accommodate potentially affected First Nations related to the issuance of a Certificate for the ECRP and has met the requirements of the Nisga'a Treaty in accordance with paragraph 8(e) and 8(f) of Chapter 10; and
- [Placeholder for Tahltan Central Government decision].

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12.0 Appendix 1 The Environmental Assessment Process

12.1 Early Engagement

The Early Engagement phase is the first phase of the provincial environmental assessment process and is an important preparatory stage during which meaningful conversations can begin about a proposed project with the proponent, Indigenous peoples, the public, local governments, provincial and federal government agencies, and other stakeholders to identify potential interests, issues and concerns early on in the process. The information gathered during the Early Engagement phase informs the development of the Initial Project Description and Detailed Project Description and may also inform subsequent phases of the environmental assessment. The EAO and IAAC worked cooperatively in a coordinated process for the initial phase of ECRP's review in accordance with the *Cooperation Agreement* and in support of the principle of "one project, one assessment."

Skeena submitted the *Initial Project Description* and *Engagement Plan* for ECRP to the EAO on July 19, 2021**,** under the Act. On August 6, 2021, the EAO submitted a request to IAAC that the Government of B.C. conduct a single environmental assessment for ECRP that meets the legislative requirements of both B.C. and Canada should a federal impact assessment be required.

During the Early Engagement phase, IAAC and the EAO requested input from the public, potentially affected Indigenous peoples, and technical advisors from provincial and federal government agencies, local governments, and health authorities to understand their preferred means of engagement and to gather their initial interests, concerns, questions, feedback, and knowledge regarding ECRP. As part of the 30-day *public comment period*, IAAC also invited comments from the public and Indigenous peoples on B.C.'s request that the conduct of the federal impact assessment be substituted to the province. Comments received in relation to the substitution request were considered by the federal Minister of Environment and Climate Change in making the substitution decision. To support engagement and feedback on the Initial Project Description, the EAO hosted two virtual information sessions and held meetings with technical advisors and the potentially affected TCG, Tsetsaut Skii Km Lax Ha, NLG, MNBC and Gitanyow prior to and during the Early Engagement phase. IAAC posted a summary of the Initial Project Description in English and French to the *Canadian Impact Assessment Registry*.

Pursuant to Section 13(5) of the Act, the EAO and IAAC's *Joint Summary of Issues and Engagement* was provided to Skeena on October 28, 2021, setting out a summary of comments received on the approved Initial Project Description, a description of the public comment period, including a summary of what the EAO heard during the Early Engagement phase from the public, a list of technical advisors, and a list of the First Nations who submitted notice under section 14(1) of the Act to be participating Indigenous nations.

Following IAAC's *Guide to Preparing an Initial Project Description and a Detailed Project Description*, and EAO's *Readiness Decision Policy*, Skeena provided early drafts of the Detailed Project Description, including a response to the Joint Summary of Issues and Engagement, that met both federal and provincial requirements for ECRP on March 18, 2022 and June 10, 2022**.** The drafts were reviewed by the EAO, IAAC, participating Indigenous nations, First Nations, MNBC, local governments and provincial and federal government agencies, and comments were provided to Skeena.

On June 6, 2022, Tahltan Nation (as represented by TCG) and the Government of B.C. signed the *Declaration Act Agreement*, which requires TCG consent in order for the project to proceed, informed by an assessment of the potential effects of the ECRP as related to Tahltan Risk Assessment Factors and Sustainability Requirements.

Skeena submitted a final Detailed Project Description for ECRP to the EAO on August 10, 2022, which was accepted on August 12, 2022, initiating the Readiness Decision phase. On November 9, 2022, Skeena formally submitted the final Detailed Project Description to IAAC so that a decision could be made on whether or not an impact assessment was required for ECRP.

12.2 Readiness Decision

Under Section 16 of the Act, the CEAO determines whether a project should proceed to an environmental assessment that evaluates the effects of the project, should be referred to the Minister of Environment and Parks with a recommendation that the project be exempted from the requirement to obtain a Certificate, that the assessment be conducted by another assessment body (such as a review panel), or the project may not proceed as proposed. This is referred to as the "Readiness Decision." There are four options for this decision: a requirement to revise the Detailed Project Description, the exemption of the project from the requirement to obtain a Certificate, the termination of the project, or the project can proceed to an environmental assessment.

The EAO sought advice from the technical advisors, First Nations, including local governments, health authorities and provincial government agencies, and environmental assessment participants on the sufficiency of the Detailed Project Description and the recommendation of the EAO on the Readiness Decision. The EAO sought consensus on the recommendation for the Readiness Decision with the participating Indigenous nations.

On November 18, 2022, TCG advised the EAO that ECRP should proceed to Process Planning after considering community engagement and the CEAO determined that ECRP could proceed to an environmental assessment. This decision was documented in the Readiness Decision materials, including the *Readiness Decision Report* and *Reasons for Decision of the Chief Executive Assessment Officer*.

Also on November 18, 2022, IAAC decided that an impact assessment was required in accordance with Subsection 16(1) of the IAA for ECRP and posted the *Notice of Impact Assessment Decision with Reasons* to the Canadian Impact Assessment Registry. On November 29, 2022, the federal Minister of Environment and Climate Change provided the EAO with a *Notice of Substitution Approval under the Impact Assessment Act*. IAAC provided guidance and information directly to the EAO regarding the substituted process and federal requirements under the IAA.

12.3 Process Planning

The Readiness Decision then initiated the legislated 120-day Process Planning phase of the environmental assessment for ECRP. During Process Planning, the EAO established a TAC (see *Section 5.1*), a CAC (see *Section 5.2*), and an ATTAC (see *Section 6.5*), and developed the following documents that set the scope, procedures, methods, and timelines for the environmental assessment of the proposed ECRP:

- *Process Order*, including the project scope, *Assessment Plan* and *Hybrid AIR*; and,
- *Joint Permitting/Regulatory Coordination Plan*.

During Process Planning, the EAO sought feedback on these draft process planning documents from participating Indigenous nations, the TAC, and the public through a 30-day *public comment period* and two virtual information sessions. The EAO then collected all the feedback received on the draft process planning documents, sought consensus with participating Indigenous nations, and issued the final *Process Order* to Skeena on April 18, 2023. The EAO also developed a *Summary of Engagement* for the Process Planning phase.

On April 18, 2023, prior to the finalization of the Process Planning phase, TCG provided notice to the CEAO that consensus had been achieved on the Process Order and supporting schedules for ECRP.

12.4 Application Development and Review

During the first stage of this phase, Skeena developed its Application and engaged TCG, NLG, Tsetsaut Skii km Lax Ha, Gitanyow, MNBC, the TAC, and the ATTAC on the Application, in accordance with the requirements of the Process Order.

On August 21, 2024, Skeena submitted its Application for review under Section 27(1) of the Act. The environmental assessment process then moved into the second stage of this phase, a 180-day Application review period wherein the

EAO and TCG, pursuant to Section 7.27 of the Declaration Act Agreement, worked together through the Collaboration Team established under the Declaration Act Agreement to collaboratively review the Application.

The EAO sought review and comment on the Application from TCG, NLG, Tsetsaut Skii Km Lax Ha, MNBC, the ATTAC, and the TAC, including review of additional technical memos submitted by Skeena. The EAO also gathered feedback from the CAC and the public through a 30-day *public comment period* and two virtual information sessions. Gitanyow worked directly with Skeena to apply the WSAP to ECRP and did not participate in Application review. but requested the EAO update them at key milestones of the environmental assessment process.

On February 18, 2025, the EAO and TCG jointly provided Skeena a *Notice Regarding Application Review*, which included an overview of the issues and concerns raised during Application Review and provided direction to Skeena on any additional information or revisions to include in the Revised Application.

Skeena then continued to work on the resolution of issues raised during Application Review, submitting its Revised Application on April 14, 2025. The EAO and TCG reviewed the Revised Application, sought consensus on its adequacy, and *accepted the Revised Application* for assessment on May 30, 2025.

12.5 Effects Assessment and Recommendation

Following the EAO and TCG's joint acceptance of the Revised Application, the Effects Assessment phase began. During this 150-day phase, the EAO completed its assessment and developed a draft of this Report. This assessment considered the potential effects to all matters listed under *Section 25* of the Act. The EAO also developed a proposed Certificate with conditions for the Ministers' consideration when deciding whether to issue a Certificate. The EAO coordinated with IAAC during this phase so that IAAC could develop draft potential federal conditions to be considered for the federal Decision Statement. All the EAO documents have considered the input received through engagement with TCG, Tsetsaut Skii Km Lax Ha, NLG, MNBC, Gitanyow, the TAC, the ATTAC, the CAC, and the public.

The EAO completed a detailed assessment of effects on the valued components, Indigenous Interests, and other assessment matters, as described under *Section 25* of the Act. The matters to be assessed had been previously determined by the EAO during the Process Planning phase, in consultation with technical advisors and the public and through consensus seeking with the participating Indigenous nations, and were set out in the *Hybrid AIR* for the ECRP. These assessments incorporated information submitted by Skeena, feedback and advice received from all environmental assessment participants, Indigenous knowledge and other information provided. The EAO also held a 30-day *public comment period* on the draft of this Report, proposed Certificate and draft conditions, and draft potential federal conditions.

The EAO sought to achieve consensus with TCG and NLG on the draft assessment materials. During the public comment period, TCG and NLG also had the opportunity to provide notice of their consent or lack of consent to issuing the Certificate and reasons for that consent or lack of consent. The results of the consensus-seeking and provision of consent or lack of consent is described in *Section 6.0* of this Report.

In keeping with the *Cooperation Agreement*, the EAO assessed ECRP consistent with the requirements and associated conditions in the *Notice of Substitution Approval* under the IAA. Specifically, the EAO considered the factors set out in *subsection 22(1)* of the IAA, provided opportunities for the public to meaningfully participate in the environmental assessment, conducted consultation with Indigenous peoples that may be affected by ECRP and provided opportunities for IAAC to participate in consultation. The EAO will provide a final version of this Report to the federal Minister of Environment and Climate Change that includes the findings and conclusions of the environmental assessment with respect to those factors.

For substituted assessments, both the provincial Ministers and federal Minister of Environment and Climate Change (or Governor in Council) retain the responsibility to make a decision on whether a project may proceed. The final version of this Report, proposed Certificate, recommendations of the CEAO, and any notices of consent or lack of consent received

from participating Indigenous nations will be referred to the Ministers for decision. The Ministers must consider these materials and any other public interest considerations and decide to issue (with conditions) or refuse a Certificate. The Ministers must then publish reasons for their decision. The EAO will provide this Report to the federal Minister of Environment and Climate Change that includes the findings and conclusion of the environmental assessment with respect to subsection 22(1) factors, for their decision-making under the IAA.

Under the *Declaration Act Agreement*, TCG developed its draft *Tahltan Risk Assessment Report* to assess effects on the Tahltan Nation and their rights and will make their own decision on whether to consent to ECRP. The final Tahltan Risk Assessment Report and TCG Notice of Decision will be taken into account in the EAO's final assessment materials and will also be referred to the provincial and federal Ministers for consideration in their respective decisions.

12.6 Post-Certificate

If a Certificate is issued, this phase will include all post-Certificate activities for ECRP, including mitigation effectiveness reports, audits, certificate amendments, certificate extensions, and certificate transfers. TCG will work with Skeena on the development and implementation of Tahltan management and monitoring plans (see *Tahltan Risk Assessment Report*). IAAC will also work with Skeena on the development and implementation of the Follow-Up Programs required for the ECRP (see *Appendix 2*).

The Compliance and Enforcement branch of the EAO conducts compliance inspections and, where required, uses enforcement to ensure that projects are compliant with the Certificate conditions. For more information on compliance and enforcement, see the *EAO's website*.

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13.0 Appendix 2 The EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA

The recommended federal Key Mitigation Measures and Follow-up Programs under the IAA outlined in Table 6 inform the draft federal conditions. If the ECRP is approved, the federal conditions would be legally binding on the proponent and its successors or assigns, whereas the recommended Mitigation Measures and Follow-up Programs are not. The draft federal conditions can be found on *EPIC*.

The EAO recommends that all plans be developed in consultation with the Indigenous groups identified in *Section 3.1* (First Nations) of this Report.

Table 6 Recommended Federal Key Mitigation Measures and Follow-up Programs

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
Fish and fish habitat	Subparagraphs (a)(i) and (a)(ii) of the definition of effects within federal jurisdiction in Section 2 of the IAA	• Surface water • Groundwater • Fish and fish habitat	1. Develop, implement and maintain measures to control erosion, sedimentation and runoff in the Designated Project area and along the portion of the Eskay Creek Mine Access Road within the Proponent's care and control during all phases of the Designated Project to avoid the deposit of sediment in waters frequented by fish and the adverse federal effects of sediment suspension and deposition on fish and fish habitat in accordance with the requirements of the *Fisheries Act*, while taking into account Fisheries and Oceans Canada's Measures to Protect Fish and Fish Habitat. In doing so, the Proponent shall, at a minimum: 1.1. stabilize, at the end of each working day, bare and exposed soils and stockpiles of materials at risk of erosion that are not actively being used; 1.2. install energy dissipation structures, stilling basins, and sediment control facilities designed to capture and manage flows from a minimum of a 24-hour, 10-year precipitation event; and 1.3. inspect these measures regularly, including during and following events that may test these measures including rainfall events, and document and repair any defective or damaged control measure in a timely manner.
		• Surface water • Fish and fish habitat	2. Develop, prior to construction and in consultation with Indigenous groups, Fisheries and Oceans Canada, Environment and Climate Change Canada and any other relevant authorities and implement, during all phases of

[10] *Impact Assessment Act*

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			the Designated Project, a follow-up program with respect to adverse federal effects on fish and fish habitat from changes to surface water quantity. As part of the follow-up program: 2.1. monitor, beginning prior to construction and continuing year-round through decommissioning, surface water flows and levels at Tom MacKay Creek, Ketchum Creek, Eskay Creek, and Coulter Creek; 2.2. recalibrate the relevant hydrometric models using the data collected pursuant to condition 2.1 and 2.3. if modelling shows an increase in adverse federal effects compared to predictions made during the impact assessment, update the water balance model and the models that were used to predict effects to fish and fish habitat with the monitoring data collected and implement modified or additional mitigation measures.
		• Surface water • Fish and fish habitat	3. Develop, prior to construction and in consultation with Indigenous groups, Fisheries and Oceans Canada, Environment and Climate Change Canada and any other relevant authorities and implement, during all phases of the Designated Project, a follow-up program with respect to adverse federal effects on fish and fish habitat from changes in surface water quality. As part of the follow-up program: 3.1. monitor selenium in periphyton, aquatic invertebrates and fish; 3.2. monitor surface water in the receiving environment at the monitoring locations identified in *Table 15.5-9* of the Revised Application and any additional monitoring locations identified through updated surface water quality modeling pursuant to condition 3.3; and 3.3. if monitoring pursuant to condition 2.1 and 3.2 shows an increase in adverse effects to surface water quality or quantity compared to prediction made during the impact assessment, update surface water

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			quality modeling and effects predictions with the results and modeling pursuant to conditions 2.2 and 4.4 and implement modified or additional mitigation measures.
		• Groundwater • Fish and fish habitat	4. Develop, prior to construction and in consultation with Indigenous groups, Fisheries and Oceans Canada, Environment and Climate Change Canada and any other relevant authorities, and implement, during all phases of the Designated Project, a follow-up program with respect to adverse federal effects on fish and fish habitat from changes to groundwater quality and quantity. As part of the follow-up program: 4.1. map fault zones and preferential flow pathways for groundwater prior to construction; 4.2. if mapping pursuant to condition 4.1 identifies fault zones and flow pathways not already considered in groundwater modelling, update the modelling with this information; 4.3. map seepage, including from the Tom Mackay Storage Facility, through hydrogeological studies to verify the accuracy of the impact assessment and provide the studies to the parties consulted; 4.4. if the results of the hydrogeological studies pursuant to condition 4.3 indicate seepage in excess of the predictions identified in the Application, implement additional or modified mitigation measures; 4.5. monitor groundwater quality upgradient, downgradient and cross-gradient from contact water sources where seepage may occur, including the Tom MacKay Storage Facility and North pit; and 4.6. if monitoring pursuant to condition 4.5 shows an increase in adverse effects to groundwater quality or quantity compared to predictions made during the impact assessment, update groundwater modeling and effects predictions with the results of modelling pursuant to conditions 2.2 and 3.3 and implement modified or additional mitigation measures.

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Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
Migratory birds	Subparagraph (a)(iii) of the definition of effects within federal jurisdiction in section 2 of the IAA	Wildlife and Wildlife habitat	5. Carry out the Designated Project in a manner that protects migratory birds and avoids capturing, killing, taking, injuring or harassing migratory birds or destroying, taking or disturbing their eggs, or damaging, destroying, removing or disturbing nests and residences protected under the *Migratory Birds Convention Act, 1994* and its regulations or the *Species at Risk Act* or both, while taking into account Environment and Climate Change Canada's Guidelines to avoid harm to migratory birds.
		Wildlife and Wildlife habitat	6. Determine, under the direction of a Qualified Professional, the presence, or likely presence of migratory bird nest(s) protected under *the Migratory Birds Convention Act, 1994* and its regulations and residences protected under the *Species at Risk Act* that may be adversely affected by any Designated Project activity prior to initiating the activity.
		Wildlife and Wildlife habitat	7. Delineate, as determined by and under the direction of a Qualified Professional, setback distances around any nest(s) and residences whose presence or likely presence is determined pursuant to condition 6 within which that activity shall not occur while those nests and residences are protected under the *Migratory Birds Convention Act, 1994* and its regulations or the *Species at Risk Act* or both.
		Wildlife and Wildlife habitat	8. In consultation with Environment and Climate Change Canada and under the direction of a Qualified Professional, compensate for the loss of barn swallow *(Hirundo rustica)* nesting sites as a result of the Designated Project. In doing so, install artificial nesting structures for barn swallows (Hirundo rustica) prior to the removal of existing nesting structures, taking into account Environment and Climate Change Canada's Operational Framework for Use of Conservation Allowances and the *Beneficial Management Practices for Barn Swallow (Hirundo rustica).*
		Wildlife and Wildlife habitat	9. Deter migratory birds from accessing contact water until such time that the quality of the contact water meets British Columbia's *Water Quality Guidelines for the Protection of Wildlife and Livestock* and Canadian Council of Ministers of the Environment's *Canadian Water Quality Guidelines for the Protection of Aquatic Life*.
		Wildlife and Wildlife habitat	10. Implement measures to control lighting, including direction, timing, colour and intensity, during all phases of the Designated Project to mitigate attraction and disorientation of migratory birds, while meeting health

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			and safety requirements and considering the measures contained within the Secretariat of the Convention on Migratory Species (CMS)'s *International Light Pollution Guidelines for Migratory Species.* In doing so, at a minimum: 10.1. use directional lighting that targets only the areas where lighting is required; 10.2. optimize lighting design to reduce the total amount of lighting needed; and 10.3. use shielded fixtures where possible to reduce glare and light leakage in directions where light is not required
Impact on physical and cultural heritage, current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance	Subparagraph (c)(i), (c)(ii), and (c)(iii) of the definition of effects within federal jurisdiction in section 2 of the IAA	Current use of lands and resources for traditional purposes	11. Develop, prior to Construction and in consultation with Indigenous groups and relevant authorities, and implement, from the start of Construction until the end of operation, measures to mitigate Designated Project effects on furbearers of importance to Indigenous groups, including furbearers listed as wildlife of cultural importance in Appendix 6 (*Section 17.7.3.2*) of this Report, including any active furbearer dens. In doing so: 11.1. conduct, prior to construction, surveys to identify active dens of furbearers of importance to Indigenous groups; and 11.2. establish no work buffer zones for active dens identified during pre-construction surveys in condition 11.1. Take into account British Columbia's *Compendium of Wildlife Guidelines for Industrial Development Projects in the North Area, British Columbia - Interim Guidance* when establishing buffer zones for furbearer dens
		Current use of lands and resources for traditional purposes	12. Prohibit, during all phases of the Designated Project, employees and contractors of the Designated Project from fishing, hunting, trapping, plant gathering and using off-road vehicles for recreation purposes within the Designated Project area or using the Designated Project area to access surrounding areas for these purposes unless an employee or contractor is provided access by the Proponent for the exercising of Aboriginal rights, to the extent that such access is safe. In doing so, develop, prior to construction, and implement measures to enforce

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			a policy to this effect during all phases of the Designated Project.
		Current use of lands and resources for traditional purposes	13. Develop, prior to construction and in consultation with Indigenous groups, and implement during all phases of the Designated Project, a protocol for receiving and addressing complaints related to the effects of Designated Project activities, including via noise, light and dust generation, access changes, and employee compliance with condition 12, on the current use of lands and resources for traditional purposes. 13.1. provide the protocol to the Agency and Indigenous groups prior to construction and make the protocol publicly available online. As part of the protocol: 13.1.1. document and respond to complaint(s) in a timely manner and demonstrate how issues have been addressed, including through the implementation of modified or additional measures; and 13.1.2. acknowledge receipt of any complaints within 48 hours.
		Current use of lands and resources for traditional purposes	14. Develop, prior to construction and in consultation with Indigenous groups, and implement, during all phases of the Designated Project, a communication plan to share information with Indigenous groups on adverse federal effects of Designated Project activities as they related to impacts on Indigenous traditional activities. In doing so: 14.1. develop and implement procedures for the Proponent to communicate up-to-date schedules of Designated Project activities likely to affect Indigenous traditional activities, and maps of where these activities are occurring.
		Current use of lands and resources for traditional purposes	15. Implement, during construction and operation, measures to mitigate impacts to ungulates and bears from Designated Project–related vehicle traffic within the Proponent's care and control on the Eskay Creek Mine Access Road and Highway 37 and 37A. In doing so: 15.1. require employees and contractors of the Designated Project to give ungulates and bears the right-of-way and remain in their vehicles until the animals have vacated the road, unless it is unsafe to do so; and

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			15.2. develop, prior to construction, and implement during construction and operation, a protocol for documenting and responding to Designated Project vehicle collisions with large mammals, including ungulates and bears, as well as sightings of large mammals along the transportation corridor by Designated Project employees and contractors while working for the Designated Project. As part of the protocol: 15.2.1. require employees and contractors to self-report, as soon as is safe, observed interactions with and fatality of large mammals, as well as sightings of large mammals along the transportation corridor and shall require all employees and contractors to apply this protocol; and 15.2.2. document the information provided pursuant to condition 15.2.1 and implement measures to improve awareness of the presence of large mammals in the area.
		Current use of lands and resources for traditional purposes	16. During winter for all phases of the Designated Project, plow gaps in snowbanks in areas where ungulates are known to overwinter along the Eskay Creek Mine Access Road every 500 metres on alternating sides between the mine site and kilometre 41.
		Current use of lands and resources for traditional purposes	17. Require all helicopters associated with the Designated Project to fly at altitudes greater than 500 metres above ground level over high elevation mountain goat winter and sensitive life stage habitat except for approach, take-off and landing maneuvers for the purpose of constructing or accessing mine infrastructure or for safety reasons.
		Current use of lands and resources for traditional purposes	18. Develop, prior to construction, and implement during all phases of the Designated Project measures to mitigate fugitive dust emissions attributable to the Designated Project, including dust associated with vehicles and roads within the Proponent's care and control and the handling and storage of granular materials that could become sources of fugitive dust, taking into account *Best Practices for the Reduction of Air Emissions from Construction and*

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			Demolition Activities (2005) prepared for Environment and Climate Change Canada.
		Current use of lands and resources for traditional purposes	19. Undertake, in consultation with Indigenous groups and relevant authorities, progressive reclamation, including final reclamation, of areas disturbed by the Designated Project. In doing so: 19.1. identify, in consultation with Indigenous groups, plant species native to the region and plant species used for traditional purposes including trees, shrubs and herbs; and 19.2. use the plant species identified pursuant to condition 19.1 for revegetation.
			20. Develop, prior to decommissioning, a follow-up program to verify the effectiveness of final reclamation measures and implement the program during decommissioning and post-closure. In doing so: 20.1. establish performance standards to evaluate the effectiveness of Final Reclamation activities; and 20.2. conduct vegetation surveys on reclaimed landforms within the Designated Project area to monitor, at a minimum, vegetation species, average vegetation coverage, and absence of weeds annually during decommissioning and for the first five years of post-closure and thereafter every 5 years, at a minimum, until the performance standards established pursuant to condition 20.1 are met.
Impact on physical and cultural heritage, current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical,		Physical and cultural heritage of, and structures, sites or things of historical, archaeological, paleontological or architectural significance to, Indigenous peoples	21. Develop, prior to construction and in consultation with Tahltan Nation and Tsetsaut/Skii km Lax Ha, a chance find procedure to implement in the event that suspected physical and cultural heritage resources, including culturally modified trees and physical evidence of human habitation or use, and structures, sites or things of historical, archaeological, paleontological or architectural significance to Indigenous peoples are discovered by the Proponent or brought to the attention of the Proponent by another party, within the Designated Project area during construction. The chance find procedure shall respect

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Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
archaeological, paleontological or architectural significance			Tahltan Archaeology Standards for all discoveries. As part of the procedure: 21.1. follow Tahltan Archaeology Standards and develop and implement procedures respecting the handling, recording, transferring and safekeeping of any discovery, including procedures to prevent unauthorized access to any such discovery; and 21.2. inform, in writing, the Agency, Tahltan Nation and Tsetsaut/Skii km Lax Ha within 24 hours of any discovery subject to the requirements of the Chance Find Procedure referred to in condition 21.
Health, social or economic conditions of the Indigenous peoples of Canada	Paragraph (d) of the definition of effects within federal jurisdiction in section 2 of the IAA	Community health and wellness	22. Develop, prior to construction, and implement during all phases of the Designated Project measures to promote safe, respectful and inclusive conduct in the workplace and community, including actions to respond to Call for Justice 13.1 in *Reclaiming Power and Place: The Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls*. In doing so: 22.1. implement a workplace anti-harassment, anti-bullying, anti-discrimination and anti-violence policy that incorporates gender-appropriate, gender-specific, and culturally appropriate policies and processes, including sexual harassment and trauma counselling as well as confidential and culturally sensitive care; 22.2. implement a workplace policy on the use and possession of drugs and alcohol, which prohibits the use of, or being under the influence of, illicit drugs or alcohol during work hours; 22.3. develop and deliver mandatory cross-cultural awareness training for employees of the Designated Project and contractors associated with the Designated Project; 22.4. develop and implement a Worker Code of Conduct that outlines expectations and requirements in relation to the measures developed to promote safe,

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			respectful and inclusive conduct in the workplace and the community, incorporating above policies; 22.5. implement a fair and timely process to investigate and resolve incidents and complaints; and 22.6. develop and implement an overarching strategy to build workforce resilience, including a workplace health promotion program, to support mental well-being and positive social behaviour.
		Employment and economy	23. Have a qualified individual with experience in recruiting Indigenous Peoples develop, prior to construction and in consultation with Indigenous groups and other relevant authorities, and implement, during construction and operation, measures to create and enhance opportunities for Indigenous peoples, including Indigenous women and Indigenous businesses, to obtain and retain employment, procurement or contracting opportunities related to the Designated Project. In doing so: 23.1. identify the prerequisite skills and training, both certified and uncertified, required to be employed by the Designated Project; 23.2. identify existing gaps in relation to the prerequisite skills and training referred to in condition 23.1 among Indigenous peoples that may be employed by the Designated Project and describe measures under the care and control of the Proponent for filling these gaps, including the provision of on-the-job training and apprenticeship programs for Indigenous Peoples; 23.3. inform Indigenous groups, using targeted communication procedures designed in consultation with Indigenous groups, of the skills and training prerequisites and measures to achieve these prerequisites including the Indigenous Skills and Employment Training and the Skills and Partnership Fund; 23.4. inform Indigenous groups of employment and procurement opportunities related to the Designated Project, using targeted communication procedures designed in consultation with Indigenous groups; and

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			23.5. develop measures to inform Indigenous peoples of employment opportunities related to the Designated Project, the procurement process, and procurement opportunities and adapt these measures to the needs of Indigenous groups as determined through consultation.
		Employment and economy	24. Develop, prior to the end of year 3 of operation and in consultation with Indigenous groups, and implement during operations and decommissioning, nation-specific measures to minimize the impacts to Indigenous employees and their communities resulting from the decline in employment and contracting opportunities during operations and decommissioning. In doing so shall, adapt these measures to the needs of Indigenous groups as determined through consultation.
		Air quality Soil Surface water Country foods	25. Develop, prior to construction and in consultation with Indigenous groups, Health Canada, Environment and Climate Change Canada and any other relevant authorities, and implement a follow-up program with respect to adverse federal effects from the Designated Project on air quality, soil, surface water and country foods as it relates to the health of Indigenous peoples, taking into account available Indigenous knowledge provided by Indigenous groups related to current use of lands and resources for traditional purposes. As part of the implementation of the follow-up program: 25.1. identify, in consultation with Indigenous groups, the species of fish, vegetation and wildlife consumed as country foods that may be adversely affected by the Designated Project and the locations where these species shall be monitored; 25.2. monitor, beginning prior to start of construction activities that could contaminate country foods identified in condition 25.1 and continuing through post-closure, contaminants of potential concern, including arsenic, inorganic arsenic, cadmium, chromium, iron, lead, manganese, mercury, methylmercury, molybdenum, nickel, selenium, and zinc, in the species and at the locations identified pursuant to condition 25.1. Co-locate soil sample sites

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			with vegetation samples sites and co-locate water sample sites with fish samples sites; 25.3. monitor, throughout construction and operation on an annual and short-term basis including for 1-hour and 24-hour periods, ambient air concentrations of NO2, PM10 and PM2.5; and 25.4. if the monitoring results referred to in conditions 25.2 to 25.3 exceed predicted levels in the Application or thresholds of appropriate guidelines and standards, modify or implement additional mitigation measures pursuant to condition 35 and update the human health risk assessment in the Application. The Proponent shall submit any updates to the human health risk assessment to the Agency and relevant authorities.
Accidents and Malfunctions	22(1)(a)(i)	Malfunction and accidents	26. Take all reasonable measures to prevent accidents and malfunctions that may result in adverse federal effects and shall mitigate adverse federal effects from accidents and malfunctions that do occur.
		Malfunction and accidents	27. Consult, prior to each phase, Indigenous groups and relevant authorities about the measures to be implemented in condition 26 to prevent accidents and malfunctions.
		Malfunction and accidents	28. Develop, prior to each phase of the Designated Project and in consultation with Indigenous groups, Environment and Climate Change Canada and any other relevant authorities and implement during the applicable phase an accidents and malfunctions response plan for the Designated Project. In this plan, include: 28.1. a description of the types of accidents and malfunctions that may cause adverse federal effects during any phase of the Designated Project, including the malfunction or failure of infrastructure, and spills of hazardous substances affecting fish and fish habitat; 28.2. the measures to be implemented in response to each type of accident and malfunction referred to in

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			condition 28.1 to mitigate any adverse federal effects caused by the accident or malfunction; 28.3. for each type of accident and malfunction referred to in condition 28.1, the roles and responsibilities of the Proponent and each applicable relevant authority or other party that may be called upon to respond to an accident or malfunction in implementing the measures referred to in condition 28.2; and 28.4. thresholds for reporting and notification of each relevant authority and other parties identified pursuant to 28.3.
		Malfunction and accidents	29. Maintain each accident and malfunction response plan referred to in condition 28 up to date during the phase to which it pertains. Submit any updated plan to the Agency and to parties consulted for the development of the plan within 30 days of the plan being updated.
		Malfunction and accidents	30. In the event of an accident or malfunction with the potential to cause adverse federal effects, implement the measures appropriate to the accident or malfunction, including any measure referred to in condition 28.2, as soon as practicable and: 30.1. implement the accident and malfunction communication plan referred to in condition 31; 30.2. notify relevant authorities with responsibilities related to emergency response (including environmental emergencies) in accordance with applicable legislative and regulatory requirements; 30.3. notify, as soon as possible and pursuant to the accident and malfunction communication plan referred to in condition 30, Indigenous groups of the accident or malfunction, and notify the Agency in writing no later than 24 hours following the accident or malfunction. When notifying Indigenous groups and the Agency, the Proponent shall specify: 30.3.1. the date and time when and location where the accident or malfunction occurred;

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Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			30.3.2. a summary description of the accident or malfunction; 30.3.3. a list of any substance and approximate quantity thereof potentially released into the environment as a result of the accident or malfunction; and 30.3.4. a description of the relevant authorities notified pursuant to condition 30.2; 30.4. submit a written report to the Agency no later than 60 days after the day on which the accident or malfunction occurred. The written report shall include: 30.4.1. a detailed description of the accident or malfunction and of its adverse federal effects; 30.4.2. a description of the measures that were taken by the Proponent to mitigate the adverse federal effects caused by the accident or malfunction; 30.4.3. any view from Indigenous groups and advice from relevant authorities received with respect to the accident or malfunction, its adverse federal effects and the measures taken by the Proponent to mitigate these adverse federal effects; 30.4.4. a description of any residual adverse federal effects and of any modified or additional measure required by the Proponent to mitigate or monitor residual adverse federal effects; and 30.4.5. a description of any changes made to avoid a subsequent occurrence of the accident or malfunction; and 30.4.6. details concerning the implementation of the accident and malfunction response plans referred to in condition 28;
			31. Develop, prior to construction and in consultation with Indigenous groups and relevant authorities and implement an accidents and malfunctions communication plan in relation to the Designated Project. Keep the plan

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Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			up to date during all phases of the Designated Project and shall include in the plan: 31.1. the types of accidents and malfunctions requiring the Proponent to notify each Indigenous group, including any Designated Project-related occupational traffic incidents along the transportation corridor through the Nass Wildlife Area and Nass Area; 31.2. how Indigenous groups shall be notified by the Proponent of an accident or malfunction identified pursuant to condition 31.1 and of any opportunity for the Indigenous groups to assist in the response to the accident or malfunction; and 31.3. the names and contact information of the Proponent and Indigenous group representatives for the purposes of notification pursuant to condition 31.2.
Follow-up requirements	22(1)(k)		32. Where a follow-up program is a requirement of a condition set out in this document, develop the follow-up program taking into account any guidance documents provided by the Agency and determine, as part of the development of each follow-up program and in consultation with the parties being consulted during the development, the following information, unless already specified in the condition 32.1. a description of the effects predictions or mitigation measures or both that will be evaluated through the follow-up program as required in the particular follow-up program condition; 32.2. the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program; 32.3. the scope, content and frequency of reporting of the results of the follow-up program to the parties consulted for the development of the follow-up program; 32.4. the minimum frequency at which the follow-up program must be reviewed and, if necessary, updated;

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			32.5. the levels of environmental change relative to baseline that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may require Designated Project activities causing the environmental change to be stopped; 32.6. the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of change referred to in condition 32.5 have been reached or exceeded in order to return changes to levels below those referred to in condition 32.5; and 32.7. the specific quantifiable end points that must be achieved before the follow-up program can end. Those end points should indicate that the accuracy of the impact assessment has been verified or that the mitigation measures are effective or both.
			33. Update the details for each follow-up program pursuant to condition 32 during the implementation of each follow-up program, at the minimum frequency determined pursuant to condition 32.4 and in consultation with the parties being consulted during the development of each follow-up program
			34. Provide the information determined for each of the follow-up programs referred to in conditions 2,3,4,20 and 25 including the information determined for each follow-up program pursuant to condition 32, to the Agency and to the parties being consulted during the development of each follow-up program prior to the implementation of each follow-up program. Provide any update made pursuant to condition 33 to the Agency and to the parties being consulted during the development of each follow-up program within 30 days of the follow-up program being updated.
			35. Where a follow-up program is a requirement of a condition set out in this document: 35.1. implement the follow-up program according to the information determined pursuant to condition 32 and any requirement specified in conditions specific to each follow-up program; 35.2. conduct monitoring and analysis to verify the accuracy of the environmental assessment predictions

Federal Conditions Section	IAA linkage[10]	BC EAO Valued Component or Assessment Factor	Key Mitigation Measures
			as it pertains to the particular condition or to determine the effectiveness of any mitigation measure or both; 35.3. determine whether modified or additional mitigation measure(s) are required based on the monitoring and analysis undertaken pursuant to condition 35.2; 35.4. if modified or additional mitigation measure(s) are required pursuant to condition 35.3, develop and implement these mitigation measure(s) as soon as feasible and monitor them pursuant to condition 35.2. notify the Agency in writing within 24 hours of any modified or additional mitigation measure being implemented. If the Proponent implements any additional or modified mitigation measure not previously submitted to the Agency pursuant to condition 34, submit a detailed description of the measure(s) to the Agency within 7 days of their implementation; and 35.5. report all results of the follow-up program, including whether assessment predictions are accurate or mitigation measures are effective, or both as required in the follow-up program condition, to the Agency no later than March 31 following each reporting year during which the follow-up program is implemented and, subject to information determined pursuant to condition 32.3, to the parties being consulted during the development of the follow-up program. Where consultation with Indigenous groups is a requirement of a follow-up program, the Proponent shall discuss the follow-up program with each group and shall determine, in consultation with each group, opportunities for participation and resources required to support their participation in the implementation of the follow-up program, including the conduct of monitoring, the analysis and reporting of follow-up results and whether modified or additional mitigation measure(s) are required, as set out in condition 35.

14.0 Appendix 3 Residual Effects Characterization Definitions

Residual effects are usually described using standard criteria: context, magnitude, extent, duration, reversibility and frequency. These criteria, as well as affected populations, risk, uncertainty, importance, significance, and potential impact rating, are summarized in the following tables.

Table 7: Valued Component Residual Effects Characterization Definitions

Criteria	General Description	Assessment Definitions
Context	Consideration of context draws heavily on the description of existing conditions (the environmental, economic, social, cultural and/or health setting) of the valued component, which reflect cumulative effects of other projects, and activities that have been carried out, and especially information about the effect of natural and human-caused trends in the condition of the valued component.	**Low:** the receiving environment or population has low resilience to imposed stresses and will not easily adapt to the residual effect. **Moderate:** the receiving environment or population has a moderate resilience to imposed stresses and may be able to respond and adapt to the residual effect. **High:** the receiving environment or population has high natural resilience to imposed stresses and can respond and adapt to the residual effect.
Magnitude	Magnitude refers to the expected size or severity of the residual effect. When evaluating magnitude of residual effects, consider the proportion of the valued component affected within the spatial boundaries and the relative effect (e.g., relative to natural annual variation in the magnitude of the valued component or other relevant characteristic).	**Negligible:** no detectable change from existing conditions. **Low:** the residual effect will slightly alter or change the valued component without changing its role or function. **Medium:** the residual effect will alter or change the nature, role, or function of a valued component but will not affect its integrity. **High:** the residual effect will substantially alter or change the nature, role, or function of a valued component and may jeopardize the valued component's integrity.
Extent	The spatial scale over which the residual effect is expected to occur.	**Limited**: the residual effect is restricted to the Project Footprint. **Local**: the residual effect will be within the Local Assessment Area. **Regional:** the residual effect will be within the Regional Assessment Area.

Criteria	General Description	Assessment Definitions
		Beyond Regional: the residual effect will be beyond the Regional Assessment Area.
Duration	The period during which the residual effect persists and acts upon the valued component. This may be longer than the duration of the physical work or activity that produced the residual effect.	**Short-term:** the anticipated residual effect will be felt temporarily during the Construction or Reclamation and Closure phases only. It also applies to any effect that will occur for less than two years during the Operations phase. **Medium-term:** the anticipated residual effect will be felt for a limited period of time greater than two years, generally corresponding to the Operations phase and the Reclamation and Closure phase. **Long-term:** the anticipated residual effect will be felt beyond the Reclamation and Closure phase.
Reversibility	Whether or not the residual effect on the valued component can be reversed once the physical work or the activity causing the effects stop or mitigation measures take effect to eliminate the effect.	**Fully reversible:** may fully recover and return to its pre-project state. **Partially reversible:** may partially recover from project changes. **Irreversible:** will not recover and return to its pre-project state.
Frequency	How often or how many times the anticipated residual effect may occur.	**Once:** the effect is confined to one discrete event. **Regular:** the effect occurs at consistent intervals. **Irregular:** the effect occurs at sporadic intervals. **Continuous:** the effect occurs constantly.
Affected Populations	A subset of the population being affected disproportionately by residual effects on certain valued components. Examples of affected populations could include different groups within an Indigenous nation who may experience the effects in a different way, such as youth, Elders, or women.	**Even:** the residual effect is experienced by any or all sub-populations. **Disproportionate:** the residual effect is experienced only by certain populations or experienced more acutely by certain sub-populations.

<table>
<tr><th>Criteria</th><th>General Description</th><th>Assessment Definitions</th></tr>
<tr><td>Risk[11] (likelihood and consequences)</td><td>The likelihood (probability) of an event (incident) occurring and its consequences. Likelihood is whether 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. The consequences are the residual effect, positive or negative. The magnitude and extent of the residual effect provides information on the consequence, which in conjunction with likelihood, informs the understanding of risk.</td><td><u>Likelihood</u>
Low: less than 40 percent chance of effect occurring
Medium: 40 to 80 percent chance of effect occurring
High: more than 80 percent chance of effect occurring
<u>Consequence</u>
Can be assessed as minor, moderate or major based on the combination of magnitude and extent.
<u>Risk</u> is consequence multiplied by likelihood.
<table>
<tr><th colspan="2" rowspan="2">Risk</th><th colspan="3">Consequences</th></tr>
<tr><th>Major</th><th>Moderate</th><th>Minor</th></tr>
<tr><td rowspan="3">Likelihood</td><td>High</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>Medium</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>Low</td><td>Moderate</td><td>Low</td><td>Low</td></tr>
</table></td></tr>
<tr><td>Uncertainty</td><td>The natural variation in complex biophysical environments or the statistical variation in data sets and models that arises from the imperfection of unknown information. Where uncertainty is unable to be reduced, how it affects valued components needs to be described so that it can be considered in decision making</td><td>Low: there is a good understanding of the cause-effect relationship between the ECRP and the valued component, and sufficient data are available to support the assessment. The effectiveness of the selected mitigation measures is moderate to high. There is a low degree of uncertainty associated with data inputs and/or modelling techniques, and variation from the predicted effect is expected to be low.
Moderate: the cause-effect relationships between the ECRP and a valued component are not fully understood (e.g., several unknown external variables or data for the ECRP area are incomplete). The effectiveness of mitigation measures may be moderate or high. Modelling predictions are relatively confident.
High: the cause-effect relationships between the ECRP and a valued component are poorly understood. There may be several unknown external variables and/or data for the ECRP area that are incomplete. The effectiveness of the mitigation measures may not yet be proven. Modelling results may vary considerably given the data inputs. There is a high degree of uncertainty in the conclusions of the assessment.</td></tr>
</table>

[11] These definitions for risk, likelihood, and consequences are not applicable to the assessment of effects from malfunctions and accidents; see Appendix 7 (*Section 18.0*) of this Report for more detail.

Criteria	General Description	Assessment Definitions
		To consider when determining confidence: the reliability of data inputs and analytical methods used to predict project effects, the confidence regarding the effectiveness of mitigation measures, and the certainty of the predicted outcome.
Importance	Have any issues been identified as an interest/priority by potentially affected Indigenous nations, local governments, provincial and federal government agencies, or stakeholders.	**Low:** previously identified by some individuals, but not by Indigenous nations, community members, or government agencies. **Moderate:** previously identified as an interest by Indigenous nations, community members, the public, local governments, and/or provincial and federal government agencies, but not stated as a top interest. **High:** identified repeatedly as a top interest by Indigenous nations, community members, the public, local governments, and/or provincial or federal government agencies.
Significance[12]	A determination of the limit of acceptable change.	Not Significant Significant

Table 8: Residual Effects Characterization Definitions for Effects on Indigenous Interests

Characterization	General Description	Indigenous Interest Assessments
Context	How sensitive or resilient the Indigenous Interest is to the residual effect caused by the ECRP.	**Low resilience:** the Indigenous Interest has low resilience to imposed stresses and will not easily adapt to the residual effect **Medium resilience:** the Indigenous Interest has a neutral resilience to imposed stresses and may be able to respond and adapt to the residual effect **High resilience:** the Indigenous Interest has high resilience to imposed stresses and can respond and adapt to the residual effect
Magnitude	The intensity or severity of the anticipated change. Considers the amount the Indigenous Interest is affected (e.g., relative to natural annual variation in the magnitude of change to the Indigenous Interest).	**Negligible:** no detectable change from existing conditions **Low:** the residual effect will slightly alter or change existing conditions but is within historic norms and within the system's capacity to respond **Medium:** the residual effect will alter or change the nature, role, or function of existing conditions but is within historic norms and within the system's capacity to respond **High:** the residual effect will substantially alter or change the nature, role, or function of existing conditions and is beyond the system's capacity to respond

[12] Extent of significance for adverse effects within federal jurisdiction is defined in *Appendix 13* of this Report.

Extent	The spatial scale over which the residual effect is expected to occur.	**Site-specific** – the residual effect is restricted to the Project Footprint **Local** – the residual effect will be within the Local Assessment Area **Regional:** the residual effect will be within the Regional Assessment Area **Beyond Regional:** the residual effect will be beyond the Regional Assessment Area
Duration	The period during which the residual effect persists and acts upon the Indigenous Interest. This may be longer than the duration of the physical work or activity that produced the residual effect.	**Short-term:** the anticipated residual effect will be felt temporarily during the Construction or the Reclamation and Closure phases only. It also applies to any effect that will occur for less than two years during the Operations phase **Medium-term:** the anticipated residual effect will be felt for a limited period of time greater than two years, generally corresponding to the Operations and the Reclamation and Closure phases **Long-term:** the anticipated residual effect will be felt beyond the Reclamation and Closure phase
Reversibility	Whether or not the residual effect on the Indigenous Interest can be reversed once the physical work or the activity causing the effects stop or mitigation measures take effect to eliminate the effect.	**Fully Reversible:** the residual effect is fully reversible **Partially Reversible:** the residual effect is partially reversible **Irreversible:** the residual effect is irreversible
Frequency	How often or how many times the anticipated residual effect may occur.	**Single/Rare:** the residual effect is confined to one discrete event or rarely occurs **Frequent/Regular:** the residual effect occurs at consistent intervals **Irregular:** the residual effect occurs at sporadic intervals **Continuous:** the residual effect occurs constantly
Affected Populations	The distribution of the effect amongst the population of affected Indigenous nations.	**Even:** the residual effect is experienced by any or all sub-populations **Disproportionate:** the residual effect is experienced only by certain populations or experienced more acutely by certain sub-populations
Risk (likelihood and consequences)	The likelihood (probability) of an event (incident) occurring and its consequences. Likelihood is whether 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. The	**Likelihood** **Low:** less than 40 percent chance of effect occurring **Medium:** 40 to 80 percent chance of effect occurring **High:** more than 80 percent chance of effect occurring Consequence Can be assessed as minor, moderate or major based on the combination of magnitude and extent. Risk is consequence multiplied by likelihood.

<table>
<tr><td></td><td>consequences are the residual effect, positive or negative. The magnitude and extent of the residual effect provides information on the consequence, which in conjunction with likelihood, informs the understanding of risk.</td><td>
<table>
<tr><th colspan="2" rowspan="2">Risk</th><th colspan="3">Consequences</th></tr>
<tr><th>Major</th><th>Moderate</th><th>Minor</th></tr>
<tr><td rowspan="3">Likelihood</td><td>High</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>Medium</td><td>High</td><td>Moderate</td><td>Low</td></tr>
<tr><td>Low</td><td>Moderate</td><td>Low</td><td>Low</td></tr>
</table>
</td></tr>
<tr><td>Potential Impact Rating</td><td>The seriousness of the impact from residual effect(s) to the Indigenous Interest from consideration of the context, magnitude, extent, duration, frequency, reversibility and affected populations.</td><td>Negligible: the Indigenous Interest is not measurably impacted or modified by the ECRP

Minor: the Indigenous Interest is impacted or modified by the ECRP, but can continue at or near current conditions

Moderate: the Indigenous Interest is impacted or modified by the ECRP, and is approaching a threshold

Severe: the Indigenous Interest is impacted or modified by the ECRP, and has surpassed a threshold</td></tr>
<tr><td>Uncertainty</td><td>Number of uncertainties remaining / confidence in conclusions of the assessment of residual effect to Indigenous Interest.</td><td>Low: there is a good understanding of the cause-effect relationship between the ECRP and the Indigenous Interest. Few or no unknown external influences or data for the ECRP area that are incomplete. The effectiveness of mitigation measures expected to be high. High level of certainty in the conclusions of the assessment of residual effect to Indigenous Interests

Moderate: the cause-effect relationships between the ECRP and the Indigenous Interest are not fully understood (e.g., a few unknown external influences or data for the ECRP area that are incomplete). The effectiveness of mitigation measures may be moderate or high. Moderate level of certainty in the conclusions of the assessment of residual effect to Indigenous Interest

High: the cause-effect relationships between the ECRP and an Indigenous Interest are poorly understood. There may be several unknown external influences or data for the ECRP area that are incomplete. The effectiveness of the mitigation measures may not yet be proven. There is a high degree of uncertainty in the conclusions of the assessment of residual effect to Indigenous Interest</td></tr>
</table>

15.0 Appendix 4 List of Parties on the Technical Advisory Committee

First Nations and Representatives

- Tahltan Heritage, Resources and Environmental Assessment Team

Provincial Government, including Health Authorities

- First Nations Health Authority
- Ministry of Energy and Climate Solutions (Climate Action Secretariat)
- Ministry of Environment and Parks (Environmental Protection Division)
- Ministry of Indigenous Relations and Reconciliation (Negotiations and Regional Operations Division)
- Ministry of Jobs, Economic Development and Innovation (Small Business and Economic Development Division)
- Ministry of Mining and Critical Minerals (Major Mines Office)
- Ministry of Post-Secondary Education and Future Skills (Labour Market Policy and Research)
- Ministry of Tourism, Arts, Culture and Sport (Fossil Management Office, Heritage Branch)
- Ministry of Water, Land and Resource Stewardship (Land Use Planning and Cumulative Effects Division)
- Northern Health

Federal Government

- Crown Indigenous Relations and Northern Affairs Canada
- Environment and Climate Change Canada
- Employment and Social Development Canada
- Fisheries and Oceans Canada
- Health Canada
- Indigenous Services Canada
- Natural Resources Canada
- Public Health Agency Canada
- Transport Canada
- Women and Gender Equality Canada

Local Government

- District of Stewart
- Regional District of Kitimat-Stikine
- Town of Smithers

U.S. Federal and State Governments

- Alaska Department of Environmental Conservation
- Alaska Department of Fish and Game
- Alaska Department of Natural Resources

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- National Oceanic and Atmospheric Administration Fisheries (Juneau)
- U.S. Department of Interior
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service (Anchorage)

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16.0 Appendix 5 Detailed First Nation Assessments

16.1 Tahltan 19(4) Assessment

Tahltan Central Government (TCG), as a participating Indigenous nation, has conducted an assessment under section 19(4) of the EAA with respect to the potential effects of the project on Tahltan and its rights. The 19(4) assessment follows the methodology of the Tahltan Risk Assessment and is consistent with the requirements set out in *Appendix 1 of the Assessment Plan* and the *Declaration Act Consent Decision-Making Agreement for Eskay Creek Project*. Tahltan will be conducting Tahltan Community Engagement during the public comment period in accordance with the *Assessment Plan*. The results of Tahltan Community Engagement will inform the conclusions of the Tahltan Risk Assessment and the 19(4) assessment – which the EAO and TCG will seek to achieve consensus on.

Tahltan's Detailed Tahltan Risk Assessment and appended 19(4) assessment can be found at *EAO's Project Information Centre*.

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16.2 Nisga'a Nation

16.2.1 Introduction

This chapter provides an assessment of the potential effects of ECRP to the Nisga'a Nation's treaty rights and interests. This chapter sets out the potential effects, applicable mitigation measures, and the EAO and the Nisga'a Lisims Government (NLG) conclusions with respect to the potential effects of ECRP on residents of Nisga'a Lands, Nisga'a Lands, or Nisga'a interests in accordance with Chapter 10 – *Environmental Assessment and Protection* (Chapter 10) of the *Nisga'a Final Agreement* (Nisga'a Treaty). This assessment by NLG and the EAO is intended to fulfil the Crown's obligations to assess these effects according to paragraphs 8(e) and 8(f) of Chapter 10 of the Nisga'a Treaty, and is based on guidance provided to Skeena, EAO, and IAAC by NLG.

16.2.1.1 Nisga'a Nation Chapter 10 Requirements

The Nisga'a Treaty between the Government of Canada, the Province of B.C. and the Nisga'a Nation came into effect on May 11, 2000. The Nisga'a Treaty sets out the Nisga'a Nation's Section 35 rights, including: the Nisga'a Nation's ownership of Nisga'a Lands in fee simple; the treaty right to manage and harvest fish, wildlife, migratory birds, and plants; and the legislative jurisdiction of NLG.

Paragraph 8(e) of Chapter 10 of the Nisga'a Treaty requires that all projects, as defined in the Nisga'a Treaty, in addition to the requirements of applicable EA legislation, "assess whether the project can reasonably be expected to have adverse environmental effects on residents of Nisga'a Lands, Nisga'a Lands, or Nisga'a interests set out in the Nisga'a Treaty and, where appropriate, make recommendations to prevent or mitigate those effects."

Paragraph 8(f) of Chapter 10, of the Nisga'a Treaty requires that all projects, as defined in the Nisga'a Treaty, will, in addition to the requirements of applicable EA legislation, "assess the effects of the project on the existing and future economic, social, and cultural well-being of Nisga'a citizens who may be affected by the project".

Further, Chapter 10, paragraph 8(h) of the Nisga'a Treaty provides for recommendations, based on the assessment, to the Party or Parties with decision-making authority over the project, in respect of whether the project should proceed.

On July 31, 2014, the Province of B.C. and NLG entered into a *Dispute Resolution Settlement Agreement* (Settlement Agreement) to resolve issues over the implementation of EA and consultation obligations under the Nisga'a Treaty, including those related to the Kitsault molybdenum mine. That agreement included Guiding Principles and an Appendix C, outlining the process for collaboration in EAs. Appendix C specifies how the EAO and NLG would collaborate and strive to reach consensus at key decision points through the course of future EAs, including relevant aspects of the EAO's direction to a proponent, the screening of the Application related to the requirements of paragraphs 8(e) and 8(f) of Chapter 10, of the Nisga'a Treaty, and the Assessment Report analysis and conclusions related to the 8(e) and 8(f) assessments. The Appendix further outlines that the EAO and NLG would collaborate and attempt to conclude a compliance and enforcement framework, as well as specifying additional detail on what would be included in the 8(f) effects assessment.

Throughout the ECRP environmental assessment, the EAO has worked to ensure adherence to the requirements set out in the Nisga'a Treaty and the Settlement Agreement.

16.2.1.2 NLG, EAO and IAAC's collaboration and consensus-seeking regarding ECRP

On November 29, 2022, the federal Minister of Environment and Climate Change approved the substitution of the conduct of the federal impact assessment to B.C. This decision sets out that the EAO will gather the information needed to inform a federal decision on ECRP under the IAA, as well as to inform Canada's assessment of the potential effects of ECRP on the Nisga'a Nation, and to allow Canada to make its own determination of whether the requirements under Chapter 10 of the Nisga'a Treaty have been met. The substituted assessment also supports Canada meeting its duty to

consult with First Nations whose rights and interests have the potential to be impacted if ECRP is allowed to proceed, including the Nisga'a Nation.

On, April 18, 2023, the EAO issued a Process Order for ECRP under section 11 of the Act, including the Hybrid Application Information Requirements in Schedule C which outlined the information to be provided by Skeena to assess effects of the Project on Nisga'a treaty rights under the Nisga'a Treaty.

To support agreement between the parties, and in following the Settlement Agreement, NLG and the EAO sought consensus at the following points during the environmental assessment, with the associated results:

- Acceptance of the Detailed Project Description and *Readiness Decision* (consensus reached on April 19, 2022);
- Issuance of the *Process Order* (consensus reached on April 17, 2023); and
- Acceptance of *Skeena's Revised Application* on whether there was sufficient information to conduct and complete the assessments required under paragraphs 8(e) and 8(f) of Chapter 10 of the Nisga'a Treaty (consensus reached on May 29, 2025).

16.2.1.3 Nisga'a Treaty Rights and Interests

Skeena identified the Nisga'a treaty rights and interests to be assessed in the Revised Application through engagement with the Nisga'a Nation and with input from the EAO. Skeena's engagement with NLG informed the Revised Application and its Nisga'a Effects Assessment, and included:

- Monthly meetings between Skeena and NLG and its representatives, and other meetings as and when requested;
- Providing key environmental assessment process and regulatory documents to NLG for review and comment, including collaborative development of the Nisga'a Nation section of the *Hybrid Application Information Requirements*;
- Sharing of western scientific data, such as baseline reports, for consideration and review;
- Co-development of the Nisga'a Nation effects assessment under Chapter 10 that was included in the Revised Application for an Environmental Assessment;
- Certificate / Impact Statement (EAC Application), including close and concerted drafting and finalization of an 8(e) and 8(f) assessment work plan, identification and rating of likely
  Interactions between ECRP activities and Valued Components, approach to assessing cumulative effects, and identifying and approving mitigations, and
- Development and signing of confidentiality and capacity funding agreements

A summary of Skeena's engagement with the Nisga'a Nation is provided in section 5.3 of the Revised Application and Skeena's *Indigenous Engagement Report*.

Based on the Revised Application and through discussion with NLG, the following Nisga'a Treaty rights and interests may be affected by ECRP:

- Fish and Aquatic Plants (Freshwater)
- Fish and Aquatic Plants (Marine)
- Wildlife and Migratory Birds
- Botanical Forest Products
- Lands
- Existing and future economic well-being of Nisga'a citizens
- Existing and future social well-being of Nisga'a citizens

- Existing and future cultural well-being of Nisga'a citizens

A more detailed description of a range of Valued Components used to inform the assessments can be found in Chapter 5 of the Revised Application, submitted by Skeena to the EAO on April 14, 2025.

16.2.1.4 Information Used to Inform the Nisga'a Chapter 10 Assessment

NLG, the EAO and IAAC used the following sources of information to prepare this assessment:

- *Skeena's Revised Application*; and
- Review and feedback received from NLG during the Effects Assessment Phase of the Environmental Assessment.

16.2.2 Summary of Issues Raised by the Nisga'a Nation

16.2.2.1 Shipping and Shipping Related Activities

NLG identified that marine vessel traffic may contribute to marine accidents and malfunctions (e.g., concentrate spills) and potential interactions with marine mammals as well as with Nisga'a citizens' fishing. NLG raised concerns that the handling of concentrate at a port (e.g., storage, transfer to marine vessels) and marine vessel activity may have the potential to impact Nisga'a treaty rights and interests through potential effects to Portland Canal and Bear River Estuary.

16.2.2.2 Transportation Activities

NLG raised concerns that the movement of personnel and goods between ECRP and port facilities in the District of Stewart (e.g., along Highway 37 and 37A) and other locations (e.g., Terrace along Highway 16) may impact Nisga'a Treaty rights and interests due to potential accidents and malfunctions (e.g., concentrate spills) and wildlife-vehicle interactions.

16.2.2.3 Cumulative Effects

NLG raised concerns that several additional mining projects could begin operations in the region within the next five to ten years. Each project will have distinct transportation needs which may be met through the ports in Stewart – resulting in increased heavy truck traffic along Highway 37A and the potential for greater maritime activity in Portland Canal and Portland Inlet.

NLG noted that the existing information on cumulative effects associated with the use of Stewart World Port or Stewart Bulk Terminals is limited, with a notable exception of an aquatics ecosystem cumulative effects assessment completed by LGL on behalf of NLG (Burns et al. 2018). The primary finding of that assessment relevant to this current assessment was the substantial changes to the hydrology (with associated changes to the aquatic and estuarine ecosystems) of the Bear River estuary resulting from the construction, incremental expansion, and flood protection of Stewart World Port. NLG is also in the process of completing a 3-year program studying cumulative effects in Portland Canal and the Stewart area (including the Bear and Salmon river estuaries). While not all the studies will be completed in time to inform this assessment, they will support monitoring and future environmental assessments of projects in the region.

16.2.3 Potential Effects on the Nisga'a Treaty Rights and Interests

Skeena and NLG ranked potential interactions between ECRP activities and Valued Components which could in turn influence Nisga'a Nation treaty rights as '0', '1', or '2'. Potential effects rated Level 0 are considered to have either no interaction with a VC or no spatial or temporal overlap with a VC and were not assessed further. Potential effects resulting from interactions rated Level 1 are considered negligible or managed through standard best management practices, although Level 1 effects were still considered in Skeena's cumulative effects assessment, as they are considered negligible or mitigated by best management practices, they may still contribute to cumulative effects. Level 2 interactions indicate

that ECRP may have a potential effect that requires attention to reduce residual effects to acceptable levels. Level '2' were carried forward and assessed, and the potential effects characterised.

Skeena and NLG identified interactions between ECRP activities and the Nisga'a Nation's rights and interests under Chapter 10 paragraphs 8(e) and 8(f), as shown in Table 5.6-2 and Table 5.6.3 of the Revised Application. No Valued Components related to Chapter 10 paragraph 8(e) were identified as '2' ratings, while areas assigned '2' ratings for Chapter 10, paragraph 8(f) are as follows:

- Employment opportunities for Nisga'a Nation citizens (positive effect);
- Contracting opportunities and earnings for Nisga'a Nation businesses (positive effect);
- Natural resources activities (economic effects);
- Future Nisga'a Nation economic opportunities and economic development (positive effect);
- Occupational health and accident risks (negative effect);
- Family and community well-being (negative effect); and
- Effects of changing work patterns on cultural activities and practices (negative effect).

16.2.4 Summary of Predicted Residual Effects on Residents of Nisga'a Lands, Nisga'a Lands, and Nisga'a interests (Chapter 10, paragraph 8(e))

Skeena's Revised Application summarized the three relevant primary effect pathways on Nisga'a Treaty rights and interests:

- **Road Transportation of Personnel and Goods:** Movement of personnel and goods between ECRP and Stewart ports and between ECRP and other locations (e.g., Terrace along Highway 16);
- **Port Activity:** Handling of concentrate at a port (e.g., storage and transfer to marine vessels); and
- **Marine Vessel Activity:** Movement of marine vessels along the Portland Canal, to and from the Stewart ports.

Skeena examined each of these pathways and determined that Level 1 interactions were identified for the majority of Nisga'a Valued Components in Table 5.6-2 of the Revised Application. As Level 1 interactions, these are not anticipated to result in residual effects. As Skeena and NLG did not identify any Level 2 interactions for Chapter 10 paragraph 8(e), Skeena did not predict residual effects on Chapter 10 paragraph 8(e) Valued Components are expected.

The EAO considered Skeena and NLG's ratings of effects to Chapter 10 paragraph 8(e) and Skeena's conclusion that residual effects are not expected and concurs with this analysis that residual effects are not expected as a result of ECRP. Given the characterization of potential effects and the proposed mitigation measures, which result in Level 0 or 1 interactions exclusively, ECRP is not expected to have adverse environmental effects on Nisga'a Lands, residents of Nisga'a Lands, or Nisga'a interests as set out under the Nisga'a Treaty.

16.2.5 Summary of Cumulative Effects on Nisga'a Treaty Rights and Interests (Chapter 10, paragraph 8(e))

Skeena's Revised Application summarized cumulative effects on Nisga'a Treaty Chapter 10 paragraph 8(e) rights and interests in *Section 5.7.7* which identified the following three primary effects pathways.

Road Transportation of Personnel and Goods

ECRP-related traffic is predicted to result in an increase in traffic within the study area, which may increase wildlife mortality through vehicle collisions. Skeena expected that these effects would be managed by standard best practices (i.e., a Level 1 interaction) related to driver safety and
competence, and vehicle maintenance. Skeena noted that in the next 5 to 10 years, several mining projects in the same region may begin to operate, each of which will have their own shipping requirements through Stewart ports, which could lead to a potentially substantial increase in heavy truck traffic along Highway 37A. Skeena committed to reporting all

vehicle-wildlife collisions that occur during ECRP Construction and Operations phases to address known vehicle-wildlife collision data underreporting and inaccuracies.

Port Activity

Skeena identified three cumulative effects pathways in the context of activity at the to-be selected port:

1. Increased handling frequency and volume of concentrate near the bear estuary and salmon river estuary, creating the potential for an accidental spill into such estuaries, including handling on the dock and transfer to marine vessels;
2. Occupation of existing storage capacity could lead to increased accidents due to increasingly limited dock capacity, leading to potential releases of concentrate, or could prompt further expansion at the selected port to meet future demand for storage space; and
3. Income from ECRP may create an opportunity for the selected port to act on pre-existing expansion plans or to develop new expansion plans.

Skeena noted that both port facilities can provide sufficient space to safely store, handle, and ship the amount of concentrate to be produced by ECRP, and neither port has communicated a need to expand terrestrial or marine port footprints to accommodate ECRP's storage and shipping needs. In the next 5 to 10 years, several additional mining projects in the region may begin to operate; each of these could have their own shipping requirements through Stewart ports. If those projects become active at the same time as ECRP, port facilities may require expansion to meet the demand.

Regarding the risk of concentrate spills, Skeena noted that Stewart Bulk Terminal currently handles and stores concentrate for other mining projects, including transfer to marine vessels. Stewart World Port does not currently handle concentrate but has expressed an interest in developing infrastructure to store and ship ECRP concentrate.

Marine Vessel Activity

Skeena evaluated three potential cumulative effects pathways in the context of marine vessel activity:

1. ECRP uses all available capacity at the current level of marine vessel traffic without increasing the need for more shipping activity (in the near-, mid-, or long-term), but future projects will create a need for more shipping activity.
2. There is partial but insufficient capacity to meet all the near-term needs of ECRP at the current level of marine vessel traffic, creating an immediate need for more shipping activity at the port.
3. ECRP activities result in consistent deliveries of concentrate to the port, i.e., such that there is no "slow season" in vessel traffic, thereby maintaining a frequent and regular potential for adverse interactions.

Available information suggests that the current level of marine vessel traffic would provide partial but insufficient capacity to transport ECRP concentrate; therefore, ECRP's use of all available capacity at the current level of marine vessel traffic without increasing the need for shipping activity above does not apply. Cumulative effects may be expected from the second or third pathways – either increasing the level of marine vessel traffic or shifting the frequency such that there is no "slow season" in vessel traffic. Skeena noted that shipping traffic estimates at the ports range from 20 to 27 vessels per year, and that most vessels visiting Stewart do not take on full loads and would therefore have capacity to take on ECRP concentrate. Skeena estimated that an additional six vessels would be required per year (about a 22 to 30% increase in annual vessel traffic).

Skeena also noted that in the next 5 to 10 years, several mining projects in the region may start operations, each of which could have their own shipping requirements through Stewart ports. The associated potentially large increase in shipping traffic in the Portland Canal would require careful and coordinated management by First Nations, provincial, and federal governments. Skeena's view was that management and coordination at the predicted scale of marine vessel movement is

beyond the ability of any single project proponent or port operator to mitigate, and would require governmental oversight and coordination to ensure (a) that all cargo capacity is maximized in vessels leaving Stewart, (b) transportation schedules are structured to reduce traffic during key periods (e.g., salmon fishing) and (c) marine environmental monitoring activities be considered (e.g., marine mammal surveys during peak transport windows). Skeena's view was also that the effective mitigation of cumulative effects as outside the control of any single proponent, but is supportive of collaboration and cooperation between proponents, port operators, and governments to address potential cumulative effects from vessel traffic in Portland Canal.

The EAO and NLG reviewed Skeena's cumulative effects analysis related to ECRP related to Nisga'a Treaty rights and interests under paragraph 8(e) and agree with the analysis.

16.2.6 Summary of Predicted Residual Effects on Residents of Nisga'a Lands, Nisga'a Lands, and Nisga'a interests (Chapter 10, paragraph 8(f))

Skeena evaluated the Level 2 interactions identified for Chapter 10, paragraph 8(f), and determined in coordination with NLG that the economic effects would be positive, while effects to cultural and family well-being would be negative. Skeena also considered the distance of the ECRP mine site from each of the Nisga'a Villages, the proposed mitigation measures and their expected effectiveness, including the application of management plans and effective communication mechanisms. Given these factors, Skeena did not predict any negative residual effects of ECRP on paragraph 8(f) Valued Components.

The EAO and NLG reviewed Skeena's residual effects analysis related to ECRP related to Nisga'a Treaty rights and interests under paragraph 8(f) and agree with the analysis.

16.2.7 Summary of Cumulative Effects on Nisga'a Treaty Rights and Interests (Chapter 10, paragraph 8(f))

Skeena did not predict any cumulative effects on Chapter 10 paragraph 8(f) Valued Components as a result of ECRP effects combined with other past, present or future projects, but did not draw a conclusion on cumulative effects actually occurring.

The EAO and NLG reviewed Skeena's cumulative effects analysis related to ECRP related to Nisga'a Treaty rights and interests under paragraph 8(f) and agree with the analysis.

16.2.8 Summary of Predicted Positive Effects on Residents of Nisga'a Lands, Nisga'a Lands, and Nisga'a interests (Chapter 10, paragraphs 8(e) and 8(f))

Skeena did not predict any direct positive effects on Nisga'a paragraph 8(e) interests compared to existing conditions.

Skeena predicted that direct positive effects on Nisga'a paragraph 8(f) interests may occur compared to existing conditions. ECRP is expected to create future economic opportunities for Nisga'a citizens through employment and contracting of Nisga'a Nation-owned or directed businesses during ECRP Construction and Operations. Indirect positive social effects may be anticipated as employment may support Nisga'a citizens to return to Nisga'a Villages.

Skeena predicted that future Nisga'a citizens' economic opportunities and development may also experience positive effects due to direct and indirect employment associated with ECRP. There is the potential for the further development of the skilled Nisga'a Nation workforce though ECRP-related work experience and for the development of transferable skills by Nisga'a citizens, should they be employed at ECRP.

The EAO and NLG reviewed Skeena's analysis of predicted positive effects on residents of Nisga'a Lands, Nisga'a Lands, and Nisga'a Interests related to ECRP and agree with the analysis.

16.2.9 Proposed Provincial and Federal Conditions to Mitigate Effects to Nisga'a Chapter 10 paragraphs 8(e) and 8(f) Treaty Rights and Interests

The EAO and IAAC collaborated on:

(a) the development of the proposed Environmental Assessment Certificate Schedule B Table of Conditions for ECRP;

(b) the federal key mitigation measures recommended by the EAO to IAAC to address the predicted ECRP effects falling within areas of federal jurisdiction; and

(c) IAAC's proposed conditions under Section 64 of the *Impact Assessment Act*.

The Table of Conditions set out in *Section 9.0* of the draft Environmental Assessment Report, includes the following provincial conditions to mitigate potential impacts to Nisga'a Treaty Rights:

- Condition 24 – Traffic Corridor Management Plan - commits the certificate holder to developing and implementing a Traffic Corridor Management Plan to mitigate potential impacts along the area of Highway 37 used between the mine site port facilities located in the District of Stewart; between the mine site and Iskut; from the mine site along Highway 37 to the Nass Area; and along Highway 37 within the Nass Area and Nass Wildlife Area.; and
- Condition 27 – Regional Cumulative Effects Initiatives – commits the certificate holder to participate in any Regional Cumulative Effects Initiatives.

IAAC's proposed draft potential conditions under Section 64 of the IAA sufficiently capture the mitigation measures required to address the potential effects on Nisga'a Treaty rights and interests and in particular potential impacts related to handling and storage of concentrate at the ports located in the District of Stewart. These conditions collectively support the conclusions set out in the summary of predicted effects set out in this chapter.

16.2.10 Government Initiatives Relevant to Addressing Potential Cumulative Effects

In addition to the mitigations proposed by Skeena (set out in *Table A.1 of Appendix A* of the Revised Application), EAO's provincial conditions, and the IAAC's conditions that would be placed on ECRP, any cumulative effects related to ECRP may also be addressed partly by government-led initiatives that are relevant to port activity and vessel traffic. These initiatives are described below.

The EAO has provided funding to support NLG in the implementation of the Stewart Area Aquatic Ecosystems Cumulative Effects Assessment (Burns et al. 2018). Key deliverables from that work include documenting marine vessel traffic in Portland inlet and adjacent water to understand environmental implications and risks associated with maritime activity in the region to support future assessments of projects involving marine transportation that are assessed under Chapter 10 of the Nisga'a Treaty. NLG has completed the Year One Report Marine Vessel Traffic study that provided a summary of total vessel detections by vessel type between September 2023 and August 2024 in parts of Portland Canal, Portland Inlet, Nass Bay and Observatory Inlet. The study also validated the accuracy of the machine-trained detection model relative to the currently available AIS data (based on satellite-based vessel transmissions). NLG will complete the year two report in December 2025. The Reports will be accessible to the EAO and proponents to provide baseline data to support future monitoring and Chapter 10 assessments for projects that include shipping activities at the port facilities in the District of Stewart.

IAAC has made funding available to NLG through its Indigenous Capacity Support Program over three fiscal years to carry out activities identified as data gaps in the Stewart Area Aquatic Ecosystems Cumulative Effects Assessment (Burns et al. 2018). That work focuses on two central themes in the Portland Canal and Stewart Area: (i) current baseline conditions

and (ii) evaluation of ongoing and legacy developments. NLG has completed the Year One Report for the Bear and Salmon River Estuary Aquatic Ecosystems: Subtidal Woody Debris and Estuary Aerial Orthophotography which assessed the distribution and associated impacts of marine log sort and handling facilities on intertidal estuary habitats in Bear River and Salmon River estuaries. That study provides information on the impact of log handling disturbance to the Bear River and Salmon River estuaries and the long-term changes in intertidal mudflat habitat. The Year Two report will present a heath assessment of vegetation marsh communities and intertidal mudflat infauna in the Bear and Salmon River estuaries and document the fish (mainly juvenile salmon) distribution and timing in the estuary. NLG has also completed the Bear River Oolichan Spawning Assessment that assessed Eulachon (Oolichan) habitat suitability in the Bear River and Rainey Creek through habitat mapping and egg mat sampling. That report provides additional information regarding Eulachon use and distribution within the Bear River and Rainey Creek. Finally, reporting for the study of marine (i.e., water and sediment quality) and human health toxicity (i.e., Dungeness crab tissue) study is underway.

16.2.11 Ongoing Engagement, Information Sharing, Notification, and Reporting

If Skeena is issued a provincial Environmental Assessment Certificate and a federal Decision Statement that allow ECRP to proceed, the EAO, IAAC and NLG will continue to engage throughout the life of ECRP in accordance with the Nisga'a Treaty, Nisga'a Legislation, provincial conditions as set out in Schedule B of the Environmental Assessment Certificate, and federal conditions and follow-up programs as set out in the Decision Statement.

16.2.12 NLG and the EAO's conclusions

[The EAO and NLG will seek to achieve consensus on the conclusions of the Chapter 10 Assessment]

16.3 Tsetsaut Skii km Lax Ha

16.3.1 Community Profile

Tsetsaut Skii km Lax Ha asserted territory (territory) extends from the north side of the Cranberry River in the south, along the Nass and Bell-Irving rivers, to Beaver Pond in Ningunsaw Pass in the north (for a more detailed description see 7.5.2.1, Spatial Boundaries of the Revised Application).

Tsetsaut Skii km Lax Ha are descendants of a Tsetsaut Raven Clan linked to the old Tsetsaut village of Ts'imanluukeexs. Tsetsaut Skii km Lax Ha follows a matrilineal hereditary governance system, whereby the Hereditary Chief, *Skii km Lax Ha,* has final decision-making authority, which extends to territory management and its associated resource base. Tsetsaut Skii km Lax Ha members, currently numbering 56, primarily reside in the Village of Hazelton and the District of New Hazelton (collectively known as "The Hazeltons") or Gitanmaax (adjacent to the Village of Hazelton).

Skeena's engagement with Tsetsaut Skii km Lax Ha has been with its political leadership, as represented through its hereditary system of governance, its Hereditary Chief (*Skii km Lax Ha*) and wing chiefs.

16.3.2 Tsetsaut Skii km Lax Ha Involvement in the ECRP Environmental Assessment

The EAO worked collaboratively with Tsetsaut Skii km Lax Ha throughout the assessment process. The EAO met monthly or bi-monthly with Tsetsaut Skii km Lax Ha throughout each EA phase to discuss concerns related to ECRP and to understand, address and resolve issues as they came up. The EAO and Agency provided funding to support Tsetsaut Skii km Lax Ha's engagement in the environmental assessment process.

The EAO used the following sources in drafting the assessment of ECRP on Tsetsaut Skii km Lax Ha's Indigenous interests:

- *Skeena's Revised Application*;
- Information submitted during the environmental assessment by Skeena and Tsetsaut Skii km Lax Ha;
- Conclusions from the EAO's assessment of Valued Components; and
- *Skeena's Indigenous Engagement Report*.

A summary of Skeena's engagement with Tsetsaut Skii km Lax Ha is provided in Chapter 7 of the Revised Application and Skeena's Indigenous Engagement Report.

16.3.3 Assessment Boundaries

Tsetsaut Skii km Lax Ha territory forms the boundary for assessment of Tsetsaut Skii km Lax Ha Interests as shown on Figure 7.5-1 and
described in Section 7.2.3 of the Revised Application and as described in the introduction to this section.

16.3.4 Regional Context

The Revised Application describes Tsetsaut Skii km Lax Ha territory as an area of active natural resource and industrial development including mining, forestry, hydropower, and transmission line projects which have the potential to cumulatively affect Tsetsaut Skii km Lax Ha land use and cultural activities. Tsetsaut Skii km Lax Ha legal counsel has expressed that the lives of Tsetsaut Skii km Lax Ha members have been deeply impacted by industrial development (Lawyer, Juristes Power Law, pers. comm., 8 April 2024). Tsetsaut Skii km Lax Ha issues of concern include traffic, water quality, fish and fish habitat, wildlife disturbances, vegetation trails and travelways.

Tsetsaut Skii km Lax Ha have expressed concern regarding disturbances to vegetation and wildlife abundance within Tsetsaut Skii km Lax Ha territory. Mining exploration (i.e. helicopter surveys and drilling sites), forestry and development (changes to access) has been identified as key

effect pathway to Tsetsaut Skii km Lax Ha interests. Tsetsaut Skii km Lax Ha has identified climate change and the cumulative effects of this development as an overarching issue of concern within their territory.

16.3.5 Indigenous Interests

Skeena Resources identified Indigenous Interests to be assessed in the Application through:

- Engaging with Tsetsaut Skii km Lax Ha to understand their Indigenous rights
- Identifying Valued Components in relation to the Application, by identifying Tsetsaut Skii km Lax Ha's priority values related to employment and economic opportunities, harvesting, cultural use areas, and trails and travel ways
- Maintaining ongoing engagement throughout the environmental assessment process

This included:

- Providing draft documents for review including a copy of a preliminary draft of Chapter 7, Tsetsaut Skii km Lax Ha, of the Application for review and comment.

The Application assessed the following potential effects to Tsetsaut Skii km Lax Ha's Indigenous Interests:

- Changes to governance and well-being; and
- Changes to land use experiences and practices.

Based on the Application and through discussion with Tsetsaut Skii km Lax Ha the following Indigenous Interests have been identified as having the potential to be affected by ECRP:

- Employment and economic opportunities
- Harvesting Rights
- Trails and Travelways and Cultural Use Areas

16.3.6 Employment and Economic Opportunities

Employment and Economic Opportunities was selected as an Indigenous interest given Tsetsaut Skii km Lax Ha has expressed interest in contracting, procurement, and employment including skills and business development in relation to ECRP.

Existing Conditions

The Revised Application notes that Tsetsaut Skii km Lax Ha has raised concerns regarding the disproportionately high unemployment rate in the communities Hazelton (17.4%) and New Hazelton (15.3%) relative to the provincial average (8.4%). Community members have expressed concerns about the lack of high paying industrial jobs and the need to balance resource development with environmental protection. There are two Tsetsaut Skii km Lax Ha member-owned businesses operating in the region: Tsetsaut Ventures Ltd., which provide construction and support services to the mining industry, and Raven37, specializing in camp construction and operation services for the mining sector. Tsetsaut Skii km Lax Ha has expressed interest in employment and procurement opportunities through engagement with Skeena.

The Revised Application states that available historical and ethnographic information document Tsetsaut Skii km Lax Ha participation in the non-wage economy (Ministry of Attorney General 2021), but there is limited publicly available information regarding current activities related to trapping and trade purposes within the Tsetsaut Skii km Lax Ha Assessment Area (Tsetsaut Skii km Lax Ha Territory), and to a lesser extent within the Project's Assessment Footprint. Gathering locations, species, and Tsetsaut Skii km Lax Ha experiences where known are further described in Chapter 26, Current and Future Use of Land and Resources for Traditional Purposes Effects Assessment.

Potential Project Effects

The Application identified the following effects to Valued Components (VCs) that could potentially impact Tsetsaut Skii km Lax Ha's Employment and Economic Opportunities:

- During construction and operations project-related procurement activities may effect opportunities for Tsetsaut Skii km Lax Ha members to take part in traditional practices, considering both time available and financial means to pursue these activities (*Revised Application Chapter 26*);
- During construction and operations procurement activities may affect the cost of living in the socio-economic Local Assessment Area (*Revised Application Chapter 24*).
- During reclamation and closure, project-related employment and procurement is expected to decline which may result in changes to employment opportunities, income and related well-being (*Revised Application Chapter 24*).

Considering the EAO's conclusions on residual effects to these VCs, and the information provided in the Application from ECRP Revitalization regarding potential effects to Employment and Economic Opportunities the EAO identified the following potential effects to Tsetsaut Skii km Lax Ha's Employment and Economic Opportunities due to ECRP Revitalization during construction, operations and decommissioning including:

- Employment and Wellbeing: Positive or negative effects through changes to employment that contribute to community well being. Negative effects through changes in the social, health and culture effects that contribute to changes in human and community well-being of Tsetsaut Skii km Lax Ha may occur due to effects of ECRP on: employment and cost of living
- Human Health: Changes in human health (e.g., mental and physical) due to outside stressors and loss of culture may occur through the in-migration of Tsetsaut Skii km Lax Ha workers on shift schedule

Mitigation Measures

The following Valued Components sections of the Revised Application includes a summary of relevant mitigation measures that are identified by Skeena in response to potential ECRP-related effects on Employment and Economic Opportunities:

- Human Health
- Employment and Economy
- Use of Land and Resources for Traditional Purposes
- Quiet Enjoyment of Land

A complete list of mitigation measures can be found in Appendix A-01 of the Proponents' Revised Application.

EAO's Analysis and Conclusions

This section presents the EAO's analysis and conclusions on the potential residual effects from ECRP Revitalization on Tsetsaut Skii km Lax Ha's Employment and Economic Opportunities related to employment, wellbeing and human health.

Analysis

The EAO identified the following proposed provincial conditions that would mitigate potential effects on Employment and Economic Opportunities rights:

- Condition 23 - Socioeconomic Management Plan: the holder must develop a plan to adaptively manage potential direct socioeconomic effects in consultation with Tsetsaut Skii km Lax Ha

The EAO a identified the following federal Mitigation Measures and Follow-up Programs under the IAA that would mitigate potential effects to Employment and Economic Opportunities:

- Develop and implement measures to promote safe, respectful and inclusive conduct in the workplace and community;
- Develop measures to create and enhance opportunities for Indigenous peoples to obtain and retain employment, procurement and contracting opportunities related to the project; and
- Develop and implement measures to support transition of Indigenous employees through decline of employment and contracting opportunities as mine shifts to decommissioning.

After consideration of the Mitigation Measures and potential effects, described above, the EAO identified the following residual effects:

- Employment and Wellbeing
- Human Health

Refer to Appendix 6 of this Report for other key mitigation specific to those topics.

The EAO's characterization of the residual effects of ECRP on Employment and Economic Opportunities are summarized in the table below.

See Appendix 3 of this Report for a description of the considerations in the table below.

Table 9 Summary of residual effects on Tsetsaut Skii km Lax Ha and its Employment and Economic Opportunities

Indigenous Interest	Assessment Rating*	Impact and Rationale
Employment and Economic Opportunities	Context (resilience): Low resilience Magnitude: Low Extent: Regional Duration: Medium Term Reversibility: Reversible Long-Term Frequency: Continuous Affected Populations: Disproportionate Risk: Low Uncertainty: Moderate	Potential Impact: negligible-to-minor Tsetsaut Skii km Lax Ha's Employment and Economic opportunities have a low resilience based on the high unemployment rate in the Hazelton communities that do not allow for Tsetsaut Skii km Lax Ha members employment and economic opportunities to easily adapt to additional residual effects. The magnitude of the residual effect is anticipated to be low after weighing the potential positive (i.e. employment and economic opportunities for Tsetsaut Skii km Lax Ha members and Tsetsaut Skii km Lax Ha-owned businesses and associated income increases) and negative effects of ECRP (i.e. impacts to cultural participation due to shift schedules, impacts to cost of living, long-term changes in income) to Tsetsaut Skii km Lax Ha Employment and Economic opportunities. The extent of the residual effect is considered at the regional level. The duration of the residual effect is anticipated to be medium term and employment and economic opportunities may be available during the construction (two years), operations (13 years), and reclamation and closure (3 years) phases of the project (i.e. 18 years). The frequency of the effect is classified as continuous during the Construction and Operations phases of the project and is considered reversible long term as the effect is expected to be reversed over time during the Reclamation and Closure phase. The effect may disproportionately affect Tsetsaut Skii km Lax Ha members who may rely on ECRP for employment and economic opportunities.

		The risk is considered low considering the predicted magnitude and extent of the effect and the medium probability (based on the potential of both positive and negative effects associated with employment and economic opportunities. The uncertainty is considered moderate given the potential impacts will vary depending on the specific employment and economic opportunities held by Tsetsaut Skii km Lax Ha members during the construction and operation phases and the acknowledgment of the uncertainty due to predicting experiential effects of employment and the socioeconomic to Tsetsaut Skii km Lax Ha members.
* Note: Criteria and assessment ratings are defined in Appendix 3 - Residual Effects Characterization *Definitions*		

16.3.7 Harvesting Rights

Background

Harvesting rights, including hunting, trapping, fishing and gathering, was selected as an Indigenous interest given Tsetsaut Skii km Lax Ha has raised them when describing potential effects of the proposed project. The main area where Tsetsaut Skii km Lax Ha harvesting rights may be affected by ECRP is along the Highway 37 transportation corridor.

Existing Conditions

The Revised Application outlines that Tsetsaut Skii km Lax Ha members hunt caribou, moose, mountain goat, grizzly bear, black bear, grouse, rabbit, beaver, marten, wolverine, fisher, muskrat, and groundhog for use as country foods. The Highway 37 corridor is the primary Tsetsaut Skii km Lax Ha hunting location. Tsetsaut Skii km Lax Ha members have three provincially registered traplines: TR0617T015, TR0616T011, and TR0617T013 (Lawyer, Juristes Power Law, pers. comm., 8 April 2024), however, the Project Footprint and the Assessment Footprint do not overlap with any traplines registered by Tsetsaut Skii km Lax Ha. Preferred known areas for trapping are around Meziadin Lake (adjacent to the TCAA) and extending northward along the Bell-Irving River to the eastern boundary of Ningunsaw Provincial Park (Rescan 2009). Tsetsaut Skii km Lax Ha members harvest a variety of fish species including: chinook, sockeye, and coho salmon; steelhead trout; Dolly Varden and rainbow trout; and eulachon for use as country foods. Known fishing spots for salmon include the Cranberry River and the confluences of Snowbank Creek and Treaty Creek with the Bell-Irving River. The west side of the Bell-Irving River is generally noted as a source of steelhead, while the stretch between Treaty Creek and Wildfire Creek is noted for rainbow trout. Todedada Lake, Hidden Lake, Gilbert Lake, Mehan Lake, Hodder Creek have also been identified as trout fishing locations (ERM Rescan 2014). Meziadin Lake, Meziadin River, Oweegee Creek, Bowser Lake and Cranberry River are also used for trout and salmon fishing. Eulachon is harvested in a small stream locally known as Rainey Creek in the District of Stewart. Tsetsaut Skii km Lax Ha members collect berries for use as a country food along the Nass River, around Meziadin Lake and Meziadin Junction and Bowser Lake and the Bell-Irving Valley. Collection of berries for consumption, include: soapberries, blueberries, cranberries, and huckleberries, continues to be an important form of plant harvesting as well as mushroom harvesting along the Nass River.

Potential Project Effects

The Revised Application identified the following effects to VCs that could potentially impact Tsetsaut Skii km Lax Ha's Harvesting:

- During all project phases, the loss of wildlife habitat is anticipated in the project footprint which may impact the availability of wildlife within the TCAA (*Revised Application Chapter 19*)

- During all project phases the change in water quality and quantity due to project operations and potential malfunctions and accidents have the potential to impact fish and fish habitat downstream of the project (*Revised Application Chapters 16*; *Revised Application Chapter 29*)
- During all project phases, transportation activities, particularly in areas identified as most used by Tsetsaut Skii km Lax Ha members along the TCAA may impact Tsetsaut Skii km Lax Ha land use experiences and practices, including harvesting (*Revised Application Chapter 26*)
- During construction and operations, the in-migration of Tsetsaut Skii km Lax Ha workers on shift schedule may impact the mental health, community cohesion and physical health of Tsetsaut Skii km Lax Ha members and restrict their ability to take part in traditional practices, including harvesting activities (*Revised Application Chapter 20*).

Considering the EAO's conclusions on residual effects to these VCs, and the information provided in the Application from ECRP Revitalization regarding potential effects to Harvesting the EAO identified the following potential effects to Tsetsaut Skii km Lax Ha's Harvesting due to ECRP during construction, operations and decommissioning including:

- Methods, locations and opportunities: the preferred harvesting methods, location and opportunities to harvest may be impacted by in-migration of Tsetsaut Skii km Lax Ha workers on shift schedule, thereby reducing their ability to take part in traditional practices, including harvesting
- Experience: Harvesting experiences may be altered due to sensory disturbances or perceived health and safety risks of land use areas and harvesting activities in the areas identified as most used by Tsetsaut Skii km Lax Ha along the TCAA

  Subsistence-based livelihoods and trade: Ongoing restricted access to harvesting areas near the assessment footprint and altered harvesting experience of land use areas along the TCAA may reduce country food consumption

Mitigation Measures

The following Valued Components sections of the Revised Application includes a summary of relevant mitigation measures that are identified by the Proponents in response to potential ECRP-related effects on Harvesting:

- Human Health
- Employment and Economy
- Use of Land and Resources for Traditional Purposes
- Quiet Enjoyment of Land
- Vegetation and Ecosystems,
- Wildlife and Wildlife Habitat
- Fish and Fish Habitat
- Malfunctions and Accidents

A complete list of mitigation measures can be found in *Appendix A-1* of the Proponents' Revised Application.

The EAO's Analysis and Conclusions

This section presents the EAO's analysis and conclusions on the potential residual effects from ECRP Revitalization on Tsetsaut Skii km Lax Ha Harvesting Rights, having considered the effects to methods, locations and opportunities, experience, and subsistence-based livelihoods and trade.

Analysis

The EAO identified the following proposed provincial conditions that would mitigate potential effects on harvesting rights:

- Condition 24 - Traffic Corridor Management Plan – establish a plan to manage road traffic effects in consultation with Tsetsaut Skii km Lax Ha

The EAO identified the following federal Mitigation Measures and Follow-up Programs under the IAA that would mitigate potential effects to harvesting rights:

- Mitigation measures for potential effects to furbearers of importance to Indigenous groups;
- Mitigation measures to mitigate impacts to ungulates and bears from vehicle traffic on the mine access road and highways 37 and 37A;
- Prohibit employees and contractors associated with the project from fishing, hunting, trapping, plant gathering and using recreational vehicles for any purposes not associated with the project;
- Develop a protocol for receiving and addressing complaints related to the effects of the project on the current use of lands and resources for traditional purposes; Develop a communication plan, in consultation with Indigenous groups, to share information with Indigenous groups on adverse effects of the project, including up-to-date schedules of the project activities;
- Plow gaps in mine access road during winter for ungulate access;
- Require all helicopters associated with project to flay at altitudes greater than 500 meters above mountain goat winter habitat;
- Mitigation measures for fugitive dust emissions;
- Undertake, in consultation with Indigenous groups, progressive reclamation of areas disturbed by the project;
- Develop a chance find procedure to implement in the event that suspected physical or cultural heritage resource is discovered by the proponent;
- Develop and implement a follow-up program for any adverse federal effects on air quality, soil, surface water and country foods as it relates to the health of indigenous peoples; and
- Develop, implement and maintain an accidents and malfunctions response plan, mitigation measures and communication plan in consultation with Indigenous groups and any other relevant authorities.

After consideration of the Mitigation Measures and potential effects, described above, the EAO identified the following residual effects:

- Methods, locations and opportunities;
- Experience; and
- Subsistence-based livelihoods and trade.

The EAO's characterization of the residual effects of ECRP Revitalization on Harvesting are summarized in the table below.

See *Appendix 3* for a description of the considerations in the table below.

Table 10 Summary of residual effects on Tsetsaut Skii km Lax Ha's Harvesting Rights

Indigenous Interest	Assessment Rating*	Impact and Rationale
Harvesting	Context (resilience): Moderate resilience Magnitude: Low Extent: Regional Duration: Medium Term Reversibility: Reversible Long-Term Frequency: Continuous Affected Populations: Disproportionate Risk: Low Uncertainty: Moderate	Potential Impact: negligible-to-minor Tsetsaut Skii km Lax Ha Harvesting activities along the TCAA are considered moderately resilient to impacts based on existing conditions with the limited increase in industrial traffic on Highway 37 during construction and operations. The magnitude of the residual effect is anticipated to be low for hunting and gathering activities as the loss of wildlife habitat and the projected area of dust deposition are at the mine site and along the Mine Access road which is subject to existing access restrictions, but may impact wildlife populations in known harvesting locations along the TCAA. The magnitude is anticipated to be low for trapping and gathering as the potential effects along the TCAA are anticipated to be mitigated. The magnitude is anticipated to be negligible for fishing as the potential impacts to fish and fish habitat downstream of the mine site have no connectivity to known Tsetsaut Skii km Lax Ha fishing sites. The extent of the residual effect is considered at the regional level. The duration of the residual effect is anticipated to be medium term as transportation activities occur during the construction and operations phases and at a lesser extent during the reclamation and closure phases. The frequency of the effect is classified as continuous during the construction and operations phase of the project and is considered reversible long term as the effect may be reversed over time during the Reclamation and Closure phase. The effect may disproportionately affect Tsetsaut Skii km Lax Ha members who may rely on known areas along the TCAA for harvesting. The risk is considered low based on the predicted magnitude and extent of the effect and the medium probability associated with potential changes to harvesting methods and experience. The uncertainty is considered moderate given the potential impacts will vary across Tsetsaut Skii km Lax Ha territory. The effects of the increase in traffic along TCAA may impact the use of harvesting areas of known importance to Tsetsaut Skii km Lax Ha (i.e. Bowser Lake, Oweegee Lake, Bell Irving River) and other known use areas are 30-50km from the TCAA (i.e., Knipple Lake, Frank Mackie Glacier and Summit Lake).
* Note: Criteria and assessment ratings are defined in Appendix 3 - Residual Effects Characterization *Definitions*		

16.3.8 Trails and Travelways and Cultural Use Areas

Background

Trails (terrestrial) and travelways (waterbodies and water courses) and Cultural Use Areas were selected as an Indigenous interest given that Tsetsaut Skii km Lax Ha identified their importance and potential to be impacted by ECRP .

Existing Conditions

Tsetsaut Skii km Lax Ha have used trails throughout Tsetsaut Skii km Lax Ha territory including the Highway 37 corridor, Bowser Lake Area, Meziadin Lake area, Oweegee (Awiijii) area and Ningunsaw Pass area (and all associated drainages). Tsetsaut Skii km Lax Ha have used travelways in Tsetsaut Skii km Lax Ha Territory including Bowser Lake and Bowser River and Lower Bell-Irving River near its confluence with the Nass River.

Travel routes and trails used by Tsetsaut Skii km Lax Ha members have been documented along the Unuk River, in general proximity to the Project (Figure 7.2-2 of the Revised Application). Tsetsaut Skii km Lax Ha members have indicated that land-based travel is concentrated along the Highway 37 corridor and associated access roads, which often fall along old routes of overland travel. Tsetsaut Skii km Lax Ha interviewees have previously reported using motorized boats on waterbodies like Bowser Lake, Bowser River, and the lower portion of the Bell-Irving River near its confluence with the Nass River (Rescan 2013). Tsetsaut Skii km Lax Ha members have indicated that land-based travel, by motorized vehicle, snowmobile, and on foot, is concentrated along the Highway 37 corridor and associated access roads, which often fall along old routes of overland travel. Tsetsaut Skii km Lax Ha interviewees in previous studies have documented historic routes include multiple trails linking the District of Stewart with the heavily utilized inland area along the Bell-Irving river (along the route of highway 37and Nass river (ERM Rescan 2014; Rescan 2009, 2013a):

- North from town of Stewart up the Salmon River, crossing the Salmon Glacier and descending the far side to continue north and then east to Bowser Lake;
- North from the town of Stewart along the Bear River, then continuing north to the Bowser River;
- North and then east from the town of Stewart along the Bear River, then along Strohn Creek to Meziadin Lake; and
- North and then east from the town of Stewart along the Bear River, then along Strohn Creek toSurveyors Creek following it north to the Bell-Irving River.

The application states that while interviewees in previous studies have not specifically identified water-based travelways, historical use of canoes in lakes and rivers, particularly after spring freshet elevated water levels, is recorded (ERM Rescan 2014).
The application identifies Tsetsaut Skii km Lax Ha land use for habitation and burials at multiple locations in Tsetsaut Skii km Lax Ha territory. Tsetsaut Skii km Lax Ha interviewees in previous studies have identified historic cabin locations at Blackwater Lake and Bell-Irving River to Eastern Tsetsaut villages, including the named villages of Ts'imanluuskeexs, as well as Laxandzok or Laxanjok, just downstream of the falls on the Meziadin River.Tsetsaut Skii km Lax Ha interviewees have also identified village locations at the confluence of Skowill and Oweegee creeks
and near Knipple Lake (ERM Rescan 2014).

The presence of many historic cabins, some no longer standing, reflects the ongoing importance and use
of the Meziadin Lake area, the Bowser Lake Area and the Bell-Irving River.

Several burial sites have also been recorded in Tsetsaut Skii km Lax Ha Territory, including the Graveyard Point on the shores of Bowser Lake (Ministry of Attorney General 2021; Canadian Register of Historic Places 2013; Rescan 2009). Additional burial sites have been noted on an island in Meziadin Lake, Bell II at the confluence of the Bell-Irving and Nass rivers, in the Oweegee area (ERM Rescan 2014; Rescan 2009, 2013a), and Bowser river below the lake (Ministry of Attorney General 2021).Culturally modified trees have been identified in the vicinity of Spruce Creek, Hodder Lake, Beaver Pond Creek, Snowbank Creek, Scott Pass, and Meziadin Lake (IDM 2017; ERM Rescan 2014). While no information on the

nature of the modification is available, it has been noted that de-barked trees were historically regarded as territorial boundary markers (Ministry of Attorney General 2021).

Potential Project Effects

The EAO identified the following effects to VCs that could potentially impact Tsetsaut Skii km Lax Ha's use of Trails and Travelways and Cultural Use Areas:

- During construction and operations, dust deposition in the project footprint and along the Mine Access road would increase concentration of contaminants of concern and may impact the use of Trails and Travelways and Cultural Use Areas (Revised Application Chapter 18; 26)
- During construction and operations, the in-migration of Tsetsaut Skii km Lax Ha workers on shift schedule may impact the mental health, community cohesion and physical health of Tsetsaut Skii km Lax Ha members and restrict their ability to take part in traditional practices, including the use of Trails and Travel Ways and Cultural Use Areas (Revised Application Chapter 20)
- During all project phases, changes to access to areas used for harvesting near the assessment footprint (i.e. access beyond kilometer two of the Mine Access road is restricted) may result in changes to the accessibility of Trails and Travelways and Cultural Use Areas (Revised Application Chapters 20; 26)
- During all project phases, transportation activities, particularly in areas closest to the assessment footprint and in areas identified as most used by Tsetsaut Skii km Lax Ha members along the TCAA may impact Tsetsaut Skii km Lax Ha land use experiences and practices, including the use of Trails and Travelways and Cultural Use Areas (Revised Application Chapter 26)

Considering the EAO's conclusions on residual effects to these VCs, and the information provided in the Application from ECRP Revitalization regarding potential effects to Trails and Travelways and Cultural Use Areas the EAO identified the following potential effects to Tsetsaut Skii km Lax Ha's Trails and Travelways and Cultural Use Areas due to ECRP Revitalization during construction, operations and decommissioning including:

Methods, locations and opportunities: The preferred trails and travelways and cultural use areas may be impacted by in-migration of Tsetsaut Skii km Lax Ha workers on shift schedule, as well as potential disruptions due to sensory disturbances, thereby reducing their ability to take part in traditional practices

Access: Restricted use near the assessment footprint changes access to potential trails and travelways and cultural use areas affecting Tsetsaut Skii km Lax Ha community access to resources

Experience: Trail and travelways and cultural use areas experiences may be altered due to sensory disturbances or perceived health and safety risks in the areas identified as most used by Tsetsaut Skii km Lax Ha long the TCAA

Mitigation Measures

The following Valued Components sections of the Revised Application includes a summary of relevant mitigation measures that are identified by the Proponents in response to potential ECRP-related effects on Trails and Travelways:

- Human Health
- Employment and Economy
- Use of Land and Resources for Traditional Purposes
- Quiet Enjoyment of Land

- Vegetation and Ecosystems

A complete list of mitigation measures can be found in *Appendix A-01* of the Proponents' Revised Application.

The EAO's Analysis and Conclusions

This section presents the EAO's analysis and conclusions on the potential residual effects from ECRP Revitalization on Trails and Travelways related to methods, locations and opportunities, access and experience.

Analysis

The EAO identified the following proposed provincial conditions that would mitigate potential effects on Trails, Travelways and Cultural Use Areas rights:

- Condition 24 - Traffic Corridor Management Plan – establish a plan to manage road traffic effects in consultation with Tsetsaut Skii km Lax Ha

The EAO identified the following federal Mitigation Measures and Follow-up Programs under the IAA that would mitigate potential effects to Trails, Travelways and Cultural Use Areas:

- Mitigation measures for potential effects to furbearers of importance to Indigenous groups;
- Mitigation measures to mitigate impacts to ungulates and bears from vehicle traffic on the mine access road and highways 37 and 37A;
- Prohibit employees and contractors associated with the project from fishing, hunting, trapping, plant gathering and using recreational vehicles for any purposes not associated with the project;
- Develop a protocol for receiving and addressing complaints related to the effects of the project on the current use of lands and resources for traditional purposes;
- Develop a communication plan, in consultation with Indigenous groups, to share information with Indigenous groups on adverse effects of the project, including up-to-date schedules of the project activities;
- Plow gaps in mine access road during winter for ungulate access;
- Require all helicopters associated with project to flay at altitudes greater than 500 meters above mountain goat winter habitat;
- Mitigation measures for fugitive dust emissions;
- Undertake, in consultation with Indigenous groups, progressive reclamation of areas disturbed by the project;
- Develop a chance find procedure to implement in the event that suspected physical or cultural heritage resource is discovered by the proponent;
- Develop and implement a follow-up program for any adverse federal effects on air quality, soil, surface water and country foods as it relates to the health of indigenous peoples; and
- Develop, implement and maintain an accidents and malfunctions response plan, mitigation measures and communication plan in consultation with Indigenous groups and any other relevant authorities.

After consideration of the Mitigation Measures and potential effects, described above, the EAO identified the following residual effects:

- Methods, locations and opportunities

- Access
- Experience

The EAO's characterization of the residual effects of ECRP Revitalization on Trails, Travelways and Cultural Use Areas are summarized in the table below.

See *Appendix 3* for a description of the considerations in the table below.

Table 11 Summary of residual effects on Tsetsaut Skii km Lax Ha and its use of Trails, Travelways and Cultural Use Areas

Indigenous Interest	Assessment Rating*	Impact and Rationale
Trails and Travelways and Cultural Use Areas	Context (resilience): Moderate resilience Magnitude: Low Extent: Regional Duration: Medium Term Reversibility: Reversible Long-Term Frequency: Continuous Affected Populations: Disproportionate Risk: Low Uncertainty: Moderate	Potential Impact: negligible-to-minor Tsetsaut Skii km Lax Ha use of trails and travelways and cultural use areas along the TCAA are considered moderately resilient to impacts based on existing conditions with the limited increase in industrial traffic on Highway 37 during construction and operations. The magnitude of the residual effect is anticipated to be low based on the minor increase in traffic along the TCAA which may impact Tsetsaut Skii km Lax Ha Land use experience and practices, including the historic use of trails and travelways and cultural use areas. The ongoing restricted access from kilometer two of the Mine Access Road onwards may have the potential to impact Tsetsaut Skii km Lax Ha access to Trails and Travelways along the Unuk River. The extent of the residual effect is considered at the regional level. The duration of the residual effect is anticipated to be medium term as restrictions will be in place during construction, operations and reclamation and closure phases. The frequency of the effect is classified as continuous during the construction and operations phase of the project and is considered reversible long term as the effect may be reversed over time during the Reclamation and Closure phase. The effect may disproportionately affect Tsetsaut Skii km Lax Ha members who use trails and travelways adjacent to the TCAA. The risk is considered low considering the predicted magnitude and extent of the effect and the medium probability associated with restricted access and potential changes to methods and experience. The uncertainty is considered moderate given the potential impacts will vary across Tsetsaut Skii km Lax Ha territory. The effects are considered to be concentrated along the TCAA and most impactful at land and cultural use areas of known importance to Tsetsaut Skii km Lax Ha (i.e. Bowser Lake, Oweegee Lake, Bell Irving River) and known travelways along Bell-Irving River (adjacent to TCAA on Highway 37 and Bear River (adjacent to TCAA on Highway 37A). Other known use areas are 30-50km from the TCAA (i.e., Knipple Lake, Frank Mackie Glacier and Summit Lake).
* Note: Criteria and assessment ratings are defined in Appendix 3 - Residual Effects Characterization *Definitions*		

Cumulative Effects

The effects to employment and economic opportunities associated with ECRP, in conjunction with other projects (Table 7.8-1 of Chapter 7 of the Revised Application) has the potential for adverse cumulative effects if multiple projects employ a large portion of the Tsetsaut Skii km Lax Ha community members on shift work thereby impacting participation in cultural opportunities as well as increasing cost of living (through greater reliance on market foods over country foods).

The cumulative effects from ECRP on Tsetsaut Skii km Lax Ha Employment and Economic Opportunities may be alleviated by the Mitigation Measures described in *Appendix A-1* of the Proponents' Revised Application, proposed provincial conditions, including the Socioeconomic Management Plan, as well as the positive effects associated with increased employment and income in a community with a disproportionately high unemployment rate.

The effects to harvesting, trails and travelways and cultural use areas associated with ECRP has the potential for low magnitude adverse cumulative effects to Tsetsaut Skii km Lax Ha governance and well being and moderate magnitude to changes to land use experience and practices, if multiple projects have low magnitude impacts on Tsetsaut Skii km Lax Ha interests, particularly along the TCAA. The cumulative effects from ECRP on Tsetsaut Skii km Lax Ha Interests may be alleviated by the Mitigation Measures described in *Appendix A-1* of the Proponents' Revised Application and Provincial Conditions, including the Traffic Corridor Management Plan which include a requirement to develop the plan in consultation with Tsetsaut Skii km Lax Ha throughout construction, operations and closure.

The EAO acknowledges that Tsetsaut Skii km Lax Ha is of the view that they "*continue to be impacted by the cumulative effects resulting from all the projects operating on, or crossing their Territory*" and that Tsetsaut Skii km Lax Ha should be actively involved in the development of provincial conditions and mitigation measures. The EAO has carefully examined the mitigation measures proposed by Skeena and has designed its conditions to incorporate mitigation measures to manage the effects of ECRP, and to mitigate effects to Tsetsaut Skii km Lax Ha and their interests.

Considering the magnitude of the predicted residual effect to Tsetsaut Skii km Lax Ha Interests the proposed mitigation measures and their effectiveness, and the likelihood of overlap in time between multiple resource projects, the EAO concludes that ECRP, when combined with other past, present and future projects, may result in a low magnitude cumulative effect to Tsetsaut Skii km Lax Ha's Interests.

16.3.9 Positive Effects of ECRP Revitalization

There may be potential positive effects related to Project employment and contracting opportunities for Tsetsaut Skii km Lax Ha members and businesses. Tsetsaut Skii km Lax Ha will be consulted on the development of the Socioeconomic Management Plan to mitigate potential impacts to Tsetsaut Skii km Lax Ha and support positive effects.

16.3.10 Conclusions

Considering the above analyses and the EAO's engagement with Tsetsaut Skii km Lax Ha, Tsetsaut Skii km Lax Ha's engagement with Skeena, Skeena's commitments, cumulative effects, the EAO's recommended Table of Conditions and the federal Mitigation Measures, the EAO concludes that ECRP is anticipated to have the following impacts on Tsetsaut Skii km Lax Ha's Indigenous Interests:

- Negligible-to-minor residual effects to Tsetsaut Skii km Lax Ha's Employment and Economic Opportunities, Harvesting Activities and use of Trails and Travelways.
- Low magnitude cumulative effects to Tsetsaut Skii km Lax Ha's Interests

Considering the above analyses the EAO concluded that the potential for adverse effects of ECRP on Tsetsaut Skii km Lax Ha's Interests has been adequately avoided, minimized or otherwise accommodated. Based on the engagement undertaken with Tsetsaut Skii km Lax Ha on ECRP, as outlined in Section 1.12, the EAO has concluded that it has fulfilled the provincial Crown's duty to consult with Tsetsaut Skii km Lax ha.

16.4 Gitanyow Nation

16.4.1 Gitanyow's Involvement in the Environmental Assessment Process

During the Early Engagement phase, Gitanyow notified the EAO that it would be conducting a Wilp Sustainability Assessment of the ECRP and would be working directly with Skeena to apply the Wilp Sustainability Assessment Process (WSAP) to the ECRP.

The EAO acknowledges Gitanyow's WSAP, an assessment process based in Gitanyow law that applies to projects potentially impacting Gitanyow.

On January 17, 2023 Gitanyow submitted *Wilp Sustainability Assessment Direction* to the EAO which set out the scope of the WSAP. On April 14, 2025, the EAO received the WSAP Report as an appendix to Skeena's Revised Application. On July 25, 2025, Gitanyow provided EAO with a letter of direction which confirmed that the assessment report is a standalone document that is not intended to be summarized in Crown documents and should be appended in its entirety to the EAO's Assessment Report. In response to this direction, the EAO has appended the entirety of the WSAP report and has included the relevant proposed provincial conditions, recommended federal Key Mitigation Measures and the EAO's conclusions below. Gitanyow's WSAP Report can be found in *Appendix 14* of this Report. The EAO acknowledges that the EAO's conclusions may differ from Gitanyow's views.

In acknowledgement and respect of Gitanyow's parallel and independent WSAP the EAO limited engagement with Gitanyow to the following five key milestones:

- Receipt of Skeena's Application under Section 27 of the Act;
- Public comment periods required by Sections 27(2)(a) and 28(2)(b) of the Act;
- Acceptance of a Revised Application under Section 27(4) of the Act;
- Referral to Ministers for decision on a Certificate under Section 29 of the Act; and
- Issuance of any legal orders issued under the Act in relation to the ECRP.

A summary of Skeena's engagement with Gitanyow is provided in *Chapter 6* of the Revised Application and the *Indigenous Engagement Report* submitted with the Revised Application.

16.4.2 Conditions

The EAO identified the following proposed provincial conditions that would mitigate potential effects on Gitanyow and align with Gitanyow's proposed conditions:

- Condition 15: Net Zero Plan, requiring Skeena to implement measures to reduce greenhouse gas emissions should Operations extend beyond the year 2050;
- Condition 23: Socioeconomic Management Plan, requiring Skeena to develop a plan to adaptively manage potential direct socioeconomic effects from ECRP in consultation with Gitanyow; and
- Condition 24: Traffic Corridor Management Plan, requiring Skeena to establish a Traffic Corridor Management Plan in consultation with Gitanyow.

The EAO identified the following recommended federal Key federal Mitigation Measures and Follow-up Programs under the IAA that would mitigate potential effects on Gitanyow and align with Gitanyow's proposed conditions:

- Develop and implement measures to promote safe, respectful and inclusive conduct in the workplace and community;

- Develop measures to create and enhance opportunities for Indigenous peoples to obtain and retain employment, procurement and contracting opportunities related to the ECRP;
- Develop and implement measures to support transition of Indigenous employees through decline of employment and contracting opportunities as mine shifts to decommissioning;
- Mitigation measures to mitigate impacts to ungulates and bears from vehicle traffic on the mine access road and highways 37 and 37A;
- Prohibit employees and contractors associated with the project from fishing, hunting, trapping, plant gathering and using recreational vehicles for any purposes not associated with the ECRP;
- Develop a protocol for receiving and addressing complaints related to the effects of the ECRP on the current use of lands and resources for traditional purposes;
- Develop a communication plan, in consultation with Indigenous groups, to share information with Indigenous groups on adverse effects of the ECRP, including up-to-date schedules of project activities;
- Mitigation measures for fugitive dust emissions; and
- Develop and implement a follow-up program for any adverse federal effects on air quality, soil, surface water and country foods as it relates to the health of Indigenous peoples.

16.4.3 Agreements

The EAO acknowledges that Gitanyow and Skeena have entered into agreements to ensure that the ECRP is aligned with Gitanyow strategic direction.

16.4.4 EAO's Conclusion

In consideration of the appended WSAP assessment conducted by Gitanyow (see *Appendix 14*), the proposed provincial conditions, and the federal Key Mitigation Measures and Follow-up Programs, the EAO concluded that the potential for adverse effects of the ECRP on the Indigenous interests of Gitanyow has been adequately avoided, minimized or otherwise accommodated. Based on the engagement undertaken with Gitanyow on the ECRP, as outlined above, the EAO has concluded that it has fulfilled the provincial Crown's duty to consult and accommodate Gitanyow.

16.5 Métis Nation of British Columbia

16.5.1 Community Profile

Métis people are one of three Aboriginal peoples of Canada within the meaning of Section 35 (2) of the Constitution Act, 1982. Métis people are descendants of unions between European men (explorers, fur traders and pioneers) and Aboriginal women that occurred in the eighteenth century.[13] MNBC is the Métis governing body in B.C. that represents the interests of over 27,000 citizens in 40 Métis Chartered Communities from seven regions in the province.[14] MNBC indicates that it also represents the interests of nearly 98,000 self-identified Métis people in B.C. Since 2003, when the Métis leadership ratified the Métis Nation B.C. Constitution, MNBC has developed laws, regulations, and policies for maintaining, protecting, and furthering the interests of Métis in B.C.[15]

16.5.2 MNBC Involvement in the Environmental Assessment

On July 20, 2021, IAAC notified MNBC about receiving an Initial Project Description for ECRP and formally invited MNBC to comment on the potential impact assessment of ECRP on August 11, 2021. On November 29, 2022, the Federal Minister of Environment and Climate Change Strategy approved B.C.'s substitution request for ECRP. The EAO has engaged with MNBC as specified in the *Assessment Plan*, which states that any consultation conducted by B.C. with MNBC or organizations representing MNBC within B.C. under a substituted assessment is understood to be conducted on behalf of the Government of Canada and should not be construed as an acknowledgement by B.C. that it owes a duty of consultation or accommodation to MNBC within B.C. under Section 35 of the *Constitution Act*, 1982.

The EAO used the following sources in drafting the assessment of ECRP effects on MNBC:

- Skeena's Revised Application;
- Information submitted during the environmental assessment by Skeena;
- Conclusions from the EAO's assessment of Valued Components; and,
- Skeena's Indigenous Engagement Report and the Indigenous Engagement and Collaboration Plan.

A summary of Skeena's engagement with MNBC is provided in *Chapter 8* of Skeena's Revised Application and the *Indigenous Engagement Report* submitted with the Revised Application.

16.5.3 Assessment Boundaries

Assessment boundaries serve to define the scope or limits of the assessment both temporally and spatially.

16.5.3.1 Spatial Boundaries

The following spatial boundaries were identified and define where and when the ECRP may interact directly or indirectly with the MNBC's Interests:

- Project Footprint, which is the smallest scale boundary and is where ECRP physical works and activities will occur;
- Assessment Footprint, which represents the area assumed to be lost or disturbed due to ECRP activities;

[13] Métis Nation British Columbia. [date unknown 2025]. Video Series – The Métis. Metis in BC. [accessed 2 July 2025] https://metisinbc.mnbc.ca/

[14] Métis Nation British Columbia. [date unknown 2025]. About MNBC – The Métis Nation Government in British Columbia. Metis in BC. [accessed 2 July 2025] https://www.mnbc.ca/about-mnbc

[15] Constitution Act, as ratified September 2021. Métis Nation British Columbia. [accessed 2 July 2025] https://www.mnbc.ca/sites/default/files/2022-07/Constitution%20Act%20as%20ratified%20Sept%202021.pdf

- Transportation Corridor AA, which Includes a 250-metre buffer on either side of the road corridor to be used for transportation of ECRP-related concentrate, supplies, and personnel. In addition to the use of Highway 37, ECRP activities conducted in the Transportation Corridor AA also includes the storage and handling of concentrate in the port of Stewart.
- MNBC AA, which is a combination of the Local AA and Regional AA for the current and future use of land and resources for traditional purposes valued component and the Transportation Corridor AA:
    - Local AA, which provides current context, and potential future conditions with the ECRP in relation to the natural environment, conditions, and resources that may be important for MNBC Interests.
    - Regional AA, which consists of the Regional AAs of the physical valued components combined (using the outermost Regional AA boundary).
- The Cumulative Effects AA encompasses the area within which potential residual effects of the ECRP are likely to interact cumulatively with the effects of other past, present, and reasonably foreseeable future projects and activities on MNBC Interests. The Cumulative Effects AA boundary is the same as the MNBC AA boundary.

16.5.3.2 Temporal Boundaries

The temporal boundaries for the assessment of potential impacts to MNBC are considered in different phases of the project including:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

16.5.3.3 Administrative and Technical Boundaries

There are two administrative boundaries relevant to MNBC Interests:

- British Columbia Métis Assembly of Natural Resources, which is a separate but affiliated non-political organization, to manage natural resources under MNBC's Métis Nation Natural Resources Act (MNBC 2013); and,
- The Cassiar Iskut-Stikine Land and Resource Use Management Plan, which includes considerations for current land uses for traditional purposes (e.g., mushroom and berry harvesting), recognizing the importance of these activities for economic and cultural purposes.

16.5.4 Regional Context

MNBC Region 6 - Northwest, is home to three MNBC Chartered Communities, with an estimated population of 700 registered Métis Citizens. This region includes several past and present mining, power and pipeline projects, including the KSM Mine and the Brucejack Mine, which conducted traditional land use studies and research. These studies found that increased traffic, associated with these projects, has the potential to affect Indigenous harvesting activities. MNBC has previously expressed general concerns regarding the effects of development activities on Métis land use and, by implication, the associated exercise of their Indigenous harvesting rights. In relation to mining projects specifically, MNBC has also indicated specific concerns around the potential for development-related changes in terrain stability to increase risks of avalanches and affect recreational land users. MNBC has posed questions around the effects of tailings pond seepage on groundwater quality.

16.5.5 Indigenous Interests

Skeena identified MNBC's Indigenous Interests that may be affected by the ECRP through ECRP engagement, a review of publicly available literature and regulatory applications prepared for the historic Eskay Creek Mine, and MNBC's review of a draft of the Application chapter.

The following categories were then used in the assessment of potential effects to MNBC's Indigenous Interests:

- Changes to Governance and Well-being; and,
- Changes to MNBC Land Use Experiences and Practices.

Skeena determined there is a negligible to minor potential for adverse changes to MNBC land use experiences and practices, and therefore this potential effect was not carried forward for further assessment.

Based on the Revised Application the following Indigenous Interests were identified as having the potential to be affected by ECRP:

- Governance and Well-being

16.5.6 Changes to Governance and Well-being

Background

The Revised Application states that changes to Governance and Well-being include effects to the MNBC system of governance, membership selection, decision-making, as well as processes developed to facilitate land stewardship. Economic opportunities are considered as part of this effect, as economic opportunities may impact Governance and Well-being. Potential socio-economic and health effects on MNBC Interests are also considered as part of this effect.

Existing Conditions

MNBC Region 6 includes several past and present projects including KSM Mine and the Brucejack Mine. Increased traffic in has the potential to affect Indigenous harvesting activities, risks and disruptions to both land users and important wildlife species. Potential cumulative effects on wildlife including grizzly bears, mountain goat, and wetland birds as a result of direct and indirect mortality, sensory disturbance, attractants, and contaminants have also been noted. MNBC, has expressed concerns regarding the effects of development activities on MNBC land use, notably on the ability to exercise their Indigenous harvesting rights. Concerns related to terrain stability to increase risks of avalanches and affect recreational land use, and effects of tailing pond seepage on groundwater quality have been raised.

Potential Project Effects by Skeena

Skeena identified the following effects to valued components in Chapter 8, following the application of mitigation measures, that could potentially impact MNBC's Governance and Well-being:

- Increase in project-related traffic on Highways 37 and 37A of an average 50 additional trips per day has the potential to increase collision rates by 1.4% during the operations phase of the ECRP.
- Potential employment and income changes are anticipated to be beneficial because of increased employment opportunities and associated income; however, that is dependent on citizens of MNBC being provided employment opportunities directly or indirectly on the ECRP.
- In-migration of up to 435 people into the socio-economic Local AA/Regional AA is anticipated, this may increase cost of living, local prices of gas, food and other necessities, and inflationary pressure on local wages.
- Additionally, in-migration may:

- Put pressure on availability and affordability of housing in the Local AA/Regional AA where MNBC citizens live;
- Put pressure on health care facilities due to occasional acute care needs of the ECRP.
- And change community safety and well-being, including increased rates of crime, alcohol and substance misuse, gender-based violence, social tensions, and human trafficking.

Considering the EAO's conclusions on residual effects to these valued components, and the information provided in the Revised Application, the EAO identified the following potential effects to MNBC's Governance and Well-being due to the ECRP during construction, operations and decommissioning including:

- **Employment and procurement:** Where MNBC community citizens can secure employment directly or indirectly from the ECRP. Additionally, in-migration may put pressure on affordability and availability of housing, put pressure on health care facilities and cause a change in community safety and well-being including may increase rates of crime, alcohol and substance misuse, gender-based violence, social tensions, and human trafficking.
- **Transportation activities:** Potential to increase collision rates by 1.4% during the Operations phase. There is also minor potential for MNBC citizens to experience adverse effects in the use of the regional highways that connect MNBC communities, and the areas used for traditional purposes.

Mitigation Measures by Skeena

The Revised Application includes a summary of relevant mitigation measures that Skeena has proposed in response to potential ECRP-related effects on MNBC's Governance and Well-being. These include the following:

- Human Health (see *Chapter 20*);
- Infrastructure and Services (see *Chapter 21*);
- Non-traditional Land and Resource Use (see *Chapter 22*);
- Visual Resources (see *Chapter 23*);
- Employment and Economy (see *Chapter 24*);
- Current and Future Use of Land and Resources for Traditional Purposes (see *Chapter 26*); and
- Mitigation measures for Quiet Enjoyment of Land (see *Chapter 27*).

For a summary of Skeena's proposed management plans and mitigations related to the valued components listed above, see *Appendix A-1* of the Revised Application.

EAO's Analysis and Conclusions

This section presents the EAO's analysis and conclusions on the potential residual effects from ECRP on MNBC's Governance and Well-being.

Analysis

The EAO identified the following proposed provincial conditions that would mitigate potential effects on MNBC's Governance and Well-being rights:

- Condition 12: Construction and Environment Management Plan
- Condition 14: Public Information
- Condition 23: Socioeconomic Management Plan
- Condition 24: Traffic Corridor Management Plan

- Condition 22: Health and Medical Services Plan
- Condition 27: Regional Cumulative Effects Initiatives

The EAO identified the following federal Key Mitigation Measures and Follow-up Programs under the IAA that would mitigate potential effects to Changes to Governance and Well-being:

- Prohibit employees and contractors associated with the ECRP from fishing, hunting, trapping, gathering and using recreational vehicles for any purposes not associated with the ECRP;
- Carry out ECRP in a way that protects and avoids harm to migratory birds, including lighting controls and retaining a buffer around nests;
- Vibration and blasting measures to reduce disturbance to wildlife; and
- Implement community feedback protocol in to address adverse federal effects resulting from the ECRP.

After consideration of the mitigation measures and potential effects, described above, the EAO identified that the ECRP would result in residual effects to the following:

- Change to governance and well-being.

Refer to Section *17.12* Employment and Economy and *Appendix 7* Risks of Malfunctions and Accidents of this Report for other key mitigation specific to those topics.

EAO's characterization of the residual effects of ECRP on Changes to Governance and Well-being are summarized in the table below.

Table 12 Summary of residual effects on MNBC and Changes to Governance and Well-being

Métis Nation British Columbia Interest	Assessment Rating*	Impact and Rationale
Change to Governance and Well-being *Governance, membership selection, decision-making, and processes developed to facilitate land stewardship*	Context (resilience): Low Magnitude: Low Extent: Regional Duration: Medium-term Reversibility: Partially reversible Frequency: Continuous Affected Populations: Disproportionate Risk: Low Uncertainty: Moderate	Potential Impact: Negligible to moderate MNBC citizens in the area are considered to have low resilience to impacts based on existing conditions and existing effects to changes in their Governance and Well-being. Impacts to their Governance and Well-being may be experienced in some manner by MNBC citizens residing throughout the region. MNBC citizens' employment may experience a combination of positive effects through increase in local employment opportunities and negative effects due to in-migration effects such as increase in cost of living, increase in wait times at health care facilities, and community safety and well-being changes. Additionally, transportation activities may increase the risk of collisions and potential for MNBC citizens to experience adverse effects in the use of the regional highways that connect MNBC communities, and the areas used for traditional purposes. These effects will be partially reversible during the Reclamation and Closure phase. The risk rating is considered low because of a low magnitude and a low likelihood based on the Regional AA. There is a moderate level of uncertainty as it is difficult to predict how MNBC population will respond to the changes to Governance and Well-being.

* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions

Cumulative Effects

There are a number of reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP through spatial and temporal overlap within the Cumulative Effects Assessment Area. The past effects of historical activities of Eskay Creek Mine are likely to interact with the residual effects of ECRP. Other present projects that may have interactions are: Brucejack Mine, Forrest Kerr Hydroelectric, Long Lake Hydroelectric, McLymont Hydroelectric, Northwest Transmission Line, and Volcano Creek Hydroelectric. Anticipating the potential cumulative interactions with these reasonably foreseeable future projects of: Goldwedge Mine, KSM Mine, and Eskay Creek Technical Sample Project. Additionally, there could other activities that have potential to interact cumulatively with residual effects of the ECRP are transportation, including road and aerial transportation of personnel and goods, and use of Highway 37 by other travellers, and forestry, including timber transport.

The increase in local population associated with ECRP, in conjunction with other projects, has the potential for adverse cumulative effects on MNBC citizens due to increases in the cost of living and the affordability and availability of housing in communities where Métis may reside. Food security and nutrition may be affected. An overall increase in population in communities where Métis may reside in could further change community safety and well-being, including increased rates of crime, alcohol and substance misuse, gender-based violence, social tensions, and human trafficking. The shift in work patterns for Métis employed in relation to ECRP could influence Métis cultural identity and country food consumption. Further interactions related to increased highway traffic, including collisions, perspectives on resource development, industrial development, and perceptions of the health of land and cultural use areas may be linked.

16.5.7 Positive Effects of ECRP

Positive effects are anticipated during ECRP Construction and Operations phase, as there may be project employment and contracting opportunities for MNBC citizens and businesses which would result in increased employment opportunities and associated income. In Skeena's Revised Application, this is stated as a potential positive effect from procurement of employment and labour, services, goods, and use of infrastructure in the region.

16.5.8 Conclusions

Considering the above analyses and the EAO's engagement with MNBC, MNBC's engagement with Skeena, Skeena's commitments, cumulative effects, the EAO's recommended conditions and the federal Key Mitigation Measures, the EAO concludes that ECRP is anticipated to have the following impacts on MNBC's Indigenous Interests:

- Negligible to moderate on changes to Governance and Well-being.

Considering the above analyses, the EAO has concluded that the potential for adverse effects of the ECRP on MNBC's Interests have been adequately avoided, minimized or otherwise accommodated.

16.6 Alaska Tribes

16.6.1 Community Profile

The Craig Tribal Association, Hydaburg Cooperative Association, Ketchikan Indian Community, Klawock Association, Metlakatla Indian Community, Organized Village of Kasaan, and Organized Village of Saxman (Alaska Tribes) have asserted territory across the entirety of the Unuk River watershed from the marine waters in Alaska to the river's headwaters in B.C. These modern-day Alaska Tribes are located in Southeast Alaska and share a mixture of Tlingit, Haida and Tsimshian ancestry. For the purposes of the ECRP environmental assessment process, these Alaska Tribes are represented by SEITC, a consortium representing various Alaska Tribes.

16.6.2 Alaska Tribes' Involvement in the Environmental Assessment

The EAO worked collaboratively with the Alaska Tribes, as represented by SEITC, throughout the ECRP assessment process. Starting in 2021, the EAO met monthly or bi-monthly with the Alaska Tribes throughout each environmental assessment phase to discuss concerns related to ECRP and to understand, address, and resolve issues as they came up. In April 2023, the EAO established the ATTAC to understand Alaska Tribes' views on the potential transboundary effects (both positive and negative) of ECRP on the seven potentially affected member Tribes in southeast Alaska. In June 2024, the Province issued an order pursuant to the *Environment and Land Use Act* (ELUA Order) that set out the Alaska Tribes may not be a participating Indigenous nation, and Section 14 of the Act does not apply to them, in relation to the ECRP environmental assessment. The ELUA Order does not restrict the Province's ability to meet any constitutional obligations and the EAO is discharging any constitutional obligations owed to the Alaska Tribes in a manner consistent with *Haida Nation v. British Columbia* and *R v. Desautel.* In September 2024, in response to information shared by these Alaska Tribes, the EAO revised the *ATTAC Terms of Reference* to expand the goals to include the Alaska Tribes advising the EAO on the potential impacts of ECRP on the seven member Tribes' asserted Section 35 rights.

The EAO identified the ATTAC's interests to be assessed in this Report through:

- Engaging with the ATTAC, in accordance with the ATTAC Terms of Reference, to understand their views on the potential effects or potential transboundary effects (both positive and negative) of ECRP on the seven potentially affected member Tribes in southeast Alaska or on the seven member Tribes' asserted Section 35 rights (Alaska Tribes' Interests); and
- Receiving input on draft environmental assessment documents related to the Alaska Tribes' Interests.

IAAC provided funding to support the ATTAC's engagement in the ECRP environmental assessment process.

Skeena's engagement with these Alaska Tribes has been with its political leadership, as represented through the SEITC. A summary of Skeena's engagement with the ATTAC is provided in the *Alaska Tribal Transboundary Advisory Committee Engagement Report*.

16.6.3 Assessment Boundaries

For the purposes of this chapter, the EAO has applied the Regional AA for the surface water and fish and fish habitat valued components as described in Chapters 15 and 16 of the Revised Application. The Regional AA is defined as the Unuk River Watershed upstream of the Canada-United States border and downstream of the confluence with Storie Creek, the Volcano Creek sub-watershed, and a portion of the Iskut River and Stikine River Watershed. The Regional AA includes the watercourses listed, their tributaries within the Regional AA boundary, and a riparian buffer around all waterbodies (see Figure 15.3-2 of *Chapter 15* of the Revised Application). For the purpose of this assessment, the EAO has defined the lower Unuk River watershed as the marine waters to the Alaskan-B.C. border (approximately 38 km in length), where potential transboundary effects may occur, and the upper Unuk River watershed as the Alaskan-B.C. border to the where

Storie Creek enters as a tributary to the Unuk River (approximately 40 km to follow the Regional AA boundary). The EAO considers this approach to be aligned with the Alaska Tribes stated interests in the Unuk River Watershed.

16.6.4 Regional Context

The Unuk River watershed is an area downstream of active natural resource and mining development in B.C., including the historic Eskay Creek mine site and the project now proposed as ECRP.

During the ECRP environmental assessment, Alaska Tribes asserted cultural and subsistence rights across the Unuk River watershed. Alaska Tribes expressed concern about potential effects to water quality in the lower Unuk River watershed, based on their understanding of the historic operation of the former Eskay Creek mine site from 1994 to 2008. This concern extends to a perception that historic changes to water quality have affected fish populations in the Unuk River, with a specific concern related to the eulachon population.

16.6.5 Alaska Tribes' Interests

The EAO identified the following potential effect to the Alaska Tribes' Interests:

- Changes to quality and abundance of fish as a country food as a result of potential effects to surface water, fish and fish habitat, and malfunctions and accidents during the Construction, Operations and Reclamation and Closure of ECRP.

Through discussion with the Alaska Tribes, a range of concerns were raised which are summarized below and discussed in more detail throughout this chapter:

- The Alaska Tribes raised concerns that the historical impacts of the past-producing Eskay Creek mine project on water quality and fish habitat in the Unuk River resulted in impacts to water quality and impacted eulachon populations during previous mining. The EAO acknowledges this concern but has advised that the EAO does not have further information regarding past impacts and that the scope of the assessment considers existing conditions and the potential impacts of the proposed project. The EAO notes that the cumulative effects assessment does consider the effects of the historical Eskay Creek mine, which continues to have regulatory requirements for monitoring.
- The Alaska Tribes stated that the fish and fish habitat in the Unuk River watershed are critical as studies have shown that up to 80% of the caloric intake of Alaskan Tribal citizens is derived directly from the land and waters. The Alaska Tribes stated that potential negative effects to the watershed from ECRP will have a direct, irreparable harm to their sovereignty, health and cultural practices.

Through engagement with the Alaska Tribes, the following Alaska Tribes' Interests have been identified as having the potential to be affected by ECRP:

- Harvesting: fishing within the Unuk River watershed.

16.6.6 Effects to Harvesting

Existing Conditions

The Unuk River watershed supports a variety of fish species. The Application states that Dolly Varden are the dominant fish species throughout the watershed, however, cutthroat trout and chinook salmon have also been found downstream of the canyonized section of the Unuk River, below its confluence with Eskay Creek. Historical information indicates that other salmonids, sculpins, and eulachon are also present in the Unuk River at locations further downstream and outside the Regional AA (see S. 16.7.1 *Chapter 16* of the Application). The Alaska Tribes have stated their view that the Unuk River supports four species of Pacific salmon and that the mouth of the Unuk River supports the largest eulachon fishery in southeast Alaska.

Potential Project Effects

The EAO identified the following potential effects to VCs in Appendix 6: Valued Component Assessments prior to the application of mitigation measures, that could potentially impact Alaska Tribes' opportunities to harvest:

- Potential changes in surface water quantity from water management activities, diversions, and drainages extend the period of reduced baseflow in creeks downstream, including the upper Unuk River watershed, of the mine site and delays in mine pit lake filling (Chapters 15; 16; 26)
- Potential changes in surface water quality from seepage, mine contact water, Tom MacKay and Albino Tailings Storage Facility and waste rock dumps, and deposition of particulate matter in creeks downstream of the mine site, including the Upper Unuk River watershed (Chapters 15; 16; 26)
- Potential accidents and malfunctions within and downstream of the Project Footprint, including accidental release of contaminants for ore/waste rock stockpiles and potential breach or failure of tailings storage facility and other containment structures in creeks and rivers downstream of the mine site, including the Upper and Lower Unuk River watershed (*Appendix 7*)

Considering these effects the EAO identified the following potential effects of ECRP, prior to the application of mitigation measures, on the Alaska Tribes' opportunity to harvest:

- Changes to the quality and abundance of fish as a country food in the Unuk River watershed

Mitigation Measures

The following valued components sections of the Revised Application include a summary of relevant mitigation measures that are identified by Skeena in response to potential ECRP-related effects on harvesting rights:

- Surface Water (see *Chapter 15*);
- Fish and Fish Habitat (see *Chapter 16*);
- Human Health (see *Chapter 20*); and
- Current and Future Use of Land and Resources for Traditional Purposes (see *Chapter 26*).

Refer to *Section 17.4 Surface Water*, *Section 17.5 Fish and Fish Habitat* and *Section 17.8 Human Health* of this Report for other key mitigation specific to those topics.

16.6.7 The EAO's Analysis and Characterization of Effects

The EAO identified the following proposed provincial conditions that would mitigate potential effects on harvesting rights:

- Condition 17: Aquatic Effects Monitoring Plan, requiring Skeena to monitor and validate predicted effects to aquatic resources and implement adaptive management strategies, as determined through the *Environmental Management Act* permitting process;
- Condition 18: Fish Tissue Baseline Report, requiring Skeena to submit a report on results of monitoring fish quality, including collection of additional fish tissue data and identification of potential contaminants of concern;
- Condition 16: Water Quality and Quantity Model Validation Report, requiring Skeena to establish a water quality baseline monitoring program throughout Construction, Operations and Closure under the direction of a Qualified Professional; and
- Condition 26: End Land Use Plan, requiring Skeena to develop a plan, describing ECRP's final end land use to understand long-term effects at the environmental assessment level, consistent with Provincial legislative and regulatory requirements.

The EAO identified the following federal Key Mitigation Measures and Follow-up Programs under the IAA that would mitigate potential effects to harvesting:

- Develop, implement and maintain mitigation measures to control erosion, sedimentation and runoff in the Designated Project Area;
- Develop, implement and maintain mitigation measures to manage all potential sources of acid-generating material within the Designated Project Area;
- Collect and treat all contact water from the Designated Project Area;
- Develop and implement a follow-up program on effects to fish and fish habitat based on any changes to surface water quantity and quality;

After consideration of the mitigation measures and potential effects described above, the EAO identified the following residual effects:

- Changes to the quality and abundance of fish as a country food in the Unuk River watershed

The EAO's characterization of the residual effects of ECRP on Harvesting are summarized in the table below.

Table 13 Summary of residual effects on Alaska Tribes and its ability to harvest in the Unuk River watershed

Alaska Tribes' Interest	Assessment Rating*	Impact and Rationale
Harvesting Changes to the quality and abundance of fish as a country food	Context (resilience): moderate Magnitude: negligible-to-moderate Extent: local-to-regional Duration: long-term Reversibility: partially reversible to irreversible Frequency: continuous Affected Populations: disproportionate Risk (likelihood and consequence: moderate Uncertainty: Moderate	**Potential Impact: negligible-to-minor** The use of the Unuk River watershed for harvesting is considered moderately resilient to impacts based on existing conditions for harvesting in the watershed. Impacts to harvesting may occur on a local-to-regional scale, and the effects are negligible to low magnitude based on the effectiveness of mitigations and the risk and likelihood of potential accidents and malfunctions, particularly a tailings dam breach. Residual effects from ECRP to surface water quantity would be noticeable on a limited scale (mine site wide) and on a landscape scale (upper Unuk River watershed) such as predicted reduced flows in local creeks and some larger creeks during Operations; flows are predicted to increase in Closure and Post-closure which would increase water availability downstream. Potential surface water quantity effects on the Unuk River system are predicted to be negligible, especially when approaching the Alaskan border and within the Lower Unuk River watershed. These predicted effects to water quantity are characterized as not significant. Residual effects to surface water quality are anticipated close to the mine site where most of the potential effects related to mine activities occur, however changes to water quality may be measurable in the upper Unuk River watershed depending on the time of year, water levels and flows in the river, and regional influences. The residual effects from ECRP to surface water quality are characterized as not significant. Transboundary effects to water quality and quantity in the Lower Unuk River watershed related to construction and operations are not anticipated as residual effects at modelling node UR 37.1 (Unuk River at Canada-United States border), and thus predicted changes are characterized as a negligible magnitude.

		The low magnitude predicted regional changes to water quantity and water quality are not expected to have a significant effect on fish or fish habitat within the Upper or Lower Unuk River watershed, therefore a major change in fish abundance and quality is not expected as a result of ECRP. Residual effects to fish in the Upper Unuk River watershed are anticipated to be low in magnitude and are characterized as not significant. Some effects would be partially reversible (i.e. effects during Operations), while others would be irreversible (continuous effects from closed mine facilities such as the Tom Mackay Storage Facility and exposed pit lake rock faces). The frequency of the effects would be continuous during the life of the project and extend into reclamation and closure. Effects may disproportionately affect Alaska Tribes who rely on resources from the Unuk River watershed for food, social and ceremonial purposes. The risk associated with the potential effects to surface water and fish and fish habitat based on project activities is low, however, the overall risk is assessed as moderate. This is based on the risk associated with accidents and malfunctions given that main facilities and tailings storage facilities will not be decommissioned and must remain stable and function effectively in perpetuity and dam failure would have high consequence to downstream ecosystems in the entire Unuk River watershed. The effectiveness of mitigation measures is expected to be moderate as there is moderate overall uncertainty. While the potential impacts are anticipated to be not significant based on the assessment rating there is uncertainty due to difficulty in predicting experiential effects as well as predicting the harvesting choices Alaska Tribes would make in the lower Unuk River watershed in response to real and perceived effects of ECRP on harvestable resources.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization *Definitions*		

Cumulative Effects

The EAO acknowledges that Alaska Tribes have raised concerns regarding historical impacts of the past-producing Eskay Creek Mine on water quality and fish habitat in the Unuk River. The EAO acknowledges this concern and notes that it has been considered in the cumulative effects assessment for the surface water and fish and fish habitat VCs.

Skeena identified the historical Eskay Creek Mine and Eskay Creek Technical Sample Project as projects with potential interactions between the residual effects of ECRP on the surface water valued component and considered cumulative effects from the Brucejack, Gold Wedge and KSM mines on surface water quantity and quality. Water quality for selenium was predicted to stay below B.C. water quality guidelines at the downstream node (UR 37.1) close to the Alaskan border. For this reason, Skeena did not undertake any additional assessment of cumulative effects on the Surface Water VC.

Skeena identified six existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP as it relates to the fish and fish habitat valued component: the historical Eskay Creek Mine, the Eskay Creek Technical Sample Project, KSM Mine, Brucejack Mine, Volcano Creek Hydroelectric Project, and Forest Kerr Hydroelectric Power project. No other reasonably foreseeable projects were identified.

Skeena evaluated the potential residual cumulative effects associated with bioaccumulation and habitat loss. With respect to potential residual cumulative effects associated with bioaccumulation, Skeena concluded that the magnitude of the residual cumulative effect is conservatively assumed to be moderate. A key point of context is that the contribution of ECRP to that cumulative effect is expected to be minimal, based on the observation that water concentrations upstream of Sulphurets Creek - which includes the other existing and reasonably foreseeable projects - are expected to remain below the B.C. Water Quality Guidelines that is intended to be protective of selenium bioaccumulation in fish.

Skeena evaluated the potential cumulative effects for fish and aquatic habitat loss and/or alteration with the fish and fish habitat Regional AA (which is identical to the surface water Regional AA) and determined that ECRP would result in the direct and indirect loss or alteration of up to 40.7 of 3,600 km of watercourses and 3.26 of 920 ha of waterbodies of non-fish-bearing aquatic habitat in the Regional AA, which is 1.1% and 0.4% reduction from existing conditions, respectively.

The EAO considered the existing conditions at the mine site, the predicted residual effects from Eskay, the mitigation measures proposed by Skeena, and the EAO's assessed residual effects to surface water quality and quantity and fish and fish habitat (bioaccumulation and habitat loss) as a result of the effects of ECRP interacting with the effects of other past present and reasonably foreseeable future projects and activities. Given these considerations, the EAO concludes that permitted mines in the area may impact surface water quality, specifically selenium, in larger water courses such as the Unuk river, however, the levels are predicted to stay below the B.C. Aquatic Life Guidelines and no transboundary effects beyond the B.C.-Alaska border (Lower Unuk River watershed) are anticipated. With respect to bioaccumulation and fish habitat loss, the EAO concludes that the cumulative effects are both low magnitude because potential impacts to water quality concentrations are expected to remain below the B.C. Water Quality Guidelines and area of predicted habitat loss is minimal relative to the Regional AA.

The EAO concludes that significant cumulative effects to harvesting are not expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

16.6.8 Conclusions

Considering the above analyses and the EAO's engagement with the Alaska Tribes through the ATTAC, Skeena Resource's commitments, the EAO's recommended Table of Conditions and the federal Mitigation Measures, the EAO concludes that ECRP is anticipated to have negligible-to-minor magnitude residual effect effects to harvesting in the upper Unuk River watershed and that no residual effects are predicted in the lower Unuk River watershed. The EAO concluded that cumulative effects in the Unuk River watershed are assessed as low magnitude and not significant.

In consideration of the above analyses, the EAO concluded that the potential for adverse effects of ECRP on the Alaska Tribes' Interests has been adequately avoided, minimized or otherwise accommodated. Based on the engagement undertaken with Alaska Tribes on ECRP, as outlined in *Section 16.6.2*, the EAO has concluded that it has fulfilled the provincial Crown's duty to consult with the Alaska Tribes.

17.0 Appendix 6 Valued Component Assessments

17.1 Air Quality

17.1.1 Summary

Air quality was selected as a valued component for the ECRP environmental assessment as activities associated with mining may affect air quality through activities such as land disturbance, road use, and operation of machinery, which can generate particulate matter (including dust) or gaseous criteria air contaminants. Changes in air quality associated with these activities may then have effects to water, soil, vegetation, wildlife, and human health. Potential changes in air quality were identified as a concern for ECRP by TCG, Tsetsaut Skii km Lax Ha, Northern Health, Health Canada, and ENV.

In the Revised Application, Skeena assessed predicted air quality changes from ECRP and concluded that the greatest changes in criteria air contaminant concentrations would be related to generation of fugitive dust at the mine site resulting in exceedances of air quality guidelines for particulate matter of all size fractions near the Assessment Footprint. Reviewers raised concerns about Skeena's air quality modelling and proposed mitigation measures.

The EAO considered Skeena's assessment and proposed mitigation measures, the key issues raised by reviewers, proposed Certificate conditions requiring development of a Construction Environmental Management Plan and Air Quality Effects Monitoring Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA and concluded that there would be a residual effect to air quality as a result of ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significant adverse residual or significant cumulative effects on air quality.

17.1.2 Assessment Boundaries

17.1.2.1 Spatial Boundaries

Skeena used three domains to model air quality for ECRP. Domain 1 includes the mine area, Domain 2 includes the town of Stewart, and Domain 3 focuses on a segment of Highway 37. Skeena also used several spatial boundaries within each domain (see figures in Chapter 12 *Section 12.3.1* of the Revised Application).

For Domain 1, Skeena assessed effects using a Project Footprint (existing and new, temporary and permanent infrastructure), an Assessment Footprint (the area around the mine where public access is not allowed), the Domain 1 Local AA (a 60 km x 60 km square encompassing the mine site and parts of Highway 37), and the Domain 1 Regional AA (a 70 km x 70 km square centred on the mine including sensitive receptors and places which may also be affected by other mining projects in the region). Domain 3 is a 6 km x 6 km square which provides detail of Domain 1 near Highway 37 in the area used by project vehicles. The Domain 1 Regional AA was also used by Skeena to examine the cumulative effects of changes to air quality. The Domain 1 Local AA overlaps with portions of the Tahltan Consent Area, as well as portions of the Tahltan Regional, Lower Elevation and Upper Elevation Areas of Interest as described in Chapter 12 (*Section 12.3.1.8*) of the Revised Application.

For Domain 2, Skeena assessed effects using a combined Local AA and Regional AA (a 10 km x 7 km rectangle centred around the Town of Stewart). Skeena also completed a transportation corridor assessment to examine air quality effects related to transportation of project materials, which included the road between the mine site and Iskut, and Highways 37 and 37A between the Eskay Creek Mine Access Road and the Port of Stewart.

17.1.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of effects to air quality:

- Construction phase: 2 years;

- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-Closure phase: 57 years (based on model forecast period).

17.1.3 Existing Conditions by Skeena

Existing conditions related to air quality were assessed by Skeena in Chapter 12 (*Section 12.4*) of the Revised Application and are summarized here.

Air quality in any given area is influenced by local and regional industrial, commercial, residential, and recreational activities, natural events such as wildfires, as well as local meteorological conditions. The Revised Application summarises information gathered for local air quality, with onsite data collected including wind speed and direction, air temperature, barometric pressure, relative humidity, precipitation, solar radiation, information about the snowpack, and dust and metals deposition. These local data were supported by desktop studies which used regional datasets of criteria air contaminants, as no local background ambient monitoring stations for criteria air contaminants exist in the area around ECRP.

Skeena also considered Indigenous knowledge from Tahltan Nation, Tsetsaut Skii km Lax Ha, and Metis Nation of B.C. in the preparation of the air quality assessment and considered the potential effects to Nisga'a Nation as required by the Nisga'a Treaty (see *Section 16.2* of this Report). In particular, Tahltan Nation was concerned about dustfall effects on traditional use plants, which could affect the health of Tahltan Nation members who collect and consume traditional use plants. Tahltan Nation has previously expressed concerns about the effects of road dust suppression measures on ice melt and surface water quality.

Overall, the meteorological conditions collected by Skeena at the ECRP site show a cool, very wet environment. In the remote area surrounding the ECRP site, there are currently no major sources of criteria air contaminant emissions nearby which would affect air quality, with local industrial activity limited to mineral exploration and forestry. Skeena selected analogue locations from existing datasets that they believe matched the remoteness of the ECRP site; these generally showed low levels of criteria air contaminants as expected for remote areas with little industrial activity.

17.1.4 Potential Project Effects by Skeena

Skeena identified the following potential effects on air quality due to ECRP in Chapter 12 (*Section 12.5*) of the Revised Application, as described below.

Many of the activities at the mine site and along the transportation route, such as site construction, vehicle transportation and materials/concentrate hauling, drilling, blasting, crushing, and storage of ore, waste rock, and tailings would generate criteria air contaminants. In Skeena's dispersion modelling plan, approved by ENV on April 26, 2024, Skeena used a CALPUFF model to predict air quality conditions for the following criteria air contaminants that would be produced by mine-related activities:

- Total suspended particulates, including dustfall;
- Fine particulates with diameters of 2.5 microns and smaller ($PM_{2.5}$);
- Small particulates (including $PM_{2.5}$) with diameters of 10 microns and smaller (PM_{10});
- Nitrogen dioxide;
- Sulphur dioxide;
- Carbon monoxide;
- Polycyclic aromatic hydrocarbons;

- Diesel particulate matter; and
- Volatile organic compounds.

Skeena used three years of meteorology data as input for the CALPUFF model to predict criteria air contaminant concentrations from hourly to annual averaging periods during Construction and Operations phases. The CALPUFF model was considered to be conservative and was based on the years with the maximum expected air emissions for the Construction and Operations phases based on total material moved per year. The model predicted criteria air contaminant concentrations for the mine site, the transportation route, and Stewart, where concentrate would be loaded to ships for transport. Dust and metals deposition rates were also calculated at receptors across the Local AA and along the transportation corridor to the port facility located in the District of Stewart. The CALPUFF air quality model is commonly used in industry applications and has a moderate level of uncertainty.

The modelling results showed that particulate matter, especially total suspended particulate and PM_{10} are expected to show the greatest increases in predicted concentration during Operations and would in some cases far exceed air quality guidelines. The greatest exceedances of total suspended particulate matter and PM_{10} outside the mine site are expected to be at the edge of the Assessment Footprint. Some criteria air contaminants are predicted to spread east along the Unuk River valley, with some increases in concentrations of criteria air contaminants directly to the northeast of the Assessment Footprint, due to predominant winds from the southwest. Increased particulate matter emissions are expected along the Eskay Creek Mine Access Road, though exceedances are only predicted immediately next to the road. Overall, air quality guideline exceedances are expected to be relatively close to the Assessment Footprint and not spread widely over the Local AA, though a few modelled exceedances may occur up to 10 km from the Assessment Footprint.

Similar geographic results were predicted during Construction, with the largest expected exceedances for total suspended particulate and PM_{10} which are mainly fugitive dust generated by mine construction including from haul road traffic. All mine operation effects on air quality are predicted to be limited to areas within 15 km of the Assessment Footprint, with the exception of transportation-related changes to air quality. Air quality effects in Stewart from concentrate trucking are predicted to remain within relevant air quality guidelines, and as the handling of the wetted concentrate at the port facility will be within an enclosed building, minimal air quality effects are expected. Similarly, predicted air quality effects along Highway 37 are expected to remain below air quality guidelines.

17.1.5 Proposed Mitigation Measures by Skeena

Skeena proposed a variety of mitigation measures to reduce effects to air quality for ECRP. Below is a selection of the most important mitigation measures:

- Minimise surface disturbance for all activities to the areas strictly necessary;
- Use dust suppression or watering in drilling, stockpile management, road maintenance, and considering wind conditions when moving debris, waste or gravel;
- Use low-silt road crush to maintain roads which minimizes fugitive dust emissions;
- Establish vegetation or other ground cover or wind breaks around areas that are no longer being expanded or actively disturbed, and that have not yet been reclaimed;
- Seed topsoil stockpiles that are no longer being actively used, to reduce bare soil and to limit the establishment of invasive species;
- Implement a trigger action response plan to ensure that mitigation measures are implemented quickly after trigger thresholds are crossed; and
- Reduce criteria air contaminants from exhaust by maintaining equipment and turning it off when not in use.

For a summary of Skeena's proposed management plans and mitigations related to air quality, see *Appendix A-1* of the Revised Application.

17.1.6 Key Issues Raised

17.1.6.1 Concerns regarding air quality modelling and source data

During the review of the Application, TCG, ENV, Health Canada, and Tsetsaut Skii km Lax Ha raised concerns about the air quality modelling, including which data were included in the model, the non-inclusion of climate change considerations in the model, and potential effects to human health. TCG, ENV and Tsetsaut Skii km Lax Ha also raised concerns about proposed mitigation measures, requested additional detail on future mitigation measures, and asked about the details of the proposed Air Quality and Fugitive Dust Management Plan.

In response, Skeena adjusted the Air Quality chapter of the Revised Application to clarify specific sections and explained how background data were selected and why these were appropriate for the assessment. Skeena also stated that its proposed Air Quality and Fugitive Dust Management Plan would incorporate the mitigations from the Revised Application and would include an adaptive management framework and trigger action response plan that would require the plan be updated based on changes in conditions at the site, such as in response to increasing temperatures related to climate change. Skeena's view was that onsite monitoring would help in identifying which mitigation measures would be effective for specific situations, and that through using the adaptive management framework and the trigger action response plan, the appropriate mitigation can be applied to limit emissions of fugitive dust.

Considering that the submission of a trigger action response plan for air quality as described by Skeena has been submitted as part of the *Mines Act* permitting process and would include specific air quality thresholds and associated prescribed appropriate mitigation measures, the EAO's view is that the effects to air quality would be mitigated to the extent possible. While criteria air contaminants would be managed with the regulatory tools through the permitting process, the EAO has also proposed Condition 20 Air Quality Effects Monitoring Plan that would require Skeena to monitor air quality at the ECRP site.

The EAO recommends federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to Indigenous peoples' health and current use of lands and resources for traditional purposes related to effects of ECRP on air quality (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs are being considered by IAAC in developing draft potential federal conditions.

17.1.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, concerns raised by the TAC, TCG and Tsetsaut Skii km Lax Ha, and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on air quality:

- Changes to criteria air contaminants as a result of mining and transportation.

The EAO's characterization of the expected residual effects of ECRP on the air quality valued component is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 14 Summary of Residual Effects for Air Quality

Residual Effect	Assessment Rating*	Significance and Rationale
Changes to criteria air contaminants from mining at the mine site, and mine-associated	Context (resilience): High Magnitude: Low to high Extent: Local	Not significant The air near the mine site area is generally unaffected by criteria air contaminants, as ECRP is located in a remote area that does not have many industrial or any major urban

Residual Effect	Assessment Rating*	Significance and Rationale
transportation along Highway 37 and into the District of Stewart	Duration: Medium-term to long-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: Moderate to High Importance: Moderate	sources of criteria air contaminants. ECRP would add a major source of both gaseous and particulate matter criteria air contaminants. Overall, the greatest level of contaminants is expected at the edge of the Assessment Footprint; contaminant concentrations may be higher inside the Assessment Footprint, but this area is closed to the public, and worker exposures are managed under the Health, Safety, and Reclamation Code for Mines in B.C. Off-duty workers at the work camp may be exposed to criteria air contaminants, and should be considered in the development of the proposed Air Quality Effects Management Plan. Emissions of gaseous criteria air contaminants that can disperse easily (e.g., sulphur dioxide, nitrogen dioxide, carbon monoxide) are expected to increase variably depending on the contaminant, and some guideline exceedances may occur. These increases beyond air quality guidelines would result in a minor residual effect which is expected to remain close to the Assessment Footprint and would mainly occur under stable atmospheric conditions with decreased dispersion around the Assessment Footprint. Residual effects related to particulate matter which can fall as dust or may be breathed in by humans and wildlife (total suspended particulate, $PM_{2.5}$ and PM_{10}) are expected to result in air quality guideline exceedances. These exceedances would result in a residual effect to air quality outside the Assessment Footprint, with the effects limited to areas within 15 km of the Assessment Footprint, and greatest effects closest to the Assessment Footprint boundary. In terms of expected residual effects to air quality from mine-associated transportation along Highway 37 and into the District of Stewart, and at the port facility, the only expected residual effect is a minor effect from increased airborne particulate matter resulting from vehicle traffic causing emissions of fugitive dust and increases in vehicle exhaust. All effects are expected to remain within the Local AA, would continue for the life of the mine, and would decline in Closure and again in Post Closure. Air quality emissions would be continuously produced during the life of mine at the ECRP and air quality is expected to return to a pre-mining state at the end of Post- closure. As part of the *Mines Act* permitting process, Skeena has submitted an Air Quality and Fugitive Dust Management Plan which would use an adaptive management approach to manage dust generation and air quality around the mine site through a trigger action response plan with specific thresholds and associated mitigation measures, which would address air quality changes and dust generation if/as they occur. First Nations land users may be more affected than other populations as they spend more time on the land and may thus be exposed to criteria air contaminant exceedances more often if they spend time in the local area around the mine. The risk associated with changes to air quality is moderate (high likelihood and moderate consequence). Results of the assessment are moderately to highly uncertain due to the uncertainty inherent in the CALPUFF model and the use of regional analogue sites' data for modelling. First Nations have identified air quality as a concern for the ECRP environmental assessment.

* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions

17.1.8 Cumulative Effects Assessment

Skeena noted that Tahltan members have raised concerns about the pace and number of developments in Tahltan territory and what that may mean for cumulative effects. To assess cumulative effects to air quality, Skeena determined that two existing and reasonably foreseeable projects and activities have the potential to act cumulatively with ECRP: the Eskay Creek Technical Sample Project and the KSM Mine. Skeena's view was that since a majority of the effects associated

with technical sample were already accounted for in the residual effects modelling, it should not be included in the cumulative effects assessment.

Due to the minor nature of predicted effects to air quality along the transportation corridor and into the District of Stewart, Skeena did not expect that ECRP-related transportation would result in a cumulative effect to air quality in those areas.

To assess the cumulative effects of ECRP and the KSM Mine to air quality, Skeena combined predictions for both projects for those criteria air contaminants that had exceedances of air quality guidelines (24-hour and annual total suspended particulates, 24-hour PM_{10}, 24-hour and annual $PM_{2.5}$, 1-hour and 8-hour carbon monoxide, annual nitrogen dioxide, and annual sulphur dioxide). The results of this analysis showed slight increases in concentrations of gaseous criteria air contaminants and larger increases in particulate matter criteria air contaminants. Skeena concluded that these predicted cumulative increased concentrations of criteria air contaminants did not meaningfully change the assessment of residual effects from ECRP and did not require the proposal of additional mitigation measures.

The EAO considered the existing conditions at the mine site, the predicted residual effects from ECRP, the mitigation measures proposed by Skeena, regulatory tools to implement those mitigation measures, including the *Mines Act* requirement for an Air Quality and Fugitive Dust Management Plan, and the EAO's assessed residual effect to air quality. Given these considerations, the EAO concludes that for gaseous criteria air contaminants (sulphur dioxide, nitrogen dioxide, and carbon monoxide), cumulative effects to air quality are expected to be negligible. Further, the EAO agrees with Skeena's conclusion that cumulative effects to air quality are not expected along the transportation route or in the District of Stewart.

For criteria air contaminants related to particulate matter (total suspended particulates, $PM_{2.5}$ and PM_{10}), the EAO concludes that while there is uncertainty about whether ECRP would contribute to cumulative effects due to the inherent uncertainty in air quality modelling and the nature of the particulate matter criteria air contaminants, whose emissions cannot be 100 percent mitigated, the EAO agrees with Skeena's assertion that there are no permanent nearby sensitive receptors, and that the worst case scenarios for ECRP and the KSM Mine may not overlap in time. As such, a minor cumulative effect may occur, but only if the projects overlap in time and only if air quality emissions match the predictions from the modelling exercise.

Regulatory tools under the *Mines Act* and *Environmental Management Act,* including potential air discharge permits, would include refined mitigation measures under the trigger action response plan as part of the Air Quality and Fugitive Dust Management Plan, which would allow ENV to manage any air quality exceedances, including related to off-duty workers at the worker camp. The EAO expects that criteria air contaminants would be adequately managed with these regulatory tools, along with the EAO's proposed Condition 20 Air Quality Effects Monitoring Plan. and there would be no significant adverse cumulative effects on air quality as a result of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.1.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or cumulative effects on the air quality valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers and Skeena; the proposed mitigation measures identified in the provincial table of conditions including Condition 20 (Air Quality Effects Monitoring Plan) and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA for Air Quality (see *Appendix 2*). The extent of significance for federal effects from changes to air quality on the health of Indigenous peoples are found in *Appendix 13*.

17.2 Noise and Vibration

17.2.1 Summary

Exposure to excessive or prolonged noise or vibration levels can have potential adverse health effects, and/or deter land- and water-based activities and wildlife use. Noise and vibration were identified as a valued component because the activities associated with ECRP will create noise and vibration and could create higher levels of noise above baseline.

Noise-sensitive receptors were used to assess potential impacts at sensitive receptor locations (i.e., residences, onsite camps, locations of cultural significance, or recreational significance) and were compared against relevant Health Canada guidelines noise criteria[16] (e.g., day-night sound level, percent highly annoyed, etc.).

Reviewers raised concerns related to assessment methodology and baseline data; community consultation and complaint resolution; traffic and vehicle noise; and pressure and vibration. Skeena responded to concerns raised by reviewers and applied changes in the Revised Application, where applicable.

The EAO considered Skeena's assessment and proposed mitigation measures and management plans, the key issues raised by reviewers, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA and concluded that there would be residual effects of increased noise levels from ECRP causing annoyance/complaints, sleep disturbance and speech interference. The EAO is satisfied that Skeena's proposed management plans and mitigation measures and the recommended federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse residual or significant cumulative effects on the noise and vibration valued component.

17.2.2 Assessment Boundaries

17.2.2.1 Spatial Boundaries

The following spatial boundaries were used for the noise and vibration assessment (see *Figure 13.3-1* in Chapter 13 of the Revised Application):

- Project Footprint: The smallest scale boundary where ECRP physical works and activities will occur.
- Assessment Footprint: The area assumed to be lost or disturbed due to ECRP activities.
- Noise and Vibration Assessment Area: A 10-km buffer around the boundary of the Project Footprint and a 1-km buffer around the Eskay Creek Mine Access Road.
- Transportation Corridor Assessment Area: A 250-m buffer on either side of the road corridor to be used for transportation of concentrate, supplies, and personnel.

Additionally, the Noise and Vibration AA falls largely within the Tahltan Consent AOI, except along its west and east edges, where it extends slightly further beyond this AOI.

The Cumulative Effects AA for the assessment of the noise and vibration valued component is the same as the Noise and Vibration AA and Transportation Corridor AA.

17.2.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of noise and vibration:

- Construction phase: 2 years;
- Operations phase: 13 years;

[16] Available online at *Government of Canada Publications.*

- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.2.3 Existing Conditions by Skeena

The existing noise conditions in the assessment areas are described in Chapter 13 (*Section 13.4*) of the Revised Application and are summarized here.

Existing conditions were characterized in the Revised Application based on the regional and historical context of the activities in the Noise and Vibration AA because the area is sparsely populated and regular blasting activity was not occurring at ECRP during the development of the Revised Application.

The existing noise and vibration in the Noise and Vibration AA is primarily associated with natural weather events, wildlife, and traditional land use, as well as mine exploration activities that include sporadic but regular vehicle and helicopter movements. The Health Canada Guidelines (Health Canada 2017) considers quiet rural areas to be rural areas where the human-made sound levels do not exceed 45 A-weighted decibels (*dBA*) during the day and 35 *dBA* during the night (as per the Energy Resources Conservation Board (ERCB) Directive 038, 2007).

Baseline noise levels were measured at four monitoring locations (S-Camp, S-Road, S-TM, and S-TMC) during the summer and winter of 2020, described in *Appendix 13-1* of the Revised Application, and results were characterized by mine exploration activities including vehicle and helicopter movements. This report showed that average existing noise levels at monitoring locations where baseline noise levels ranged from 48 to 62 dBA Ldn. Due to the contribution from natural sounds, the measured noise levels cannot be solely attributed to human sources and therefore do not directly represent the existing conditions for noise from human activities.

Skeena reviewed the existing vibration-generating activities within the Noise and Vibration AA. The activities in the region include other mine sites and industrial facilities, characterized by occasional blasting events associated with those other mine sites.

17.2.4 Potential Project Effects by Skeena

The potential project effects are described in Chapter 13 (*Section 13.5*) of the Revised Application and are summarized here. Skeena identified the following noise-generating activities associated with ECRP that have the potential to effect noise levels:

- Construction of onsite roads and infrastructure (anticipated to occur 24 hours a day, seven days a week during the Construction phase);
- Operation of onsite stationary sources including Process Plant building, crusher building, conveyors, water treatment plant, transformer, and workshop buildings (anticipated to occur 24 hours a day, seven days a week during the Operations phase);
- Operation of onsite mobile equipment (e.g., excavators, dozers, and graders) (anticipated to occur 24 hours a day, seven days a week during the Operations phase);
- Onsite blasting within the pits (anticipated to occur only during the daytime with no more than one blast per day during both the Construction and Operations phases); and
- Transportation of personnel, supplies, and concentrate on offsite roads including the Eskay Creek Mine Access Road and Highway 37/37A through the entirety of ECRP from the Construction to Reclamation and Closure phases.

Noise sources used in Skeena's noise model included mine activities such as blasting rock, crushing ore, use of heavy equipment, pumps, and generators and vehicles on haul roads. Non-mine sources that contributed to the noise levels at receptors included vehicles on roads accessible by the public (i.e., Highway 37/37A and Eskay Creek Mine Access Road).

Skeena's noise model identified five receptors (SR_047 and SR_048 during the Construction and Operation phases, and SR_046, SR_049, and SR_041 during the Operations phase only) where annoyance criteria is expected to be exceeded based on the Highly Annoyed (*%HA*) criteria (i.e., an increase of 6.5% or more compared to the existing conditions) or the Ldn criteria (i.e., levels exceeding either 62 or 75 dBA Ldn).

For sleep disturbance concerns, the focus is typically on locations where individuals may be sleeping such as residences and camps. Onsite there are two receptors (SR_001 during Construction phase and SR_039 during the Construction and Operations phases) where the modeling shows an exceedance of exterior sleep disturbance criteria. Skeena is of the view that, given a standard façade providing a 27 dB reduction, the levels are predicted to be below the interior sleep disturbance noise criteria. The offsite residential receptor that exceeds the criteria is in the town of Stewart. Existing levels already exceed the sleep disturbance criteria but will see an increase of <1 dB during the Construction phase and an increase of 1 dB during the Operations phase. Sleep disturbance is typically of most concern at locations where there are residences.

Speech interference receptor levels are already above threshold at the one receptor in the town of Stewart, and it is anticipated to increase by <1 dB during the Construction phase. For the Operations phase, the predicted daytime levels are above the threshold at two receptors, including the town of Stewart receptor.

17.2.5 Proposed Mitigation Measures by Skeena

In addition to following best practices in the industry and complying with related federal and provincial guidelines, regulations and standards, Skeena identified the following additional mitigation measures and committed to their implementation through project design, procedures and management plans, which include:

- Changes to blasting design, such as using less explosives per delay, and deeper holes, would be implemented. Additionally, all blasting activities would be restricted to daylight hours only;
- Equipment selected based on noise rating, maintained per manufacturer specifications to minimize noise, and speed limits set on mine roads;
- Process plant design would house equipment within an enclosed building to mitigate breakout noise;
- Provide rated hearing protection (per the Code) and establish exclusion zones (typically 500-800m) during blasting; and
- Building mitigations for onsite sensitive receptors (e.g., camps) would include being constructed away from the open pit, and onsite camps would have facades providing at least 27 dB noise reduction.

For a summary of Skeena's proposed management plans and mitigations related to noise and vibration, see *Appendix A-1* of the Revised Application.

17.2.6 Key Issues Raised

Based on a review of the Revised Application and with feedback from the TAC, TCG, NLG, Tsetsaut Skii km Lax Ha, the ATTAC, and the public, the following key issues related to the assessment of the noise and vibration valued component for ECRP were identified and are summarized below.

17.2.6.1 Community Consultation and Complaint Resolution

Reviewers from Health Canada, Northern Health, and Tsetsaut Skii km Lax Ha all raised the importance to develop and implement a complaint resolution plan to address and resolve noise complaints rapidly. This recommendation was paired

with the recommendation for robust community consultation with advanced warnings of noisy events to keep the community informed.

Skeena clarified that they have committed to establishing a Tahltan Community Liaison Committee with membership invited from the Tahltan Community Working Group, as part of the Community Effects Monitoring and Management Plan. The plan will be a living document that will be revised regularly, at a frequency to be determined in collaboration with TCG, in response to inputs from the Tahltan Community Liaison Committee and in consideration of other feedback received from local communities and TCG. This framework is expected to be appropriate for managing complaints.

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO is not recommending a provincial condition to manage noise complaints, but has recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to migratory birds, federal lands, and Indigenous peoples' health and current use of lands and resources for traditional purposes related to effects of the project on noise and vibration (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up Programs were considered by IAAC in the development of draft potential federal conditions.

17.2.6.2 Traffic and Vehicle Noise

Reviewers from Northern Health, TCG, and Tsetsaut Skii km Lax Ha raised concerns regarding traffic and vehicle noise resulting from project activities. Reviewers suggested Skeena consider additional mitigations for vehicle noise beyond speed, such as engine noise, tire noise, and backup alarms and that addressing potential interactions with traffic in town and/or on highways would help in mitigating traffic and vehicle noise effects.

Skeena clarified that the reported noise levels factored in existing traffic volumes into the road traffic source for both the construction and operations scenarios.

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO is not recommending a provincial condition to manage traffic and vehicle noise, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.2.6.3 Pressure and Vibration

Reviewers from TCG and the ATTAC provided comments on vibration and pressure related to blasting. Concerns were regarding impacts of vibration from blasting on wildlife, particularly the potential for startle, and the potential impacts on people, including thresholds for human perceptibility.

Skeena responded that blasting operations will be conducted according to requirements of a valid blaster's certificate and that vibration effects outside of the Assessment Footprint are not expected from ECRP activities for either the Construction or Operations phase.

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO is not recommending a provincial condition to manage pressure and vibration, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.2.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures, and concerns raised by the TAC, TCG, Tsetsaut Skii km Lax Ha and the ATTAC, and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on the noise valued component:

- Increased noise levels causing annoyance/complaints;

- Increased noise levels causing a change in sleep disturbance; and
- Increased noise levels causing speech interference.

The EAO's characterization of the expected residual effects of ECRP on the noise and vibration valued component is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 15: Summary of Residual Effects for Noise and Vibration

Residual Effect	Assessment Rating*	Significance and Rationale
Annoyance/ Complaints Operations Activities associated with ECRP will increase noise levels potentially causing annoyance to people resulting in complaints.	Context (resilience): Moderate Magnitude: Low Extent: Regional Duration: Medium-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Even Risk (likelihood and consequences): Medium Uncertainty: High Importance: Moderate	Not significant The Appendix 13-1 2020 Noise Baseline Report showed that average existing noise levels were above what Health Canada considers as a quiet rural area. Although people and wildlife in the area are likely habituated to noise from the existing mine, any additional noise could be more noticeable due to the quiet rural environment. Considering these factors, the resilience level for annoyance/complaints residual effect is rated as moderate. ECRP's noise contribution with regards to annoyance/complaints would affect five receptors; however, Skeena is of the view that their mitigation measures will effectively mitigate blasting noise to be below the criteria, leaving only one receptor (SR_041) with an increase in noise levels of 1 dB due to traffic corridors. Given that only one receptor is anticipated to exceed annoyance or complaints thresholds, and that exceedance is only by a small margin the magnitude is considered low. The extent is regional. Potential project effects for annoyance/complaints would be continuous in frequency during the operations phase but would cease at closure, making the duration medium-term due to the 13 years of operation. Reversibility is fully achievable as the Project noise levels will decline significantly after closure and cease to exist after reclamation. Affected populations is even as anyone in proximity to the mine would have similar exposure to the noise and vibration; however, First Nations who use the area may be subject to more noise while using the area surrounding the mine. The risk of the effect of increase in annoyance/complaints is determined to be medium (high likelihood and minor consequences) due to the low magnitude and extent being regional. There is a medium degree of uncertainty due to predictive modeling. Since noise concerns were mentioned in discussions with local communities, First Nations, and regulators, the importance is considered moderate.
Sleep disturbance Construction and Operations Activities associated with ECRP will increase noise levels potentially causing sleep disturbance.	Context (resilience): Neutral Magnitude: Low-medium Extent: Regional Duration: Medium-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Even Risk (likelihood and consequences): Medium Uncertainty: High	Not significant The Appendix 13-1 2020 Noise Baseline Report showed that average existing noise levels were above what Health Canada considers as a quiet rural area. Although people and wildlife in the area are likely habituated to noise from the existing mine, any additional noise could be more noticeable due to the quiet rural environment. Considering these factors, the resilience level for sleep disturbance residual effect is rated as moderate. ECRP's noise contribution on sleep disturbance is predicted to see exceedance of exterior criteria onsite at two receptors (one only during the Construction phase) and offsite during both the Construction phase and Operations phase at the Town of Stewart receptor. For onsite sensitive receptors (e.g. camps), Skeena is of the view that with the use of a standard façade providing a 27 dB reduction, the levels are predicted to be below the interior sleep disturbance noise. The offsite receptor in Stewart already sees levels exceeding the sleep disturbance criteria but will see an

Residual Effect	Assessment Rating*	Significance and Rationale
	Importance: Moderate	additional increase of <1 dB during Construction phase and an increase of 1 dB during Operations phase. The magnitude is low-medium. The extent is regional. Potential project effects for sleep disturbance would be continuous in frequency during the Construction and Operations phases but would cease at closure, making the duration medium-term due to the 13 years of operation. Reversibility is fully achievable as the Project noise levels will decline significantly after closure and cease to exist after reclamation. Affected populations is characterized as even, as anyone who may be sleeping would experience the potential effect. The risk of the effect of sleep disturbance is determined to be medium (high likelihood and low to moderate consequences). There is a medium degree of uncertainty due to predictive modeling. Since noise concerns were mentioned in discussions with local communities, First Nations, and regulators, the importance is considered moderate.
Speech interference Construction and Operations Activities associated with ECRP will increase noise levels potentially causing speech interference.	Context (resilience): Neutral Magnitude: Low during Construction phase and Moderate during Operations phase Extent: Regional Duration: Medium-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Medium Uncertainty: High Importance: Moderate	Not significant The Appendix 13-1 2020 Noise Baseline Report showed that average existing noise levels were above what Health Canada considers as a quiet rural area. Although people and wildlife in the area are likely habituated to noise from the existing mine, any additional noise could be more noticeable due to the quiet rural environment. Considering these factors, the resilience level for all three Noise and Vibration residual effects is rated as moderate. ECRP's noise contribution on speech interference is predicted to see an increase of <1 dB during the construction phase at the town of Stewart receptor, where the existing condition is already above the criterion of 55 *dBA Ld*. During the operations phase there are two receptors that are anticipated to exceed the criterion; the Town of Stewart receptor is expected to increase by 1 dB, and receptor SR_041 is expected to newly exceed the threshold (when compared to existing conditions). Both these increases are related to project related traffic. As the increase to the one receptor would be <1 dB Construction phase the magnitude is low. During the Operations phase the magnitude is medium as the camp site at receptor SR_041 and Town of Stewart will both be above the criterion for speech interference. The extent is regional. Potential project effects for speech interference would be continuous in frequency during the Construction and Operations phases but would cease at closure, making the duration medium-term due to the 13 years of operation. Reversibility is fully achievable as the Project noise levels will decline significantly after closure and cease to exist after reclamation. Affected populations is characterized as disproportionate, as First Nations who use the area surrounding receptor SR_041 may be subject to more noise while on the lands. The risk of the effect of speech interference is determined to be medium (high likelihood and minor consequences during Construction phase and high likelihood and minor to medium consequences during Operations phase). There is a medium degree of uncertainty due to predictive modeling. Since noise concerns were mentioned in discussions with local communities, First Nations, and regulators, the importance is considered moderate.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

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17.2.8 Cumulative Effects Assessment

Skeena conducted a cumulative effects assessment on noise and vibration, provided in *Section 13.7* of the Revised Application. Skeena identified a number of reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP through spatial and temporal overlap within the Noise and Vibration AA, including: Galore Creek Mine, Goldwedge Mine, KSM Mine, Kutcho Mine, New Polaris Gold Mine, Red Chris Underground Mine, Red Mountain Project, Silvertip Silver/Lead/Zinc Mine, as well as the historically active Kitsault Mine and Snip Mine that are currently not in operation but have proposed future operations. Additionally, there could be forestry, agriculture, and mineral exploration activities within the area.

Skeena's cumulative effects assessment concluded that overlap between other reasonably foreseeable future projects within the Noise and Vibration AA and Transportation Corridor AA are not expected during the Construction phase, that there is a possibility for some reasonably foreseeable future projects to interact with the Operations phase, and that cumulative noise effects due to traffic on public roads in the region are expected to occur during the Operations phase and the magnitude of the expected increase in noise levels is considered to be low.

Future land use activities in the area (e.g., forestry, agriculture, mineral exploration) are assumed to continue at present levels captured in the modelling and any potential change to future noise levels would be marginal. For these reasons, the potential for cumulative effects from these projects and activities is considered low.

The EAO concludes that no significant cumulative effects to the noise and vibration valued component are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.2.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the noise and vibration valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures and management plans; and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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17.3 Groundwater

17.3.1 Summary

A clean and abundant groundwater system and water supply supports healthy communities, and ecosystems. Groundwater was selected as a valued component for the Eskay Creek environmental assessment as the activities associated with the re-opening of the historical mine have the potential to impact groundwater quantity and quality and also because groundwater cycles, pathways, abundance, and quality were identified as important to the Tahltan Nation. Tahltan Nation and other First Nations in the area emphasize the importance of easy access to a clean groundwater supply for consumption and cultural well-being. Tahltan Knowledge and Indigenous knowledge included in Skeena's Revised Application emphasized the cultural significance of water and its interconnectedness with the natural and human environment.

Changes in groundwater quantity and quality can affect creeks, rivers, lakes, vegetation, wildlife, human health, and traditional and non-traditional land and resource use, and potential changes in groundwater quantity and quality from Eskay Creek were identified as a key concern during the environmental assessment. Proposed mining can cause changes due to continued groundwater pumping, increase in the size and the footprint of the TMSF and lack of hydraulic containment of the TMSF and resultant seepage to groundwater as the TMSF water level rises, and potential seepage associated with the storage of mining wastes, and the requirements for water treatment.

Skeena predicts that baseflows to some creeks will decrease or increase and some of these effects could be partially mitigated. Skeena is working with First Nations and provincial subject matter experts on plans to mitigate effects, however, mitigations are still in development and consequently there is still uncertainty about their effectiveness. Uncertainty exists regarding predictions of groundwater flow and related groundwater seepage pathways to the environment, with further studies planned to further enhance understanding of the interactions between surface water and groundwater flows throughout the groundwater Local AA.

TCG expressed their concern that Eskay Creek could have a significant impact on groundwater quantity and quality, and understanding of the groundwater flow system and its interaction with local creeks is still not well understood for Eskay Creek.

Key issues raised by reviewers from MCM involved the planned mitigation measures to prevent long term impact from the remaining exposed underground workings, and if the chemistry of the underground mine workings will change due to seepage from lower mine workings.

MCM also expressed concern that conclusions from the Water Quality Model indicate that minor groundwater seepage from the TMSF is expected to report to various creeks, and monitoring will need to be implemented by Skeena to monitor the impact of (unrecoverable) seepage from these mine components, and what mitigation measures are being considered by Skeena to manage the effects of seepage in the receiving environment.

The EAO considered Skeena's assessment and proposed mitigation measures and management plans, the key issues raised by reviewers, proposed Certificate conditions requiring delivery of a Water Quality and Quantity Model Validation Report, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA, and concluded that there would be residual effects to groundwater quantity and quality due to the ECRP. The EAO is satisfied that the proposed Certificate condition and federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse residual or significant cumulative effects on the groundwater valued component.

17.3.2 Assessment Boundaries

17.3.2.1 Spatial Boundaries

The spatial boundaries for the groundwater assessment include the Project Footprint, the Assessment Footprint, the Local AA and the Regional AA (see *Figure 14.3-1* in Chapter 14 of the Revised Application).

The area within the Project Footprint includes existing and future infrastructure that will be utilized for ECRP, and the Assessment Footprint is a conservative area of potential disturbance beyond the anticipated Project Footprint.

The groundwater Local AA is the area within which the potential effects of ECRP on the groundwater valued component are anticipated and predicted to occur (including potential effects on aquifers, watercourses, and watersheds). The Local AA encompasses the historical and proposed mine workings and related infrastructure (including the TMSF, the Eskay Creek MAR, and the Transmission Line at Volcano Creek). The Local AA boundary to the southeast is the Unuk River, and Harrymel Creek to the west. To the northwest, the Local AA extends into a corridor following Volcano Creek, the Eskay Creek MAR, and the Transmission Line. Boundaries for the rest of the Local AA follow the natural groundwater divides, assuming that groundwater divides coincide with surface water drainage boundaries/flow divides.

The groundwater Regional AA refers to the maximum spatial extent over which effects of ECRP could potentially occur. The Regional AA is the same as the Local AA except for where the Regional AA extends beyond the Local AA boundaries to the south to include the area between the Harrymel Creek and Unuk River and ends at the confluence of these two watercourses.

The Transportation Corridor was not assessed for the groundwater valued component since no groundwater interactions with project activities are identified. A risk-based approach for the assessment of malfunctions and accidents along the Transportation Corridor is provided in *Chapter 29* of the Revised Application.

17.3.2.2 Temporal Boundaries

The following temporal boundaries were used for the ECRP groundwater assessment:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.3.3 Existing Conditions by Skeena

Existing conditions related to groundwater were assessed by Skeena in Chapter 14 (*Section 14.4*) of the Revised Application and are summarized below.

17.3.3.1 Historical Context

Skeena states that available Indigenous knowledge was included in the Revised Application and describes the historical and current groundwater conditions in the surrounding areas of the ECRP. Groundwater knowledge specific to the Local AA was not available.

The ECRP is located within the territory of the Tahltan Nation and Tsetsaut Skii km Lax Ha. The limited (publicly) available Indigenous Knowledge for the engaged First Nations regarding groundwater was considered for characterization and assessment of the groundwater valued component.

Skeena further indicates that water has historically been, and continues to be, key to Indigenous people's culture and land use in the region. TCG noted that many stories are tied to water and the importance to the cycle of life and Tahltan way of being.

The first recorded mining related exploration activities started in the Eskay mine area in 1935. The Eskay Creek underground mine started in 1995 and its production ending in 2008. Site wide reclamation had been ongoing since 2007 including treatment of water from the historical underground operations (up to 2014). The site was federally recognized as a closed mine in 2011.

17.3.3.2 Current Groundwater System

The ECPR lies in the Prout Plateau, a rolling subalpine highland. The plateau has northeast-trending ridges with gently sloping meadows occupying valleys between the ridges. Mountain slopes are heavily forested and scenic features of glacial origin, such as cirques, mountain glaciers, hanging valleys, and over-steepened slopes, are present throughout the area. The elevations range from 307 metres above sea level (masl) in the valleys to 1700 masl at the steep mountain tops.

Skeena states that the regional groundwater system is influenced by the major valleys and mountain ridges, where most of the groundwater recharge occurs within highlands, mountain tops and slopes. The valley bottoms are groundwater discharge zones (e.g., lower elevations along the Unuk River and its large tributaries). The historic Eskay Creek Mine is in the groundwater recharge/discharge transition zone (as shown in Figure 10 below), where groundwater recharge results from precipitation and snow/ice melt and is influenced by the seasonal pattern of changing weather conditions.

Skeena indicates that fractures (cracks) in the underlying rock are important pathways for groundwater flow, which is supported by the observation that a relatively broad range of hydraulic conductivity values are observed at all depths (up to approximately 200 m below ground surface) and locations across the site. Where fractures are exposed to the ground surface they allow for rapid recharge of groundwater, as shown by the increase in water levels in the lower mine workings in the underground historical Eskay Creek mine during heavy rainfall and snow melt in the fall and spring. The underground workings of the historical mine intercept some of the groundwater that is migrating to discharge zones (as shown in Figure 11 below).

Data indicate that shallow groundwater levels near ECRP generally represent a subdued replica of ground surface topography, and the groundwater levels have been managed and controlled by pumping near the Eskay Creek Mine underground workings. Skeena indicates that groundwater flow directions are most generally from the TMSF area toward Harrymel Creek, the Eskay Creek Mine underground workings and deeper groundwater flow directions are towards the Unuk River and Coulter Creek, Tom MacKay Creek, and Ketchum Creek. The underground workings act as a local groundwater sink.

Skeena states that groundwater discharges to surface water as baseflow (groundwater–surface water interactions). Winter low-flow measurements in surface water are used to estimate baseflow contributions to streams and rivers, and Skeena states that data indicate:

- Unuk River and Ketchum, Harrymel and Coulter creeks are gaining water from groundwater discharge.
- Tom MacKay Creek is gaining water from groundwater discharge in the middle and downstream portions but may be losing water to groundwater in the upper reach.
- The TMSF, Little Tom MacKay Lake, and Albino Storage Facility (ASF) receive groundwater discharge from the surrounding high ground areas while at the same time discharge water to the neighboring creeks (ASF and TMSF towards Tom MacKay Creek and TMSF towards Harrymel Creek). Groundwater also flows through potential major faults and preferential flow paths passing through the TMSF and deeper groundwater flow directions might be outward from the TMSF.

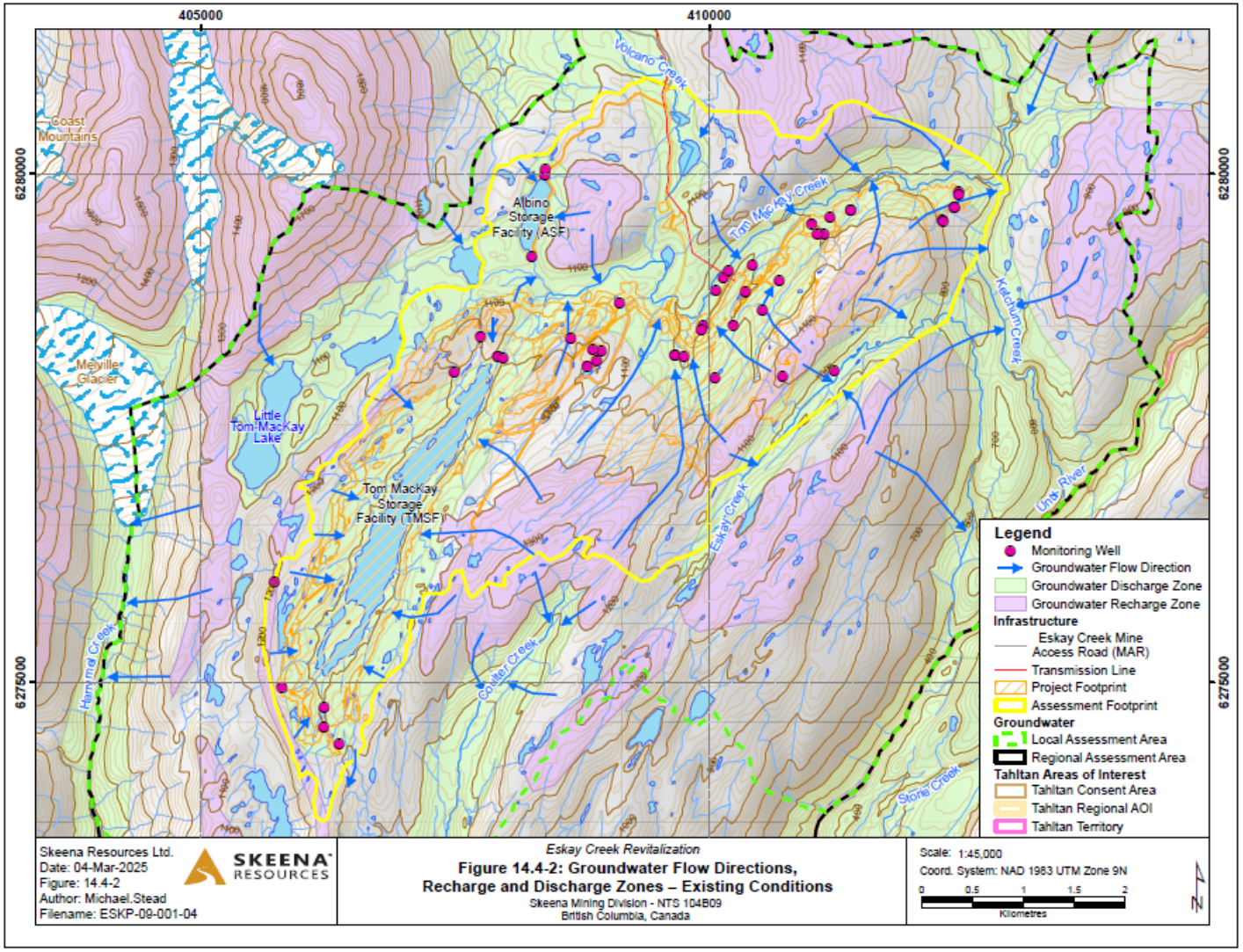

Figure 10: Groundwater flow directions and recharge and discharge zones

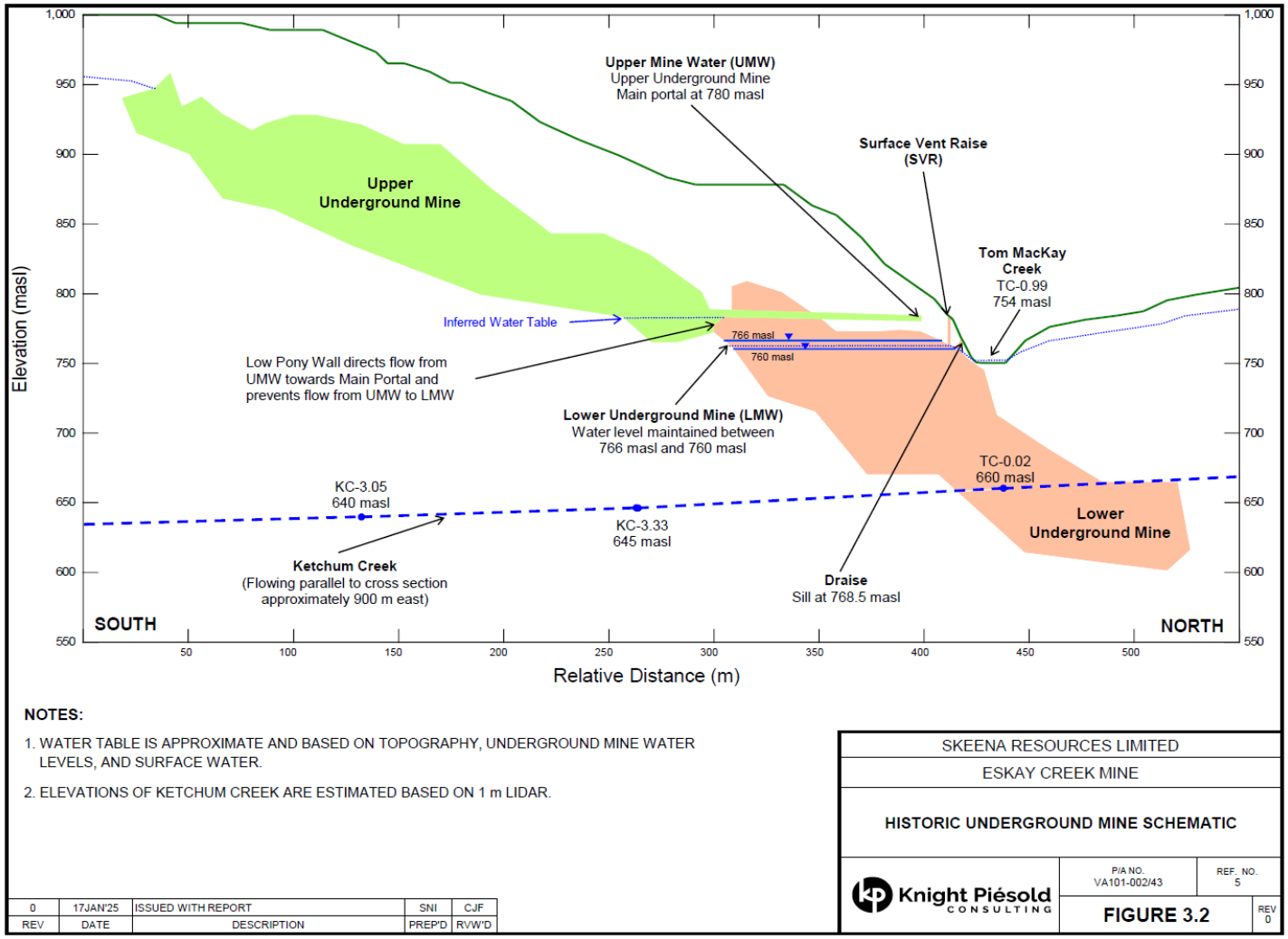

Figure 11: Interception of recharge by historic underground workings

17.3.3.3 Groundwater Monitoring

Groundwater Quantity

Skeena states that collection of hydrogeological information at the Eskay Creek Mine site began in 1991 and has continued through June 2024. To support the development of the current groundwater system conceptual model for ECRP, a more comprehensive hydrogeology data collection was executed during the 2020, 2021, and 2022 hydrogeological and geotechnical investigations (groundwater wells shown in Figure 12 below). This program has documented existing conditions to characterize hydrogeological parameters such as seasonal fluctuations in groundwater levels, gradients of the groundwater table, hydraulic properties of rocks and sediment and groundwater flow directions.

According to Skeena, the site investigations included installation and slug testing of groundwater monitoring wells (Figure 12 below). The TMSF monitoring wells are all located near the north and south dams and do not cover the majority of the TMSF between the dams. In total 399 packer tests and one pumping test were done in relation to future mine facilities for example at the North Pit, Primary Crusher, Process Plant Site, MRSA, TMSF, and the TMSF Haul Road. The baseline monitoring program has been ongoing since 2020, and the more recent results have been combined with historical data to update the conceptual hydrogeological and numerical groundwater model.

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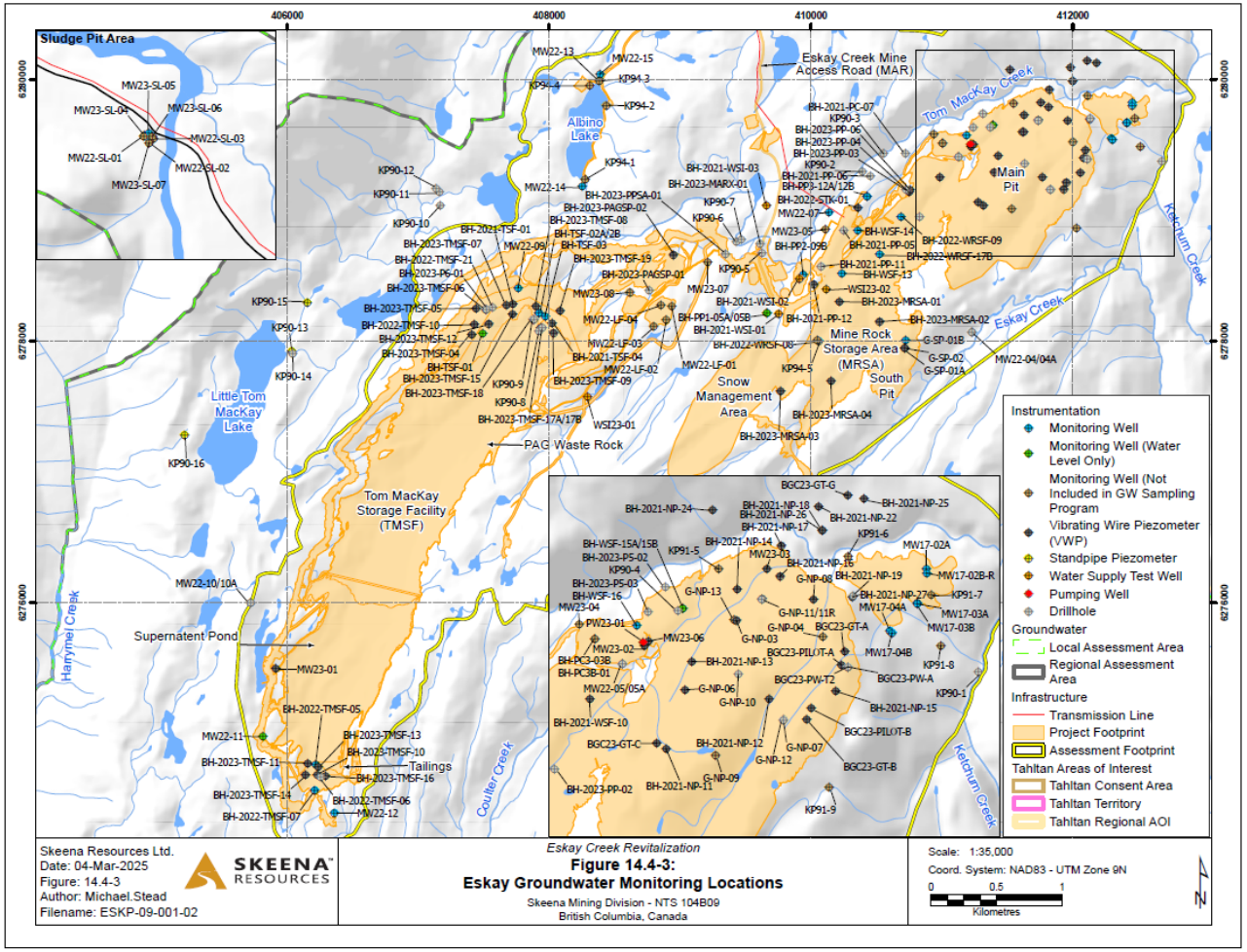

Figure 12: Groundwater monitoring and sampling locations (2023)

Groundwater Quality

Skeena indicates that for the groundwater quality assessment the monitoring data collected were used (Figure 12). The analysis is focussed on the Parameters of Interest (POI) measured in wells on and around the site, as they are the indicators of potential influences of mining activities on groundwater quality. The POI were derived from comparison of results from the wells located directly downstream of the historic Eskay Creek Mine (determined to be affected by the mine) against results from other wells located across the mines site. The mining influenced wells showed elevated concentrations of the flowing POI's: ammonia and nitrate, sulphate, copper, molybdenum, arsenic, selenium, chromium, cobalt, lithium, manganese, and uranium. These parameters were compared against the most current B.C. Water Quality Guidelines for Freshwater Aquatic Life (ENV 2024) and others where practical or required.

Skeena states that the collected data show neither temporal (long-term or seasonal) trends nor patterns of a distinct spatial variation. The exception is relatively elevated concentrations of several parameters measured in samples collected from wells located downgradient of the historical Eskay Creek Mine (labeled MW-17 series on Figure 12). Several parameters (all of them metals) exceed water quality guidelines, and these are: aluminium, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc. Since the exceedances are all from wells located downgradient of the historical mine, these would confirm the concentrations for these parameters all mining related (it would be reasonable to assume these concentrations would also be typical for the water quality of the pit lake upon closure). It should be stated that these exceedances are in reference to an aquatic life guideline, which is not an appropriate guideline for groundwater, but was what was requested for comparison.

Skeena found that POI concentrations in groundwater samples do not show seasonal variations, and there is no apparent seasonality in the exceedances. Instead, certain wells consistently exhibit specific exceedances, such as fluoride, observed in several wells, or dissolved iron in the MW17 series wells, regardless of the season. Redox-sensitive parameters like iron, sulphate, and manganese, regularly exceed provincial and national Water Quality Guidelines at a few wells, typically those with anoxic or mixed (oxic-anoxic) redox conditions. Other common redox-sensitive exceedances include copper at wells with oxic to mixed redox conditions and arsenic at mixed to suboxic sites.

17.3.3.4 Future Groundwater Trends

Skeena indicates a preliminary assessment of potential future changes resulting from climate change and the associated impact on groundwater shows the following four major potential trends:

- Increase in mean monthly temperatures and precipitation;
- Increase in percentage of precipitation falling as rain;
- Increase in pluvial (i.e., rain-driven) flooding; and
- Seasonal and temporal changes, particularly as they relate to flora and fauna.

Skeena states that the corresponding general impact of these predictions on groundwater is the potential for increased recharge rates during the extended wet fall weather, and reduced recharge during dryer summer months. An increase in recharge will result in higher groundwater elevations, while a decrease will have the opposite effect.

The potential future changes will also have an effect on the groundwater system as a whole and in particular groundwater contributions to streams (baseflow) which could be important in the summer months in low-flow streams that support aquatic habitat.

17.3.4 Potential Project Effects by Skeena

Skeena identified the potential effects on groundwater due to ECRP in Chapter 14 (*Section 14.5*) of the Revised Application, which are summarized below.

17.3.4.1 Assessment Method

Skeena assessed effects to groundwater considering information obtained by engagement with Indigenous Nations (such as Tahltan Nation, Tsetsaut Skii km Lax Ha), government agencies, local governments, and public and private stakeholders. Through engagement Indigenous Nations communicated the importance of healthy water, and concerns regarding the consequences of adverse effects to water. One Tahltan member's perspective on this importance was shared in a 2023 TCG newsletter: … *water is life-giving and if we destroy our water and harm the land, fish, and wildlife, we are committing suicide and a long process of self-harm. Water takes care of us, as we are in water for the first nine months of our lives in our mother's womb. Water and earth combined form our Earth- Mother who cares for us like a mother. She feeds us, supports, and protects us.*

Skeena assessed those effects to groundwater from ECRP activities to be carried out during Construction, Operations, Reclamation and Closure, and Post-closure phases that have the potential to interact with the groundwater valued component. Those include changes to groundwater levels, flow directions, discharge to surface waterbodies, and groundwater quality. Skeena provided a diagram of what the ECRP mine area would potentially look like as shown in Figure 13 below. This figure provides an illustration of the groundwater system and its interaction with ECRP during Operations, to help support the interpretation and ranking of the potential effects. Groundwater source terms were used to estimate effects of ECRP to groundwater quality. Skeena conducted numerical groundwater flow modelling studies and a water quality (geochemical) modelling study to identify and quantify potential changes to shallow groundwater levels and flow direction, changes to baseflow resulting from project activities. Water quality modelling was based on water balance and mass balance equations and was not based on geochemical model through simulation of chemical reactions and chemical equilibriums. The computer models were used to predict potential effects for the different mine phases.

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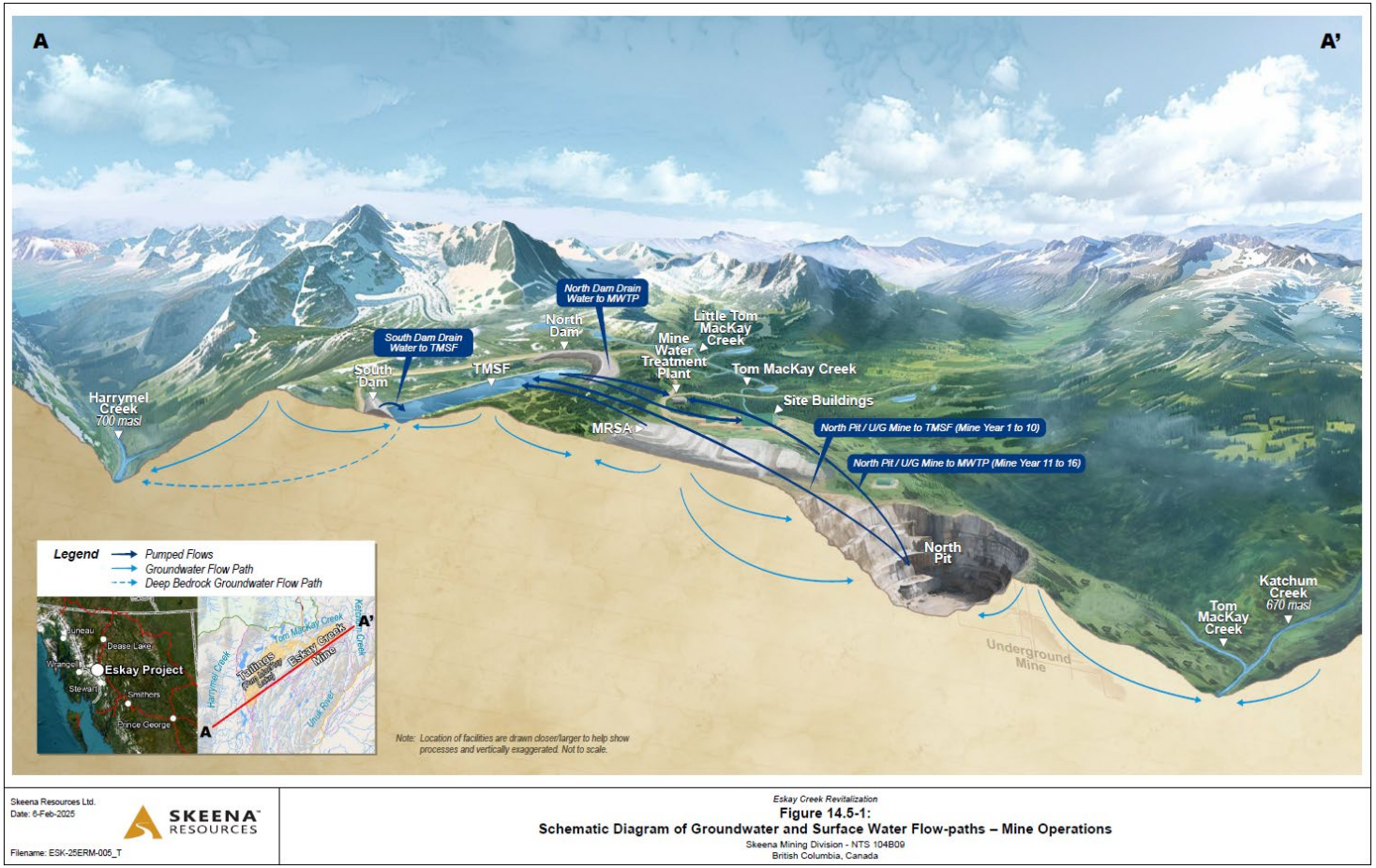

Figure 13: Schematic diagram of groundwater and surface water flow-paths during mine operations

17.3.4.2 Summary of Predicted Effects of Mining

Skeena's predicted effects of mining on the groundwater valued component for ECRP are presented below and include the following key effects indicators:

- Groundwater quantity:
  - Change in water levels, subsurface storage, and flow directions (i.e. groundwater levels); and
  - Change in rates of groundwater discharge to streams (i.e. baseflow).
- Groundwater quality:
  - Change in groundwater quality.

Skeena ranked the potential effects due to ECRP into two categories; the project activities to have negligible to minor effects (such as resulting from land clearing, pre-stripping, installation and decommissioning of groundwater wells, passive reclamation, etc.), and those that have moderate to major potential for adverse effects, which have been carried forward in the assessment. The assessment of the latter is organized by three different ECRP components: (1) the MRSA and ore stockpiles, (2) the North Pit, and (3) the TMSF and have been presented below. The elements of the ECRP's infrastructure associated with these project components have the highest potential to affect the groundwater valued component.

Mine Rock Storage Area and Ore Stockpiles

Groundwater Quantity

- Changes in groundwater levels and groundwater flow directions (and baseflow in creeks) around the MRSA are anticipated due to the dewatering and mining of the North Pit and South Pit and the groundwater mound created by the MRSA.

Groundwater Quality

- Ore stockpiles will be developed on pads with contact water collected and routed toward the TMSF. Infiltration from Run Of Mine pad will degrade groundwater quality along the flow path. However, most of it is anticipated to be intercepted by water management infrastructure. The small amount of seepage predicted to flow toward Ketchum Creek or the Unuk River represents a very small portion of baseflow in those creeks and is not expected to impact surface water quality.
- A significant percentage of the MRSA contact water seepage is anticipated to be directed to the north, interacting with surface water by discharging to Tom MacKay Creek in early Operations, and possibly some to the west mixed with the ore stockpile seepage migrating toward Ketchum Creek and the Unuk River.
- Construction of MRSA will degrade the quality of groundwater on its pathway connecting MRSA and Tom MacKay Creek. Out of the forty compared parameters, concentrations of 28 are model predicted to be higher in MRSA seepage than in groundwater under existing conditions, and concentrations of 10 parameters will exceed Drinking Water Quality Guidelines in the seepage. MRSA seepage is predicted to negatively affect groundwater quality beneath MRSA and along the groundwater flow paths. The MRSA seepage is likely to affect Tom MacKay Creek's water quality even though the seepage rate represented <1% of baseflow at environmental receiving node TC-1.83.
- During reclamation and post closure MRSA and ore stockpile seepage will reach Ketchum Creek and the Unuk River. The seepage reaching the Unuk River is predicted to be immeasurable in comparison to the Unuk river baseflow at UR-67.0 and is therefore unlikely to affect the water quality in either the Unuk River or Ketchum Creek.

Mining North Pit and South Pit

Mining and dewatering of the North Pit and the South Pit are predicted to result in moderate adverse effects to groundwater quantity and quality. This includes changing groundwater levels; changing groundwater flow directions around the pits; reducing baseflow to Tom MacKay Creek, Ketchum Creek, and Eskay Creek; and changing groundwater quality.

Groundwater Quantity

- Dewatering the mine pits will result in lowering groundwater levels, creating a large groundwater table cone of depression, which will extend over an area of three kilometers squared at the end of operations. Within that cone of depression, the water table will be lowered up to 170 m, compared to existing conditions.
- Dewatering of the pits and historical underground mine workings (and reflooding at closure) is predicted to change surface water and groundwater interactions in creeks around the pits. Dewatering activities are predicted to result in a loss of baseflow in the nearby streams such as Tom MacKay Creek of up to 29% compared to existing conditions. The Local AA computer model predicts that loss of baseflow of up to 25% in streams near the pits at end of operations will continue into the post-closure phase.

Groundwater Quality

- Skeena states that potential for groundwater quality concerns from the underground mine workings and lower mine workings were no longer considered a potential adverse effect following water optimization. Groundwater in contact with historical mine workings will be intercepted by pumping and treated - a notable pathway connects the historical mine with Tom MacKay or Ketchum creeks.
- The South Pit (wall) seepage will negatively affect the quality of groundwater during reclamation and closure, with 15% of the parameter's concentrations predicted to be higher in the South Pit seepage than in groundwater under existing conditions. The differences between the North and South Pits are because the latter will be filled with waste rock. The reflooding of the pits can affect groundwater quality.

Tom MacKay Storage Facility

Groundwater Quantity

- Expansion of the TMSF through mine operations will result in an increase of water table elevations around that facility by over 40 m at the end of Operations and into Post-closure.
- Interception of seepage will reduce baseflows of nearby creeks up to 94% during Operations and into Post-closure.
- Unrecoverable seepage through the TMSF's unlined bottom is predicted to report to several streams around that facility over a long period of time (models predict from 67 years to the uppermost reach of Tom MacKay Creek to 550 years to Harrymel Creek). Models also predict that 5% to 10% of seepage from the TMSF will report to surface water through preferential flow paths. Unrecoverable seepage from the MRSA will discharge to Eskay Creek.

Groundwater Quality

For groundwater quality predictions Skeena states as a caveat that there is a potential that the location of the existing monitoring wells used to define existing conditions may not be capturing the existing seepage from (under) the TMSF. Without definitive confirmation, a potential effect on groundwater quality might have been overestimated or underestimated as the preferential flow paths in fractured rock have not been entirely mapped around the TMSF, only at the north and south dams, and could potentially not be representative. The following expanded TMSF groundwater effects have been identified:

- Storing PAG mine rock material and tailings in the TMSF has a potential to affect groundwater.
- About 55% of POIs in TMSF seepage are predicted to be higher in the PAG porewater seepage than has been measured in groundwater under existing conditions. Six of the seepage parameters are estimated to be at concentrations above existing conditions by a factor greater than 10 during Operations/Post-closure.
- Nine POIs are estimated to be at concentrations above existing conditions by a factor greater than ten. The comparison indicates that the expansion of the TMSF will affect groundwater quality under the facility and along the flow pathway toward and in the local streams.

This points to a need for long term management of the TMSF, and the choice of cover system makes is likely that perpetual management, treatment and maintenance will be required.

17.3.5 Proposed Mitigation Measures by Skeena

Skeena indicated that several mitigation measures have already been implemented to reduce or eliminate potential effects of the ECRP on changes in groundwater levels and flow directions, the rates of groundwater discharge to streams (i.e., baseflow), and groundwater quality. Skeena further indicates that it will continue to implement the existing mitigations currently active at the Eskay Creek Mine, as required for care and maintenance. The existing mitigation measures include:

- Diversion of non-contact water (including snow management) around the disturbed footprint areas to the maximum practical extent with the aim of avoiding mixing of non-contact and contact water;
- Managing contact water, including sediment-laden runoff, to reduce potential adverse effects to downstream receiving environments;
- Implementing treatment to maintain mine effluent water quality below the appropriate water quality guidelines or approved discharge limits prior to discharge;
- Incorporating seepage mitigation measures at the TMSF and the water collection ponds. This is only near the north and south dams of TMSF, no seepage mitigation measures for the areas across the length of TMSF;
- Implementing ML/ARD management practices, including the subaqueous management of PAG materials in the TMSF; and
- Implementing progressive reclamation efforts (including covering and/or revegetating disturbed areas, where practical) to reduce contact water and promote positive drainage.

Skeena proposes the following (continuation and new) infrastructure and equipment to enact the following mitigation measures:

- Erosion and sediment control features to mitigate and manage sediment-laden runoff from mine disturbed areas;
- Contact water collection ponds;
- Diversion channels to divert non-contact water away from Eskay Creek;
- Collection channels to gather and transport contact water to the appropriate management, treatment and discharge locations;
- Liners and other measures to reduce seepage within contact water collection ponds and contact water collection channels;
- Storage facilities (e.g., TMSF and ASF); and
- Water Treatment Plant.

For a summary of Skeena's proposed management plans and mitigations, see *Appendix A-1* of the Revised Application.

17.3.6 Key Issues Raised

The following key issues were raised by members of the TAC, TCG and Tsetsaut Skii km Lax Ha.

17.3.6.1 Proposed Water Treatment Plants

TCG raised concerns that Skeena was initially proposing two Water Treatment Plants during and following operations, and there was no defined duration for how long water treatment will be required. It is possible that eventually the TMSF Pond would meet Water Quality Guidelines or other criteria and that WTP would no longer be required, but there is no certainty of that or anticipated timeline. Similarly, the North Pit WTP would operate seasonally with no defined or expected termination date. TCG inquired if the long-term operation of these WTP in Post-closure would fulfill Tahltan Sustainability requirements, and what targets does Skeena envisage will need to be met to allow for the decommissioning of both plants. TCG further stated that reclamation bonding estimates will need to consider the possibility of perpetual operations, including regular replacement of the WTPs and on-going maintenance of the associated water management structures. TCG acknowledged that discussions with Skeena are ongoing regarding water optimization studies and actions.

ECCC stated in essence it has concerns regarding the assumed effectiveness and sustainability of the proposed perpetual active mine contact water capture and treatment plant, and the focus on water treatment and the lack of a comprehensive source control approach and alternative ECRP designs. ECCC further stated that it had concerns related to the absence of water quality predictions and effects assessments under a no-active-water-treatment scenario post-closure, and the absence of adaptive management and/or contingency plans associated with the water treatment facility.

Skeena responded that it has designed ECRP with sustainability objectives in mind, through selection of a brownfield site to minimize additional disturbance within Tahltan Territory, consideration of alternative means of carrying out ECRP, efforts to align ECRP's Closure Vision with Tahltan Sustainability Requirements, and the company's overall commitment to water management.

Skeena further added that, in line with the Mine Site Water Management Plan, ECRP would manage contact and non-contact water separately throughout all ECRP phases to minimize the total volume of water requiring active management, and design mitigations to divert non-contact water away from the ECRP mine site, which has the consequence of concentrating contact water and Skeena plans to treat the water prior to discharge. Water treatment systems treat contact water during the Construction to Post-closure phases of ECRP.

Skeena stated that it understands that as part of its assessment of ECRP, TCG will consider the Tahltan Sustainability Requirements, and that in doing so, TCG will evaluate ECRP's proposed long-term water management strategies, including water treatment into Post-closure. Skeena added that the Closure Vision Statement for ECRP was crafted through engagement with the Tahltan Nation, particularly through co-design sessions with the TCG. These sessions were held to integrate Tahltan environmental, social, and cultural values in Skeena's planning processes. Key principles from the Tahltan Resource Development Policy and the Declaration Act Agreement have been integrated into the alternatives selection and design of ECRP to respect and restore culturally significant landscapes, protect water bodies, and reintroduce native plant species. Without consideration of Tahltan values, laws, and principles, closure planning would only meet the standards set by other regulatory bodies, rather than supporting alignment with Tahltan cultural practices and uses of the land. Skeena committed to continuing to work closely with the TCG to refine and adapt the reclamation and closure plans to align them with both regulatory requirements and the Tahltan Sustainability Requirements.

TCG also stated that the issue is that, despite acknowledging this process, it is inconsistent with the initial Shared Vision and Objectives process for Closure developed with Tahltan Sustainability requirements. This would require more than aligning closure and reclamation plans, which has been shared with Skeena and EAO through the Issues Tracking Table and other sources, and will be further advanced through the Tahltan Risk Assessment.

Tsetsaut Skii km Lax Ha also raised concerns related to the need for water treatment and that no additional information beyond year 66 was provided and concluded that it is likely that water treatment will be needed for at least 66 years.

There appears to be more than a need for 'optimization' but rather a very likely need for water treatment for an unknown period. It is acknowledged that Skeena states that evaluation of strategies for the North Pit water treatment are on-going; however, that this appears to be an important aspect for consideration with respect to long term site requirements and Tsetsaut Skii km Lax Ha requested additional discussion around closure and long-term water management for the North Pit.

Skeena responded that it acknowledges that evaluation of strategies that would allow water treatment of the flooded North Pit to be discontinued is certainly an important aspect of long-term site requirements. Skeena further notes that it has completed its Project Optimization and the results from water models will serve as the foundation to evaluate alternative mitigation measures. These may include, for example, methods to limit infiltration of water into the MRSA, as well as batch treatment of water that accumulates in the North Pit.

The EAO acknowledges that the issue has been adequately addressed for environmental assessment purposes and will be further addressed in permitting. The EAO is not recommending a provincial condition but has recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to transboundary waters, fish and fish habitat and federal sustainability requirements related to effects of ECRP on groundwater (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up Programs were considered by IAAC in the development of draft potential federal conditions.

17.3.6.2 Potential for Seepage from Existing Underground Mine Workings Reaching Local Creeks

During review of the Application, MCM reviewers requested that Skeena describe the planned mitigation measures to ensure that, if new wall rock is going to be exposed in the Underground Mine Workings and Lower Mine Workings, the need for additional mitigation measures to prevent long term impact from the remaining exposed underground workings could be explored.

Skeena responded that the mitigation measures are the installation of a hydrostatic plug in the Underground Mine Workings Portal, and additional flooding of exposed Underground Mine Workings and Lower Mine Workings. This would result in a large reduction in the volume of reactive material that is exposed subaerially. However, it also results in an increase in the volume of groundwater seepage that flows from the flooded North Pit to Tom MacKay Creek.

Skeena added that seepage from the underground workings will collect in a sump or sumps in the North Pit as the elevation of sumps becomes lower than remaining workings. Seepage from the unflooded part of the Lower Mine Workings is not expected to migrate toward Tom MacKay Creek and Ketchum Creek. However, if some of that seepage will migrate toward those creeks, it will be at a very low rate and will not affect water quality. In addition, Skeena proposes inspection of mine adits upstream of hydrostatic plug, and monitoring of groundwater seepage around the plug.

The EAO's view is that Skeena's response regarding uncertainty related to Underground Mine Workings seepage is sufficient for the purposes of the environmental assessment, noting that the permitting process will require Skeena to address seepage concerns. The EAO is not recommending a provincial condition, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.3.6.3 Monitoring and Mitigating Seepage from TMSF

MCM expressed concern that conclusions from the Water Quality Model indicate that seepage from the TMSF is expected to report to Harrymel Creek and Coulter Creek via deep groundwater flow pathways, and minor seepage from the MRSA is expected to report to Tom Mackay Creek, and minor seepage from the South Pit is expected to report to Eskay Creek, as well as minor seepage from the lower mine workings towards Tom Mackay Creek. MCM inquired what monitoring will be implemented by Skeena to monitor the impact of (unrecoverable) seepage from these mine components, and what mitigation measures are being considered by Skeena to manage the effects of seepage in the receiving environment.

MCM also expressed that these mitigations should be included in the Water Management Plan to be provided during the Mine Permit Application.

Skeena acknowledges that mitigation measures that may need to be implemented to manage unrecoverable seepage from ECRP infrastructure will be discussed in the Water Management and Discharge Plan to be included in the Permit Application. Skeena added that an instrumentation, monitoring, and adaptive management plan and a trigger response plan will be developed for Eskay Creek in acknowledgement of the guidance provided by the B.C. Ministry of Environment and Parks.

In addition, Skeena indicated that instruments and data collection will be targeted at preferential seepage pathways to allow for early identification of potential water quantity and/or quality concerns. And monitoring data will be used to identify if/when adaptive management methods should be applied and what mitigations would be appropriate. This process is a continuous one and will occur through all ECRP phases with changes to environmental management made, as and when required should it be determined that the rate and/or quality of the unrecoverable seepage is such that it may have a negative impact on surface water quality (mitigative measures that may be applied will include, but not necessarily be limited to, grouting of preferential flow paths, interception wells and/or trenches, and underdrains).

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO has proposed Condition 16 Water Quality and Quantity Model Validation Report requiring Skeena to deliver a report that verifies the results of the water quality and quantity baseline monitoring, the results of which will inform any water management plans that are submitted and implemented under the *Mines Act* and/or *EMA* permit requirements (see *Section 9.0* for full description). Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.3.6.4 Groundwater and Creek Interactions

TCG expressed their concern that it is clear that ECRP will have a significant impact on groundwater quantity and quality, yet, understanding of the groundwater flow system and its interaction with local creeks is still not well understood. TCG's view is that the proposed groundwater monitoring is insufficient, the numerical modelling to date is insufficient and the proposed mitigations are insufficient given the predicted impact on groundwater.

Skeena responded that the groundwater baseline program characterized groundwater existing conditions have been completed according to British Columbia Standards and commonly accepted industry standards of practice, and professional judgment based on experience derived from completing several similar studies. Skeena further stated that two separate groundwater models were built to simulate Eskay Creek's effects on groundwater system. Both models were calibrated using a large database of groundwater level measurements, results of tests of rock's hydraulic properties and field measurements of low flow in the streams. The results of groundwater model simulations were used as inputs to a Site Wide Water Balance Model and Surface Water Quality Model. Field and laboratory tests, along with geochemical modelling were completed to develop Geochemical Source Terms.

Skeena further states that considering the data collected and analysis completed, the conceptual groundwater model is well characterized. The results of the assessment show that Eskay Creek's groundwater residual effects are limited to small areas within the Local AA, the areas where no groundwater resources have been developed to date. Although understanding of natural system is never complete, regardless of the scale and detail of completed studies and investigations, such complete understanding is neither possible nor necessary to complete environmental assessment of Eskay Creek's effects with a reasonable confidence.

The EAO's view is that Skeena's response regarding uncertainty related to groundwater flows and seepage is insufficient for the purposes of the environmental assessment, despite the permitting process requiring continued work to address seepage concerns and continue development of understanding of the groundwater and surface water interactions. To address this issue, the EAO has proposed Condition 16 Water Quality and Quantity Model Validation Report (see *Section*

9.0 for full description). Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.3.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment; the proposed mitigation measures; comments received during review of the Revised Application and Skeena's responses to these comments as set out in the Issues Tracking Table; current regulatory tools and their proposed amendments; and proposed Certificate conditions, the EAO concludes that ECRP would result in the following residual adverse effects on the groundwater valued component:

- Changes to groundwater quantity, and
- Changes to groundwater quality.

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

Table 16: Summary of Residual Effects for Groundwater

Residual Effect	Assessment Rating	Significance and Rationale
Changes to groundwater quantity Changes in groundwater levels and groundwater flow patterns	Context (resilience): High Magnitude: Low to high Extent: Local to landscape Duration: Long-term Frequency: Continuous Reversibility: Partially reversible to irreversible Affected Populations: Even Risk (Likelihood and consequences): Medium Uncertainty: Medium Importance: High	Not significant Due to the ability of groundwater quantity to mostly recover, resilience is rated as high. The magnitude is rated as low to high since in some areas small changes compared to existing conditions would occur. The high magnitude rating pertains to areas where increased groundwater pumping related (and non-mitigated up to 200 m groundwater drawdown) effects would occur. These effects are expected to remain within the local study area and would continue for the life of the Pit but would decline in Closure and again in Post-closure. Landscape or more regional scale effects would manifest in a reduction in groundwater contributing to baseflow in creeks. The open pit groundwater pumping would occur mainly during Construction and Operations, and the recovery of the groundwater levels and groundwater flow system would continue into Closure and Post-closure (also influenced by Pit reflooding). The effects of groundwater pumping are expected to be almost entirely reversible in most instances (except for the TMSF which will have an increased elevation of 40 m and the North Pit which will require pumping to maintain as hydraulic sink). The changes of groundwater flow patterns would be continuous during all mine phases mainly in the pit area, the TMSF area, MRSA area, and other mine related workings and would mostly recover into the far future once pumping stops. The changes in the groundwater system are expected to occur (high likelihood), although the consequence would be medium (low to high magnitude and mostly local extent). This led to a rating of medium risk. Existing monitoring in the ECRP area provides a basic and incomplete understanding of the effects of proposed pumping and diversions on the groundwater system, especially where it relates to (deeper) fractures and preferential groundwater flow paths. Additional monitoring and refinement of the groundwater models are proposed and needed to improve understanding of the connection between the groundwater system and the groundwater seepage originating from the TMSF, and the uncertainty in the assessment for groundwater quantity is medium. The importance is high as groundwater resources have been continuously identified as such by TCG and other First Nations, community members, the public, local governments, and provincial agencies.
Changes in groundwater quality Changes in groundwater	Context (resilience): Low Magnitude: Low to high Extent: Local to landscape	Not significant The context for groundwater quality is rated as low due to existing conditions not meeting B.C. Surface Water Quality Guidelines in some cases and long-term predicted effects of ECRP specifically from non-point sources (such as the waste rock dumps, the TMSF) and after Closure around the pit lake. The magnitude is rated as low to high since instances of

Residual Effect	Assessment Rating	Significance and Rationale
quality due to mine pit pumping during Construction and Operations, and TMSF and waste rock seepage during Closure and Post-closure.	Duration: Long-term Frequency: Continuous Reversibility: Partially reversible to irreversible Affected Populations: Even Risk (Likelihood and consequences): Moderate Uncertainty: Moderate Importance: High	smaller water quality changes compared to existing condition would exist. The high magnitude rating pertains to situations where mitigation is predicted to be potentially moderately effective such as intercepting TMSF affected groundwater seepage contributing to baseflow in local creeks (mainly during Post-closure). Effects to groundwater quality would be mainly restricted to near the active mine area with some potential for mine related effects on a landscape scale through fractures and preferential pathways. (propagating water quality effects to the surface water valued component). Residual effects are predicted to occur during Operations and into Post-closure such as seepage from facilities, and after Closure when the pumping of groundwater has seized the groundwater flow system would equilibrate into the far future, however, the TMSF will require ongoing supply of water to maintain water cover and north pit will require ongoing pumping to maintain hydraulic sink. Effects to the groundwater system would be continuous through Operations, Closure, and Post-Closure. Some of the effects to groundwater quality are expected to be partially reversible, and in some instances irreversible (such as increased and/or continuous impacts from the closed mine facilities). The impacts to groundwater quality are expected to occur (high likelihood), and low to moderate magnitude and relatively local extent led to a consequence of moderate, which culminates in a rating of moderate risk. Future mine operations monitoring will provide an increased understanding of the effects of pumping and diversions on the groundwater (quality) system. Additional field investigations and refinement of the operations groundwater model will inform the water balance model and water quality model, and the water quality predictions. These are continuously needed to improve understanding and related predictions of the water quality in the groundwater system and implement adequate (and potentially new) mitigation measures. Therefore, the uncertainty in the assessment for groundwater quality is moderate. The importance is high as groundwater quality and related future water quality prediction uncertainty has been continuously identified by TCG and other First Nations, community members, the public, local governments, and provincial agencies.

17.3.8 Cumulative Effects

Skeena identified existing and reasonably foreseeable projects and activities with the potential to act cumulatively with ECRP, which included the historical Eskay Creek Mine and Eskay Creek Technical Sample Project. Skeena stated that these projects have already been incorporated into the assessment of the potential groundwater effects, and no other projects are expected to interact. For this reason, Skeena undertook no further assessment of cumulative effects on the groundwater valued component.

For its own assessment, the EAO took into consideration that the historical Eskay Creek Mine was an underground gold mine that operated at the ECRP site from 1994 to 2008. The mine, including underground workings, waste rock and tailings impoundments, and associated facilities and infrastructure is situated in the Tom MacKay Creek catchment, a tributary of Ketchum Creek which flows into the Unuk River and flows south and crosses the Canada-U.S. border approximately 40 km from the Eskay Creek Mine, ultimately discharging to Burroughs Bay, Alaska. The Eskay Creek Mine has been in care and maintenance since 2008 when mining operations ceased. The mine was reclaimed and water that accumulated in underground workings was periodically treated and discharged, when required, up to 2014. As of 2011, the Eskay Creek Mine was considered a “Recognized Closed Mine”.

In terms of cumulative effects to groundwater quality, the EAO notes that, although not overlapping in space and time, permitted mines in the area may impact (local) larger water courses. The EAO concludes that ECRP would not contribute to a significant cumulative effect on groundwater quantity and quality.

17.3.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the groundwater valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions, including Condition 16 (Water Quality and Quantity Model Validation Report) (see *Section 9.0*); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA for groundwater (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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17.4 Surface Water

17.4.1 Summary

A clean and abundant surface water system and water supply supports healthy communities, safe water use, and ecosystems. Surface water is selected as a valued component for the ECRP environmental assessment as the activities associated with the mine have the potential to affect surface water quantity and surface water quality, and also because water cycles, pathways, abundance, and quality are identified as important to the Tahltan Nation. Tahltan Nation and other First Nations in the area emphasize the importance of easy access to clean surface water for their consumption and in their cultural well-being. Tahltan Knowledge and Indigenous knowledge included in Skeena's Revised Application emphasizes the cultural significance of water and its interconnectedness with the natural and human environment.

Changes in surface water quantity and quality may affect the viability of creeks, rivers, lakes, vegetation, aquatic life, wildlife, and human health. Potential changes in surface water quantity and surface water quality from ECRP are identified as a key concern during the environmental assessment. Concerns raised around surface water directly relate to sensitive receptors such as fish and aquatics.

Key issues raised by reviewers include Skeena's initial proposal for bringing online two Water Treatment Plants during and following operations – which Skeena subsequently revised through a Water Optimization redesign that included one proposed water treatment plant, and the lack of a defined duration for how long water treatment will be required (i.e. in perpetuity). Concerns were also raised regarding planned mitigation measures to address the water quality implications of new rock exposure in the underground mine workings, and potential seepage to local creeks.

TCG raised concerns regarding the Skeena's initial proposal to mitigate changes in the Upper Reach of Tom MacKay Creek by supplementing flow in the uppermost reach of Tom MacKay Creek during low-flow conditions to support adequate dilution of any contact water. TCG indicated that statements like these are contrary to Skeena's stated goal of "keeping clean water clean" and it is also noted that dilution should not be viewed as a solution. TCG also stated that it concludes that ECRP will have a significant impact on groundwater quantity and quality, however TCG also emphasized their view that the surface water and groundwater interactions are still not well understood.

The ATTAC questioned200 the geographic extent in the assessment, stating their view that the Application lacked any analysis of the effects on the social, economic, cultural, and health of the Alaska Tribes. They also stated that the possible residual effects on environmental valued components in the assessment can be categorized as beyond regional because the effects could extend beyond B.C.

The EAO considered Skeena's assessment and proposed mitigation measures and management plans, the key issues raised by reviewers, proposed Certificate conditions requiring delivery of a Water Quality and Quantity Model Validation Report and development of an Aquatic Effects Monitoring Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA, and concluded that there would be residual effects to surface water quantity and quality from ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse residual or significant cumulative effects on the surface water valued component.

17.4.2 Assessment Boundaries

17.4.2.1 Spatial Boundaries

The spatial boundaries for the surface water assessment include the Project Footprint, the Assessment Footprint, the Local AA and the Regional AA (see *Figure 15.3-1* and *Figure 15.3-2* in Chapter 15 of the Revised Application).

The area within the Project Footprint includes existing and future mine infrastructure that will be utilized at the ECRP mine site, and the Assessment Footprint is a conservative area of potential project physical activities beyond the anticipated mine Project Footprint.

The surface water Local AA is the area within which the potential effects of ECRP on the surface water valued component are predicted to occur (including potential effects on watercourses, and watersheds). The Local AA includes the following sub-watersheds: Ketchum Creek, Tom MacKay Creek, Argillite Creek, Eskay Creek, Coulter Creek, Harrymel Creek, a portion of the Unuk River, Volcano Creek, and a portion of the Iskut River. The Local AA includes these watercourses and their tributaries within the Local AA boundary, and a riparian buffer around all waterbodies.

The surface water Regional AA refers to the predicted maximum spatial extent over which effects of ECRP could potentially occur includes the Unuk River Watershed upstream of the Canada-U.S. border and downstream of the confluence with Storie Creek, the Volcano Creek sub watershed, and a portion of the Iskut River/Stikine River Watershed. The Unuk River Watershed is included in the Regional AA following specific interest during early engagement and because it includes the migratory fish distribution in the region. The Regional AA provides the regional setting for the effects assessment and is based on the watersheds that delineate ecological boundaries.

The Transportation Corridor was not included in the assessment for the surface water valued componentsince the Eskay Creek Mine Access Road is existing infrastructure and no interactions with project activities are identified. *Chapter 29* of the Revised Application (Malfunctions and Accidents) provides a risk-based approach for the assessment of malfunctions and accidents along the Transportation Corridor.

17.4.2.2 Temporal Boundaries

The following temporal boundaries were used for the ECRP surface water assessment:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.4.2.3 Administrative and Technical Boundaries

Skeena indicates that an administrative boundary was identified at the international Canada-U.S. border, and that regulatory expectations and technical issues related to data interpretation relevant to surface water will differ depending on the regulatory agencies involved. A specific example of this difference is the method used to derive water quality guidelines or standards. Technical boundaries for both water quantity and water quality include unusable data (due to instrument malfunction, contamination, missing data) or a small amount of historical or regional data.

17.4.3 Existing Conditions by Skeena

Existing conditions related to surface water quantity and quality were assessed by Skeena in Chapter 15, *Section 15.4.1* and *Section 15.5.1* of the Revised Application, respectively, and are summarized below.

17.4.3.1 Historical Context

Skeena indicates that the proposed project is located within the territory of the Tahltan Nation and the Tsetsaut Skii km Lax Ha, and that Indigenous knowledge included in the Revised Application describes the historical and current surface water conditions in the Eskay Mine area. Publicly available Indigenous Knowledge for the engaged First Nations were used, as well as other sources of Indigenous Knowledge (based on specific permission to do so from Tahltan Nation, Tsetsaut Skii km Lax Ha, MNBC), particularly regarding the insights that Indigenous Knowledge offers in relation to characterization and assessment of the surface water valued component.

Skeena further indicates that water has historically been, and continues to be, key to Indigenous people's culture and land use in the region. TCG noted that "our relationship with fish, animals, water, and land is captured in our Tahltan stories, spirituality, life view, agency, and relations". Skeena further states that "Historic Tahltan land use was centered around different waterbodies, with the seasonal cycles of each Tahltan clan focused on a major river system within their territory.

For example, due to salmon movements, the Stikine-Tahltan River confluence was a key location for many families' seasonal round."

The first recorded mining exploration activities in the Eskay mine area started in 1935. The Eskay Creek underground mine started in 1995, and its production ended in 2008. Site wide reclamation had been ongoing since 2007, including treatment of water from the historical underground operations (up to 2014, when required). The site was federally recognized as a closed mine in 2011.

17.4.3.2 Current Surface Water System

ECRP is located on the Prout Plateau, which is drained by tributaries of the Iskut and Unuk rivers. Volcano Creek drains the northern portion of the plateau and flows north into the Iskut River, a major tributary to the Stikine River. The remainder of the plateau is drained to the south by tributaries to the Unuk River, including Tom MacKay, Argillite, Ketchum, Eskay, Harrymel, and Coulter creeks. The slope of these drainages increases as the creeks descend from the moderate relief of the Prout Plateau into the deeply incised Unuk River valley. Small lakes exist on the plateau including Tom MacKay Lake, Little Tom MacKay Lake, and several smaller lakes. These together form the headwaters of the Tom MacKay Creek drainage system (shown in Figure 14 below).

The historic Eskay Creek underground mine (including underground workings, waste rock and tailings impoundments, and associated facilities and infrastructure) is located in the Tom MacKay Creek catchment, a tributary of Ketchum Creek. Ketchum Creek flows into the Unuk River, which flows south and crosses the Canada-U.S. border approximately 40 km from ECRP, ultimately discharging to Burroughs Bay (Alaska). Ketchum Creek is a relatively small catchment, situated in remote, mountainous terrain. The creek is considered non-fish-bearing except for the lower 200 m due to an impassable barrier on the creek near its confluence with the Unuk River.

Related to surface water quality Skeena indicates that no new materials have been deposited within the TMSF, or Albino Storage Facility (ASF) since the historical Eskay Creek Mine entered care and maintenance in 2008. For current water management measures the discharge of water from the TMSF and ASF to downstream waters continues to be authorized and regulated via *EMA* permits. Site water management has been focused on the mine site area near the base of Tom MacKay Creek and managing ongoing discharge to Ketchum Creek.

Skeena states that managed contact waters include groundwater from the Upper Underground Mine Workings and the Lower Underground Mine Workings which are directed at surface to the Mine Water Pond System which discharges to Ketchum Creek at station D7. Water from the underground workings is currently treated prior to discharge from the Mine Water Pond System. The treatment system includes the use of additives (such as hydrated lime, ferric sulphate, and 10% sulphuric acid) to provide metal removal and pH neutralization prior to effluent discharge.

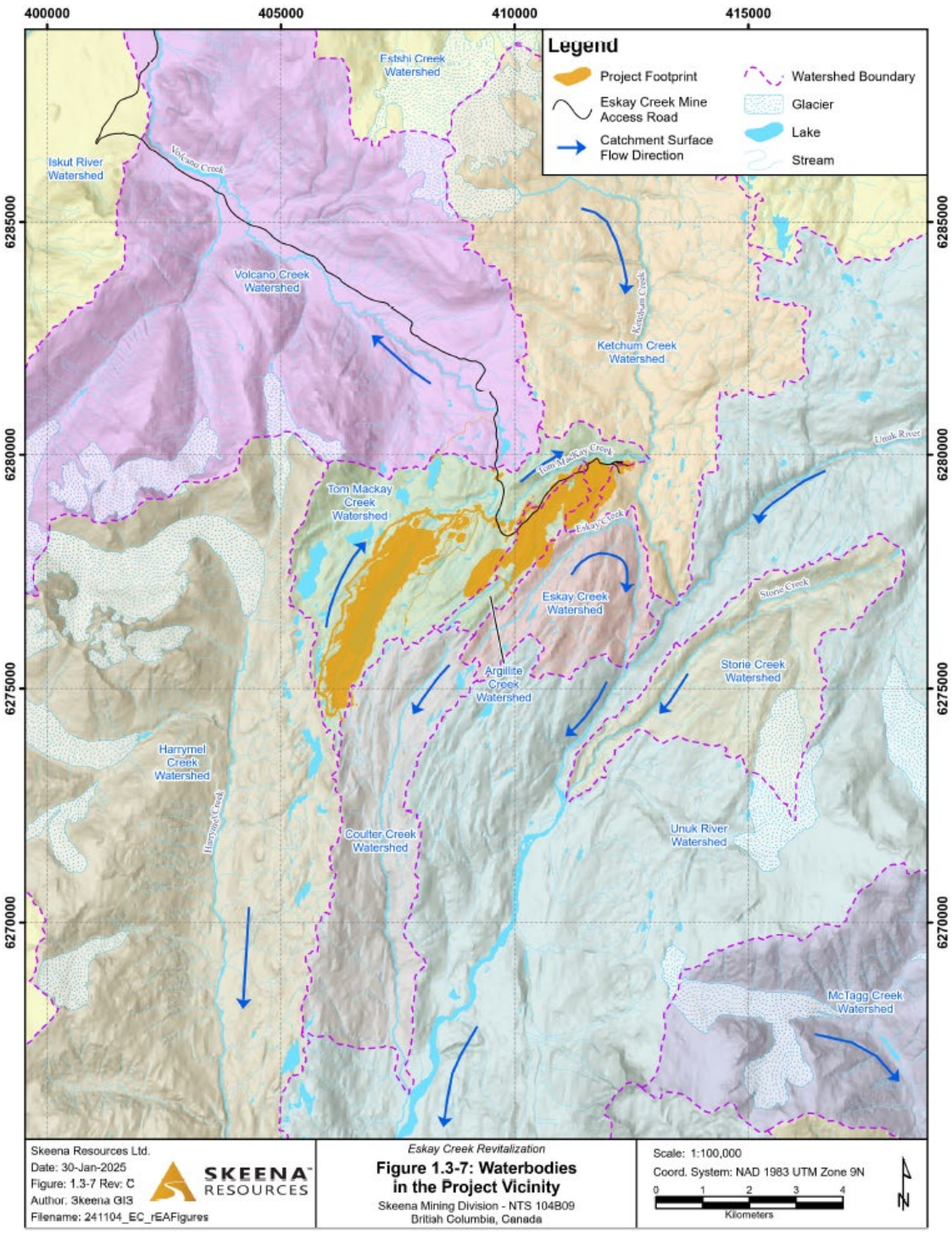

Figure 14: Watersheds and waterbodies in the ECRP area

17.4.3.3 Surface Water Monitoring and Existing Conditions

Surface Water Quantity

As indicated by Skeena, historical surface water data within the Local AA are available from 1989 and 2013. An initial set of hydrometric stations was established between 1989 and 1993 to support the original environmental assessment for the underground mine. After opening in 1994, the historic Eskay Creek Mine hydrometric monitoring programs were reduced in scale, with periods of hydrometric data collection limited in duration and inconsistent between sites, with numerous stations damaged or destroyed at various points in time. This resulted in data gaps for many stations.

Skeena re-initiated hydrometric monitoring in 2020, which has continued through 2024 and is still ongoing, to gain an understanding of the spatial and temporal distribution of stream flows and to characterize existing conditions for the assessment. The updated monitoring network layout includes the historical monitoring stations, which allow for comparison in trends over a longer period. Continuous stream flow and discharge measurements commenced in 2020, and these continuous monitoring and spot measurements were taken through the end of 2024 and are ongoing. Monitoring occurs at nine operational stations, with a new continuous monitoring station added in 2024 to better characterize the Coulter Creek watershed. Skeena further states that hydrometric data from the Water Survey of Canada and other projects in the area were utilized to fill data gaps.

Skeena indicates that Water Survey of Canada data show that the average annual runoff at the regional monitoring stations ranges from 701 mm to 2,912 mm. The regional streamflow patterns are characterized as snowmelt-driven with low flows during the winter months when precipitation falls as snow, high flows in the spring and early summer driven by snowmelt, followed by a summer low-flow period augmented by occasional rainfall, and higher flows in the fall period when substantial precipitation events occur.

Skeena states that long-term climate and streamflow records indicate that the region's conditions do not appear to show consistent and/or strong trends, other than an increase in minimum and mean temperatures of 3°C and 1°C, respectively, over the last century. Mean annual discharge trends show a noticeable increase for Surprise Creek and the Bear River, though not at the Iskut River. This could be related to an increase of contribution from glacier melt. Although climate and streamflow records do not appear to show consistent and/or strong trends, effects of climate change on surface water conditions have been observed by Tahltan. Tsetsaut Skii km Lax Ha observations regarding effects of climate change on water relate to waterbodies no longer freezing over, as well as changes in water temperatures. Tsetsaut Skii km Lax Ha knowledge holders note that they used to be able to walk on and cross rivers (including the Bell-Irving River) in the winter as they froze over; however, these knowledge holders report that rivers no longer consistently freeze over.

Surface Water Quality

Skeena indicates that historic data for the mine area is limited when compared to the 2020-2024 monitoring programs data. Surface water quality monitoring from previous mining activity periods includes: pre-mine baseline data (1990 to 1993), monitoring data from operations (1994 to 2008), care and maintenance and closure (2009 to 2011), post-closure (2012 to 2020), and recent monitoring data collected to support ECRP. Construction is the mine phase since 2020. In 2021, the 120-person camp was refurbished and inhabited. In 2022, 102 ha were cleared and grubbed. In 2023, 90 kt of bedrock was disturbed. In 2024, 390 kt of bedrock was disturbed.

As of 2020 Skeena's focus has been on existing conditions characterization within the Local AA. The current water quality monitoring network captures spatial variation and expands upon the original monitoring within the area of ECRP affected by the historical Eskay Creek Mine. More recent monitoring datasets serve as the basis for water quality model background conditions and effects assessment and are considered by Skeena to represent existing conditions for ECRP. More recent monitoring locations (in addition to stations established as part of the historic mine) were selected to

characterize current water quality conditions upstream and downstream of anticipated and potential mine discharges and seepages within the Local AA and Regional AA.

Skeena further states that for the purpose of the assessment, the description of existing conditions at the project site emphasizes more recent monitoring datasets. These generally reflect a trend towards stabilized water quality in receiving creeks following closure of the Eskay Creek Mine in 2008. The collected data serves as the basis for water quality modeling of existing conditions and for the effects assessment.

Overall, surface water quality in the Local AA and Regional AA shows spatial variation related to the sources of flow within each catchment. An example of this is surface flows in Eskay Creek and Coulter Creek are primarily driven by rainwater and snowmelt, resulting in low Total Suspended Solids and low nutrient waters. Ketchum Creek and Unuk River are glacier fed and sediment-laden due to erosion in their headwaters. Seasonal variations in water quality mainly follow changes in seasonal hydrology. For example, high flows are associated with high Total Suspended Solids and higher total concentrations of Parameters of Interest (primarily as particulate), but lower dissolved concentrations of these Parameters due to dilution. Concentrations of various metals have occurred above their B.C. water quality guideline(s) in the Tom MacKay Watershed, Ketchum Creek, Eskay Creek, Coulter Creek, Harrymel Creek and the Unuk River over the 2016 to 2024 period. Notably, glacial inputs in the headwaters of Harrymel Creek and Unuk River in part contribute to seasonally elevated levels of metal-laden suspended sediments in these systems during high flows.

Skeena acknowledges that data gaps exist, specifically at the new stations for which monthly monitoring has been initiated in 2023 with the objective of refining the existing surface water quality dataset. This results in less than two continuous years of data collection at these locations and these data gaps contribute to lack of certainty in water modeling. Skeena indicates it is fully committed to robust ongoing monitoring and data gap filling to support regulatory applications.

17.4.4 Potential Project Effects by Skeena

Skeena identified potential effects on surface water quantity and quality in Chapter 15, *Section 15.4.2* and *Section 15.5.2* of the Revised Application, respectively, which are summarized below.

17.4.4.1 Surface Water Quantity

Skeena anticipated moderate or high potential for adverse effects of mining on the surface water quantity valued component for ECRP and evaluated the potential for residual effects as a result of project activities or components on the following indicators:

- Changes in annual runoff;
- Changes in seasonal distribution of flows;
- Changes in timing and magnitude of peak and low-flow events; and
- Changes to groundwater-surface water interactions.

Potential Effects During the Construction Phase

Skeena predicts potential impacts to stream flows due to project activities, including an increase in surface runoff, and a reduction in infiltration and evapotranspiration due to activities associated with soil alteration, clearing, road construction and upgrades, and construction of mine facilities. A change to drainage pathways and drainage areas is predicted due to project activities such as the construction of diversion and collection channels. Active snow management, commissioning of the Mine Water Treatment Plant, and construction of the TMSF North Dam embankments will likely alter the flow patterns in the downstream receiving environment. The planned TMSF drawdown will also have a significant effect on stream flows relative to existing conditions.

Potential Effects During the Operations Phase

Key project activities anticipated to affect surface water quantity due to alteration of existing drainage pathways and drainage areas reporting to the receiving environment include dewatering of the North Pit and South Pit and related reduction of baseflow in creeks, development of the MRSA (including backfilling of the South Pit in Y6), commissioning of the mine water management infrastructure including additional stages of the Mine Water Treatment Plant, PAG Storage Area material rehandling and placement in the TMSF, and decommissioning of Mine Water Pond Water Treatment Plant in Y11. Main water management activities anticipated to impact surface water quantity through operations include snow management at the MRSA and North Pit and operation of diversion channels, ponds, and sumps.

Potential Effects During Reclamation and Closure

Skeena anticipates that site water management to support decommissioning and reclamation activities may impact streamflow and water quality due to activities mobilizing sediment and metals. Closure activities include re-grading and reclamation of mine impacted areas, dismantling and removal of potable water and sewage treatment facilities, decommissioning of groundwater wells and/or surface water intakes, and the continued treatment and release of water from the TMSF and the North Pit.

17.4.4.2 Surface Water Quality

Skeena anticipates moderate or high potential for adverse effects of mining on the surface water quality valued component for ECRP and evaluates the potential for residual effects as a result of project activities or components for the following indicators:

- Changes to suspended sediment concentrations: Elevated concentrations of suspended solids in mine surface discharge may occur because of increase in fine particulates in certain mine contact waters, increase in fugitive dust associated with road traffic or construction activities, or surface runoff from disturbed mine areas or select mine facilities (e.g., topsoil stockpiles). Potential for water quality effects due to elevated TSS and turbidity, metals, or other parameters associated with suspended sediments. Potential increases in suspended solids may directly impact aquatic health.

- Changes to dissolved oxygen (DO) and/or temperature: The proposed change in TMSF capacity has the potential to alter the temperature and dissolved oxygen (DO) concentration of discharged water from the TMSF through the MWTP. Skeena proposes to establish a permanent flooded North Pit within the former North Pit during the Post-closure phase, which could potentially shift temperature and DO in water discharged to lower Tom MacKay Creek and Ketchum Creek.

- Changes to pH, major ion, nutrient, and/or metal concentrations: Contact waters released from ECRP via surface discharge or seepage will result in changes to receiving stream pH, or concentration increases to major ions, nutrients, and total and dissolved metals. Increased concentrations of major ions (e.g., sulphate, chloride, bicarbonate, calcium, magnesium), and dissolved metals (notably Al, Cd, Cu, Cr, Se, Zn) may occur in contact waters because of leaching from disturbed mine materials and waste. Nutrient concentrations in discharged contact water may increase because of weathering of geochemical materials, the sewage treatment plant, blast residues on mine rock stockpiles, and open pit walls that contain nitrogen species.

The MWTP is in place to treat water from the project starting in Y-2 (2025). After closure, the pit lake is anticipated to stratify, and if discharged, the untreated water could affect receiving water quality (Tom MacKay Creek). To remedy this Skeena indicates that water quality will be regulated by water treatment with North Pit water pumped to the MWTP for discharge (from 2042 through to the end of the modelled period (2099). The water treatment is expected to be needed for hundreds of years or until passive water treatment is achieved.

17.4.5 Proposed Mitigation Measures by Skeena

Skeena has committed to implementing several mitigation measures to prevent or minimize the potential effects of ECRP on surface water quantity and quality, and a selection of key mitigation measures is described below. For a summary of Skeena's proposed management plans and mitigations, see *Appendix A-1* of the Revised Application.

17.4.5.1 Surface Water Quantity

Skeena proposes to continue implementing the existing mitigations (described in the Technical Sample Project Mine Site Water Management Plan, Sediment Control Plan, and a Reclamation and Closure Plan), and implement additional mitigations, as described in the Mine Site Water Management Plan for ECRP (Appendix A1-B of the Revised Application). The aims outlined in these plans are further discussed below:

- Erosion and Sediment Control Plan: This plan identifies methods to prevent, mitigate, and control adverse impacts from erosion and sediment mobilization during each project phase for past and present activities. Erosion and sediment control measures are identified to minimize erosion potential (i.e., water management), prevent mobilization of sediment, and minimize sediment release offsite in the event of mobilization.
- Mine Site Water Management Plan: This plan provides water management and monitoring procedures for the effective interception, conveyance, diversion, and storage of water (contact and non-contact) associated with past and present and future activities at the mine site.
- Reclamation and Closure Plan: This plan outlines mitigative actions to be taken to minimize changes to surface water quantity and include reclaiming of the MRSA slopes using a Growth Media Cover to support the growth of vegetation to achieve the desired post-closure ecosystem and decommission water management infrastructure during Reclamation and Closure. The infrastructure required to collect and treat water will remain in place.

Skeena indicates that management and mitigation measures are generally embedded in mine design as part of ECRP (e.g., collection, conveyance, storage, separation of contact and non-contact water, and treatment of contact water).

17.4.5.2 Surface Water Quality

Skeena indicates that several existing mitigations measures for the historical Eskay Creek Mine are currently in place such as maintaining a water cover on the ASF and TMSF, water management of the underground existing workings, operation of the Mine Water Ponds (MW Ponds) Water Treatment Plant (WTP) facility, and existing sewage treatment plant.

The mine plan and water management strategy have integrated mitigation strategies such as those highlighted below for the mitigation of potential effects to surface water quality:

- Source control, as it relates to suspended sediments (i.e. sediment and erosion control, soil management, instream work control, and fugitive dust management) and geochemical mine material classification, designated usage, management, or storage.
- Implementation of various water management systems (e.g., ditches, pipes, pumps, etc.) to manage both contact and non-contact water across ECRP as detailed in the Mine Site Water Management Plan.
- Water management systems designed and constructed in accordance with applicable regulations, as described in the Mine Site Water Management Plan.
- Active treatment of contact water and sewage prior to discharge.

Skeena states that the treatment of mine contact water and camp sewage will mitigate anticipated project effects. The decision to include treatment as a mitigation has been included by Skeena as a necessary activity in conjunction with other mitigation methods (e.g., source control).

For the residual effects analysis Skeena states that the overall assessment of residual effects to surface water quality identifies a high risk of high magnitude changes to concentrations of select parameters at a local to landscape level. This evaluation is inferred by the predicted concentrations of the select parameters in Ketchum Creek, Tom MacKay Creek, Eskay Creek, Coulter Creek, Harrymel Creek, and the Unuk River relative to the existing conditions and relative to guidelines and standards applied, which extends to in-perpetuity treatment being required.

17.4.6 Key Issues Raised

The following key issues were raised during review of the Application and Revised Application by the TAC, TCG, Tsetsaut Skii km Lax Ha, and the ATTAC.

17.4.6.1 Proposed Water Treatment Plants

TCG raised concerns that Skeena was initially proposing two Water Treatment Plants (WTPs) during and following operations, and there was no defined duration for how long water treatment will be required. It is possible that eventually the TMSF Pond would meet Water Quality Guidelines or other criteria and that WTP would no longer be required, but there is no certainty of that or anticipated timeline. Similarly, the North Pit WTP will operate seasonally with no defined or expected termination date. TCG inquired how does the long-term post-closure operation of these WTP fulfill Tahltan Sustainability Requirements, and what targets does Skeena envisage will need to be met to allow for the decommissioning of both plants. TCG further states that reclamation bonding estimates will need to consider the possibility of perpetual operations, including regular replacement of the WTPs and on-going maintenance of the associated water management structures.

ECCC stated in essence it has concerns regarding the assumed effectiveness and sustainability of the proposed perpetual active mine contact water capture and treatment plant, and the focus on water treatment and the lack of a comprehensive source control approach and alternative project designs. ECCC further states that it has concerns related to the absence of water quality predictions and effects assessments under a no-active-water-treatment scenario post-closure, and the absence of adaptive management and/or contingency plans associated with the water treatment facility.

Skeena responded that it has designed ECRP with sustainability objectives in mind, through selection of a brownfield site to minimize additional disturbance within Tahltan Territory, consideration of alternative means of carrying out ECRP, efforts to align ECRP's Closure Vision with Tahltan Sustainability Requirements, and the company's overall commitment to water management.

Skeena further added that in line with the Mine Site Water Management Plan, ECRP as defined in the Application will manage contact and non-contact water separately throughout all project phases to minimize the total volume of water requiring active management, and design mitigations to divert non-contact water away from the ECRP mine site, which has the consequence of concentrating contact water and Skeena plans to treat the water prior to discharge. Water treatment systems treat contact water during the Construction to Post-closure phases of ECRP.

Skeena stated that it understands that as part of its assessment of ECRP, TCG will consider the Tahltan Sustainability Requirements, and that in doing so, TCG will evaluate ECRP's proposed long-term water management strategies, including water treatment into Post-closure, with respect to Tahltan Sustainability Requirements.

Tsetsaut Skii km Lax Ha also raised concerns related to the need for water treatment and that no additional information beyond year 66 was provided and concluded that it is likely that water treatment will be needed for at least 66 years. There appears to be more than a need for 'optimization' but rather a very likely need for water treatment for an unknown period. It is acknowledged that Skeena states that evaluation of strategies for the North Pit water treatment are on-going; however, that this appears to be an important aspect for consideration with respect to long term site requirements and Tsetsaut Skii km Lax Ha requested additional discussion around closure and long-term water management for the North Pit.

Skeena acknowledged that evaluation of strategies that would allow water treatment of the flooded North Pit to be discontinued is certainly an important aspect of long-term site requirements. Skeena further noted that it completed its Water Optimization redesign and the results from water models will serve as the foundation to evaluate alternative mitigation measures. These may include, for example, methods to limit infiltration of water into the MRSA, as well as batch treatment of water that accumulates in the North Pit. Skeena also pointed to reclamation research to investigate additional source control measures with the aim to reduce water treatment needs.

In the Revised Application, Skeena has indicated for clarification that there is no longer a TMSF Mine Water Treatment Plant, just one combined MWTP, located at KM55. In addition to maintaining the Mine Water Ponds WTP, the MWTP would still be required to treat contact water from a flooded North Pit but could be scaled back in capacity if TMSF water no longer needs treatment.

The EAO's view is that this issue has been adequately addressed and is not recommending a provincial condition but has recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to transboundary waters, fish and fish habitat and federal sustainability requirements related to effects of ECRP on surface water (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up Programs were considered by IAAC in the development of draft potential federal conditions.

17.4.6.2 Potential for Creeks Affected by Seepage from Existing Underground Mine Workings

During review of the Application, MCM reviewers requested Skeena describe the planned mitigation measures to ensure that, if new wall rock is going to be exposed in the Underground Mine Workings and Lower Mine Workings, the need for additional mitigation measures to prevent long term impact from the remaining exposed underground workings could be explored.

Skeena responded that the mitigation measures are the installation of a hydrostatic plug in the Underground Mine Workings Portal, and additional flooding of exposed Underground Mine Workings and Lower Mine Workings. This would result in a large reduction in the volume of reactive material that is exposed subaerially. However, it also results in an increase in the volume of groundwater seepage that flows from the flooded North Pit to Tom MacKay Creek.

Skeena added that seepage from the underground workings will collect in a sump or sumps in the North Pit as the elevation of sumps becomes lower than remaining workings. Seepage from the unflooded part of the Lower Mine Workings is not expected to migrate toward Tom MacKay Creek and Ketchum Creek. However, if some of that seepage will migrate toward those creeks, it will be at a very low rate and will not affect water quality. In addition, Skeena proposes inspection of mine adits upstream of hydrostatic plug, and monitoring of groundwater seepage around the plug.

The EAO's view is that Skeena's response regarding uncertainty related to Underground Workings seepage is sufficient for the purposes of the environmental assessment, noting that the permitting process will require Skeena to address seepage concerns. The EAO is not recommending a provincial condition, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.4.6.3 Monitoring and Mitigating Seepage

MCM expressed concern that conclusions from the Water Quality Model indicate that minor seepage from the TMSF is expected to report to Harrymel Creek and Coulter Creek via deep groundwater flow pathways, and minor seepage from the MRSA is expected to report to Tom Mackay Creek, and minor seepage from the South Pit is expected to report to Eskay Creek, as well as minor seepage from the lower mine workings towards Tom Mackay Creek. MCM inquired what monitoring will be implemented by Skeena to monitor the impact of (unrecoverable) seepage from these mine components, and what mitigation measures are being considered by Skeena to manage the effects of seepage in the receiving environment. MCM also expressed that these mitigations should be included in the Water Management Plan to be provided during the *Mines Act* permitting process.

ECCC stated in essence that it has the identified information gaps associated with potential uncontrollable seepage pathways.

Skeena acknowledges that mitigation measures that may need to be implemented to manage unrecoverable seepage from project infrastructure will be discussed in the Water Management and Discharge Plan, to be included in the *Mines Act* permit. Skeena added that an instrumentation, monitoring, and adaptive management plan and a trigger response plan will be developed for ECRP in acknowledgement of the guidance provided by ENV.

In addition, Skeena indicated that instruments and data collection will be targeted at preferential seepage pathways to allow for early identification of potential water quantity and/or quality concerns. And monitoring data will be used to identify if/when adaptive management methods should be applied and what mitigations would be appropriate. This process is a continuous one and will occur through all project phases with changes to environmental management made, as and when required should it be determined that the rate and/or quality of the unrecoverable seepage is such that it may have a negative impact on surface water quality (mitigative measures that may be applied will include, but not necessarily be limited to, grouting of preferential flow paths, interception wells and/or trenches, and underdrains).

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO proposed the following Certificate conditions (see *Section 9.0* for full description):

- Condition 16 Water Quality and Quantity Model Validation Report: Skeena must deliver a report on the results of water quality baseline monitoring, the results of which will inform any water management plans that are submitted and implemented under the *Mines Act* and/or *EMA* permit requirements; and
- Condition 17 Aquatic Effects Monitoring Plan: Skeena must develop a plan to monitor effects to aquatic resources and report on any additional effects not identified during the environmental assessment.

Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.4.6.4 Keeping Clean Water Clean

TCG raised concerns with the Application regarding Skeena proposal to mitigate changes in the Upper Reach of Tom MacKay Creek by "supplement flow in the uppermost reach of Tom MacKay Creek during low-flow conditions to support adequate dilution of any contact water...such that baseflow water quality in the portion of the creek does not exceed relevant standards or baseline criteria (which ever is higher)." This is contrary to Skeena's stated goal of "keeping clean water clean", appears to contravene the MDMER prohibition on diluting effluent, it is also noted that dilution should not be viewed as a solution. TCG requested Skeena to please indicate where the supplemental water would be sourced from, how much clean water would be needed to effectively lower concentrations and what are the impacts that this management strategy might have on the environment.

Skeena responded by stating that results from the assessment indicate that flow reductions in the upper reach of Tom MacKay Creek are predicted to occur throughout the assessment period, driven by water management in the TMSF (i.e., regulated flow from the TMSF Mine Water Treatment Plant, MWTP). The water management strategy, reflected in the Site Wide Water Balance Model results, is that the TMSF MWTP will be shut off for several months during the winter, and will be turned back on in the spring. For this reason, a follow-up strategy study is proposed to assess flow augmentation and alternative water treatment options that would balance different water management considerations, specifically regarding water quantity and water quality.

In the Revised Application, Skeena indicated that the primary driver behind flow reductions in the upper reach of Tom MacKay Creek is the construction of the TMSF North Dam, which cuts off passive discharge of the TMSF to Tom MacKay Creek. All discharge from the TMSF is moved further downstream to the MWTP discharge near the KM54 bridge crossing. In the Revised Application Skeena has indicated for clarification that there is no longer a TMSF Mine Water Treatment Plant, just one combined MWTP, located at KM55.

The EAO's view is that the issue has been adequately addressed. The EAO is not recommending a provincial condition, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.4.6.5 Cross border Assessment of Effects

ATTAC mentioned that the geographic extent in the assessment is the spatial scale over which the residual effect is expected to occur, and—for environmental valued components in the assessment can be categorized as beyond regional defined as an effect that possibly extends across or beyond the province of B.C. ATTAC further stated that the effects relate to the social, economic, cultural, and health valued components including those for Indigenous peoples possibly extending across or beyond B.C. Yet the entire assessment section lacks any analysis of the effects on the social, economic, cultural, and health of the Alaska Tribes. The lack of analysis increases the risk and uncertainty of the effect occurring leading to direct harm to the downstream Tribes. The ATTAC views this as especially egregious given the temporal scale of at least the next 74 years and possibly in perpetuity. Lacking the right to deep consultation means that the Application is unable to measure, let alone define risk and certainty of adverse effect of ECRP to the Alaska Tribes' social, economic, cultural, and health.

Skeena responded that the "Valued Component Effects Assessment Methods", does not contain any analysis because its purpose is to set out a common terminology and overall approach and account for any effects that may possibly extend beyond B.C. The Application further provides the analysis that includes predictions of the geographic extent of ECRP's effects, underpinned (where appropriate) by detailed modelling and other predictive studies. SEITC and its member Tribes have the opportunity to participate and raise any concerns relating to ECRP through the ATTAC. This can include raising any concerns relating to impacts on asserted section 35 rights as per the ATTAC Terms of Reference. Skeena noted it would welcome the opportunity to meet with SEITC and the seven member Tribes in relation to their interests in ECRP.

The ATTAC responded that throughout the Application Review, the mistake is made that detailed modelling and predictive processes are actual reality. There is no information as to the accuracy of these models or their level of predictability now or over time. Lacking information on the uncertainty or margin of error of any of the effects analysis produced by the models leads to no consideration of a margin of safety under the precautionary principle.

Skeena responded that it does not hold the view that detailed modelling and predictions are synonymous with reality. In alignment with the Hybrid AIR, Skeena's Application has provided an evaluation of confidence (i.e., degree of certainty) in residual effects predictions as part of residual effects characterizations. In addition, information on certainty and modelling limitations is provided along with the various predictive models discussed in the Application. Where there are uncertainties in effects predictions, a number of follow-up strategies, including monitoring, are proposed to confirm adherence to regulatory objectives, verify environmental assessment predictions, and evaluate the effectiveness of mitigations.

The EAO's view is that the issue has been adequately addressed. The EAO is not recommending a provincial condition, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.4.6.6 Surface Water and Groundwater Interactions

TCG indicates that it is clear from the Application that ECRP will have a significant impact on groundwater quantity and quality, yet, understanding of the groundwater flow system and its interaction with local creeks (surface water and groundwater interactions) is still not well understood for ECRP, the proposed groundwater monitoring is insufficient, the numerical modelling to date is insufficient and the proposed mitigations are insufficient given the predicted impact on groundwater.

Skeena responded that the groundwater baseline program that characterized groundwater existing conditions have been completed according to British Columbia Standards. Skeena further stated that two separate groundwater models were

built to simulate ECRP's effects on groundwater system. Both models were calibrated using a large database of groundwater level measurements, results of tests of rock's hydraulic properties and field measurements of low flow in the streams. The results of groundwater model simulations were used as inputs to a Site Wide Water Balance Model and Surface Water Quality Model. Field and laboratory tests, along with geochemical modelling were completed to develop Geochemical Source Terms.

Skeena further states that considering the data collected and analysis completed, the groundwater model is well characterized. The results of the assessment show that ECRP's groundwater residual effects are limited to small areas within the Local AA, the areas where no groundwater resources have been or are planned to be developed to date. Although the development of the understanding of a natural system is never complete, such complete understanding is neither possible nor necessary to complete the environmental assessment of ECRP's effects within a reasonable range of confidence.

The EAO acknowledges that Skeena has committed to co-design of the 2025 site investigation program with TCG and the collaboratively designed 2024 site investigation program is currently being carried out. The EAO's view is that Skeena's response regarding uncertainty related to groundwater flows and seepage is acceptable for the purposes of the environmental assessment, noting that the *Mines Act* permitting process will require continued work to address seepage concerns and continue development of understanding of the groundwater and surface water interactions. The EAO is not recommending a provincial condition, but IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of proposed federal conditions.

17.4.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment; the proposed mitigation measures; comments received during review of the Revised Application, and Skeena's responses to these comments as set out in the Issues Tracking Table; current regulatory tools and their proposed amendments; and proposed Certificate conditions, the EAO concludes that ECRP would result in the following residual adverse effects on the surface water valued component:

- Changes to surface water quantity
  - Changes in annual runoff;
  - Changes in seasonal distribution of flows;
  - Changes in the timing and magnitude of peak and low-flow events; and
  - Changes to groundwater-surface water interactions.
- Changes to surface water quality.

The EAO's characterization of the expected residual effects of ECRP on surface water quantity and surface water quality 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 for Surface Water

Residual Effect	Assessment Rating	Significance and Rationale
Changes to surface water quantity Changes in surface water quantity from water management activities, diversions, and	Context (resilience): High Magnitude: Low to moderate Extent: Local to landscape Duration: Long term Frequency: Continuous Reversibility: Partially reversible to irreversible Affected Populations: Even	Not significant Context is considered high because of the ability to recover due to high resiliency of the natural surface water quantity system. The magnitude is low to high because effects to surface water varies in relation to the decrease or increase in contribution to baseflows to creeks and proposed water management activities such as creek flow reductions/diversions and proposed active drainage management across the mine site. Effects would be noticeable on a limited (mine site wide) scale and on a landscape scale such as predicted reduced flows in local creeks and

Residual Effect	Assessment Rating	Significance and Rationale
drainages extend the period of reduced baseflow in creeks and delays in mine pit lake filling.	Risk (Likelihood and consequences): Moderate Uncertainty: Moderate Importance: High	some larger creeks during Operations; flows are predicted to increase in Closure and Post-closure which would increase water availability downstream. Potential surface water quantity effects on the Unuk river system are predicted to be negligible, especially when approaching the Alaskan border. The duration is rated as long-term since effects of ECRP would propagate through pit lake discharge management (water treatment) and the groundwater system discharging into the surface water quantity system and manifest as directly linked reduced contribution as baseflow to creeks for decades. Surface water quantity changes would occur continuously through mine operations, with mainly increases in flows predicted for the Closure and Post-closure phases. Effects to surface water quantity are expected to be partially reversible in most instances into Closure/Post-closure, except for the permanent (irreversible) changes to the drainage patterns of the receiving surface water system linked to the filling and subsequent outflow of the pit lake and facilities such as the TMSF and MRSA. The changes in the surface water system are expected to occur (high likelihood), although the consequence would be moderate with appropriate mitigation (low to medium magnitude and mostly local extent). This led to a rating of moderate risk. Existing field data information provides a good understanding of the effects of proposed mine water management (such as diversions) on the surface water system. Additional field investigations and refinement of the water balance models are planned to improve understanding of the groundwater and surface water interaction system, the uncertainty in the assessment for surface water quantity is moderate. The importance is high as surface water resources have been continuously identified as such high importance by TCG and other First Nations, community members, the public, local governments, and provincial agencies.
Changes in surface water quality Changes in surface water quality from seepage, mine contact water, TMSF and ASF and waste rock dumps, and deposition of particulate matter	Context (resilience): Low Magnitude: Low to high Extent: Local to Landscape Duration: Long term Frequency: Continuous Reversibility: Partially reversible to irreversible Affected Populations: Even Risk (Likelihood and consequences): Medium Uncertainty: Moderate Importance: High	Not significant The context for surface water quality is low due to existing conditions not meeting B.C. Surface Water Quality Guidelines for some constituents in some cases and predicted effects of ECRP specifically from non-point sources such as TMSF and after Closure around the pit lake. Additionally, changes in surface water quality because of disturbance often lag and trends can be slow to appear, particularly when tied to (ground)water pathway effects. The magnitude is rated as low to high since instances of surface water quality changes would exist. The high magnitude rating pertains to situations where mitigation is predicted to be not fully effective such as TMSF affected seepage reporting as baseflow to local creeks (mainly during post-closure). Surface water quality effects would be identifiable close to the mine site where most of the potential effects related to mine activities occur and depending on time of year and regional influences the changes would be measurable on a more regional scale. Surface water quality effects are predicted for the Unuk river; however, these will occur closer to the mine where affected creeks discharge into the Unuk river. No Eskay related effects have been predicted in the Unuk river when approaching the Alaskan border.

Residual Effect	Assessment Rating	Significance and Rationale
		Surface water quality effects would persist into Closure and Post-closure phases and would be continuous as effects on the surface water system are continuous through Operations, Closure, and Post-closure from both mine Operations activities and pit lake (Post-closure). Most of the effects to surface water quality are expected to be (partially) reversible, in some instances the effects will be irreversible (continuous effects from closed mine facilities such as the TMSF and exposed pit lake rock faces). Effects to surface water quality are expected to occur (high likelihood), and the low to high magnitude led to a consequence of moderate, which culminates in a rating of medium risk. The existing monitoring provides an increased understanding of the legacy mine effects on surface water quality. Since additional field investigations and refinement of the water balance and water quality model used are planned to aid in improving understanding and related predictions of the water quality in the surface water system and planned mitigations, the uncertainty in the assessment for surface water quality is moderate. The importance is high as surface water quality and related future water quality prediction uncertainty has been continuously identified by TCG and other First Nations, community members, the public, local governments, and provincial agencies.

17.4.8 Cumulative Effects Assessment

Skeena identified existing and reasonably foreseeable projects with the potential to act cumulatively with ECRP, which included the historical Eskay Creek Mine, Brucejack Mine, Eskay Creek Technical Sample Project, KSM Mine and Goldwedge Mine. Skeena incorporated the historical Eskay Creek Mine and the Eskay Creek Technical Sample Project into its modelling and did consider interactions with those two projects further in its cumulative effects assessment, however, only for total selenium as it was identified by stakeholders as a parameter of regional interest and of high importance. Total selenium values are predicted to increase just above the B.C. Aquatic Life Guideline of 2 micro gram per litre in the Unuk River just downstream of Sulphurets Creek (at UR-61.4) for 7 months of the year in 2035 and for 7 months of the year during Post-closure. For the cumulative effects assessment at the Alaskan border (at UR-37.1), the monthly predicted total selenium concentrations are predicted to stay well below B.C. Aquatic Life Guidelines.

For its own assessment, the EAO took into consideration that the historical Eskay Creek Mine was an underground gold mine that was operated at the ECRP site from 1994 to 2008. The mine, including underground workings, waste rock and tailings impoundments, and associated facilities and infrastructure is situated in the Tom MacKay Creek catchment, a tributary of Ketchum Creek which flows into the Unuk River and flows south and crosses the Canada-U.S. border approximately 40 km from the Eskay Creek Mine, ultimately discharging to Burroughs Bay, Alaska. The Eskay Creek Mine has been in care and maintenance since 2008 when mining operations ceased. The mine was reclaimed and water that accumulated in underground workings was periodically treated and discharged, when required, up to 2014. As of 2011, the Eskay Creek Mine was considered a “Recognized Closed Mine”.

In terms of cumulative effects to surface water, the EAO notes that the predicted ECRP related effects to the surface water valued component are mostly limited to a local area, and other permitted mines in the area may impact larger water courses such as the Unuk River. The cumulative effects assessment predicted that only selenium has the potential for cumulative effects with other projects, however, the total selenium values are predicted to stay below B.C. Aquatic Life Guidelines at the Alaskan border. The EAO concludes that ECRP would not contribute to a significant cumulative effect on surface water quantity and quality.

17.4.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the surface water valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions, including Condition 16 (Water Quality and Quantity Model Validation Report) and Condition 17 (Aquatic Effects Monitoring Plan) (see *Section 9.0*); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA for surface water (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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17.5 Fish and Fish Habitat

17.5.1 Summary

Fish and fish habitat was selected as a valued component for the ECRP environmental assessment due its identified importance by First Nations, provincial and federal government agencies and the public. A healthy and thriving fish population is an important part of the ecosystem and supports the health of communities and local wildlife. The importance of healthy fish populations for their consumption and cultural well-being was identified by Tahltan Nation.

Skeena identified adverse effects to fish, aquatic and fish habitat, and aquatic resources (such as the benthic invertebrate community and periphyton) that may result from ECRP. These changes could occur as a result of ECRP-related activities, such as construction of the mine and expansion of the mine footprint, mining activities, transportation and storage of waste rock and ore, water management, water treatment, as well as from changes to water and sediment quality from ECRP. Skeena described mitigation measures that would reduce the potential effects.

Key issues raised by reviewers related to uncertainty with fish tissue baseline data, effects of water quality and quantity to fish and aquatic resources, non-site-specific selenium bioaccumulation modelling, lack of lentic sampling, mercury bioavailability, water treatment in perpetuity and a recommendation for additional spawning surveys and fish habitat assessment in Ketchum Creek.

The EAO considered Skeena's assessment and proposed mitigation measures, the key issues raised by technical advisors, proposed Certificate conditions requiring the development of an Aquatic Effects Monitoring Plan, Fish Tissue Baseline Report, and Water Quality and Quantity Model Validation Report, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA, and concluded that there would be residual effects including increases in selenium in aquatic invertebrate tissue that may present a risk to fish, changes in water quality affecting periphyton, benthic macroinvertebrates and fish, and loss and/or alteration of aquatic habitat from ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted effects to be appropriately mitigated and managed and concludes that ECRP would not have significant adverse residual or significant cumulative effects on the fish and fish habitat valued component.

17.5.2 Assessment Boundaries

17.5.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to fish and fish habitat (see *Figure 16.4-1* in Chapter 16 of the Revised Application):

- Project Footprint: The approximately 731 ha area, of which approximately 521 ha will be new disturbance, where physical works and activities will occur during mine construction and production, including those associated with mining, ore processing, waste rock disposal, and tailings storage.
- Assessment Footprint: The approximately 2,276 ha area around the Project Footprint, that is delineated in the proposed Certificate (i.e., Skeena's "Requested Project for Certification"), which is to allow for minor adjustments to the Project Footprint when physical activities are being
- Local Assessment Area: Includes the tributaries and riparian areas of the sub-watersheds of Tom MacKay Creek, Argillite Creek, Ketchum Creek, Eskay Creek, Coulter Creek, Harrymel Creek, Volcano Creek, and portions of both the Unuk River and Iskut River that receive those waters.
- Regional Assessment Area: Includes the remainder of the Unuk River downstream from the Local AA to the Canada-U.S. border. This Regional AA was chosen because of expressed interest in the Unuk River watershed during Early Engagement and to include migratory fish that move up the Unuk River. Most of the Unuk River (i.e., upstream of its confluence with Harrymel Creek) falls within the Tahltan Consent Area, while the remainder of the

Unuk River downstream of that point to the US-Canada border is still within a Tahltan Area of Interest and within Tahltan Territory.

17.5.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of effects to fish and fish habitat:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.5.3 Existing Conditions by Skeena

Existing conditions related to fish and fish habitat in the Local AA and Regional AA were assessed by Skeena in Chapter 16 (*Section 16.5*) of the Revised Application and are summarized here.

Skeena conducted multiple field-based sampling programs to assess the existing conditions of fish and aquatic resources in the areas affected by ECRP. These programs included studies on fish presence and habitat, fish barrier assessments, spawning surveys, fish tissue analyses, benthic invertebrate and periphyton community composition, benthic invertebrate and periphyton tissue analyses, and sediment chemistry in various watercourses.

Key findings from Skeena's assessment included:

- Confirming that barriers prevent fish from accessing Eskay Creek, Argillite Creek and Tom Mackay Creek. A barrier in Ketchum Creek prevents fish from going further then 200 m upstream from its confluence with the Unuk River.
- There was no fish present within the Project Footprint.
- The lower 200 m of Ketchum Creek before the confluence with the Unuk River is potentially fish-bearing and accessible to Dolly Varden and other fish species, providing off-channel habitat. Survey information was limited to visual inspection from helicopter because the area was not otherwise safely accessible.
- Dolly Varden were the most common fish species and were present in all parts of the Unuk River and tributaries that aren't limited by fish barriers.
- Coho salmon were confirmed present as far upstream as the Eskay Creek confluence with the Unuk River and presumed to be able to access the 200 m of fish habitat in Ketchum Creek but there are potential velocity barriers which may cumulatively limit Coho from migrating further up the Unuk River.
- Cutthroat trout were confirmed to be present in the Unuk River downstream of its confluence with Storie Creek, which is 3 km downstream of the confluence of Eskay Creek and the Unuk River, and just outside the Local AA boundary.
- Although the fish community sampling completed during the baseline investigations was robust, it was not intended to provide a definitive conclusion that specific species are absent.
- Eulachon are present are in the Unuk River on the US side of the border and potentially the lower Stikine, both of which are outside the assessment boundaries.
- Fish habitat assessments were conducted at three accessible locations on the Unuk River. Cover on the Unuk River was generally classified as moderate and dominated by boulders. Overwintering habitat quality was considered poor, with few deep pools to take refuge from rapids. Spawning and rearing habitat suitability was poor due to fast, turbid water, as well as an overall lack of appropriate gravel substrate for spawning.

- Reference sites showed high variability in sediment quality and that arsenic, cadmium, iron, manganese, nickel, selenium, silver and zinc can readily exceed the upper sediment quality guidelines because of natural sediment conditions which are derived from mineralized rock. Exceedances of the lower sediment quality guidelines were also common. The geologic conditions of the area, and naturally occurring weathering, erosion and deposition of materials were likely responsible for exceedances of various metal concentrations in sediment.
- Sediments from watercourses in the Local AA were dominated by gravel and sand with limited amounts fine grained sediments of clay and silt.
- Ephemeroptera, Plecoptera, and Trichoptera taxa and chironomids collectively were found in large numbers at every location (including background sites) which highlighted their role as dominant species.
- Selenium concentrations in benthic invertebrates exceeded the interim tissue guideline of 4 mg/kg in multiple upstream background locations including Ketchum Creek, Harrymel Creek and the Unuk River. Sampling of benthic community tissue concentrations in the Unuk River located upstream of all historical mining activities consistently had selenium concentrations higher than the interim guideline in all three years of sampling.
- Dolly Varden selenium muscle concentrations in all baseline sampling in the Unuk River and fish-accessible tributaries (except for two fish) were lower than the interim tissue residue guideline of 4 mg/kg dwt and were well below the species-specific effect benchmark for Dolly Varden.

17.5.4 Potential Project Effects by Skeena

Skeena identified the following potential effects on fish and fish habitat due to ECRP in Chapter 16 (*Section 16.6*) of the Revised Application, which is summarized below.

17.5.4.1 Changes in Water Quality Causing Effects to Sediment Quality

Skeena identified that changes in water quality could cause direct effects on sediment quality depending on the geochemical conditions. Increased water hardness, which typically occurs from mine discharge, causes the dissolved metals also in mine discharge to form insoluble precipitates that has limited bioavailability and gets deposited in the sediment. Discharges from ECRP activities have the potential to alter sediment quality, which may in turn affect aquatic organisms that live in, on, or near, sedimentary materials.

Skeena completed a qualitative analysis of residual effects of changes in water quality on sediment quality. Residual effects on sediment quality from changes in water quality are expected primarily in Tom MacKay and Ketchum Creek. The rate of precipitation had not been quantified, but any precipitation would be occurring in an environment where natural background sediment concentrations are already elevated. The sediment accumulation from project activities would be expected to result in fine-grained sediment, high water flows and scouring during freshet would limit accumulation of these sediments. Skeena noted that there were no locations downstream of the site, including the Unuk River, that would be a long-term sediment sink where fine-grained material would be expected to accumulate over time.

17.5.4.2 Change in Water Quality Causing Effects to Periphyton and Benthic Macroinvertebrates and Fish

Based on the surface water effects assessment (*Chapter 15* of the Revised Application), Skeena identified total aluminum, total arsenic, dissolved cadmium, dissolved copper, dissolved nickel, dissolved zinc, dissolved lead, nitrite, phosphorus, total selenium, sulphate, total thallium, and fluoride as potential mine-related contaminants of potential concern (COPC) that could have a residual effect on water quality and were carried forward for a quantitative evaluation of potential residual effects on fish and fish habitat. Evaluating the magnitude of effects to aquatic resources and fish involved a four-step process (for more details, refer to *Section 16.7.1*, of the Revised Application):

- Step 1: Hazard quotients were calculated using background toxicity modifying factors. Background toxicity modifying factors reflect the natural water characteristics of the receiving environment without any historical or proposed mining influences.
- Step 2: Hazard quotients were calculated using baseline toxicity modifying factors. Baseline toxicity modifying factors represent current-day water characteristics, which may have been influenced by historical mining influences but are expected to persist into the foreseeable future irrespective of whether ECRP proceeds.
- Step 3: Hazard quotients were calculated using induced toxicity modifying factors. Mining activities are expected to result in increased concentrations of ions such as calcium and magnesium, which will result in higher water hardness. The increase in major ions is itself a stressor on aquatic organisms and fish if those ions are present at extreme concentrations, but major ions will also increase the water hardness which can reduce the magnitude of effects of several metals.
- Step 4: For each substance with a hazard quotient greater than 1, a narrative was prepared to relate the hazard quotient exceedance to the toxicity data included in the water quality guideline derivation documents. The purpose of the narrative is to determine if the magnitude of the residual effects were low, moderate, or high for specific groups of aquatic organisms (including fish, aquatic invertebrates, plants and amphibians) that are present or likely to be present in the receiving environments.

Node	Status	Al	As	Cd	Cu	F	Ni	NO_2	SO_4	Tl	Zn	Mixture	Waterbody
TC-6.32	Not fish-bearing	Low	Negl	Low	Mod	Negl	Negl	Negl	Negl	Negl	Mod	Mod	Mod
TC-3.85	Not fish-bearing	Low	Low	Negl	Mod	Negl	Mod	Low	Low	Negl	Mod	Mod	
TC-0.99	Not fish-bearing	Low	Low	Low	Mod	Negl	Mod	Low	Low	Negl	Mod	Mod	
KC-3.05	Not fish-bearing	Low	Negl	Negl	Low	Negl	Mod	Low	Negl	Negl	Low	Low	Low
KC-2.00	Not fish-bearing	Low	Negl	Negl	Low	Negl	Mod	Low	Negl	Negl	Low	Low	
KC-0.10	Possibly fish-bearing	Low	Negl	Negl	Low	Negl	Mod	Low	Negl	Negl	Low	Low	
EC-4.97	Not fish-bearing	Low	Low	Low	Low	Negl	Negl	Negl	Negl	Negl	Mod	Low	Low
EC-0.03	Not fish-bearing	Low	Negl	Low	Low	Negl	Negl	Negl	Negl	Negl	Mod	Low	
CC-6.38	Not fish-bearing	Low	Negl	Low	Low	Negl	Negl	Negl	Negl	Negl	Low	Low	Low
CC-1.67	Fish-bearing	Low	Negl	Low	Low	Negl	Low	Negl	Negl	Negl	Mod	Low	
HC-15.4	Not fish-bearing	Low	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl
HC-12.3	Not fish-bearing	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	
HC-0.00	Fish-bearing	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	
UR-78.6	Fish-bearing	Low	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Low
UR-76.8	Fish-bearing	Low	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	
UR-69.7	Fish-bearing	Low	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	
UR-67.0	Fish-bearing	Low	Low	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	Negl	
UR-61.4	Fish-bearing	Low	Low	Low	Low	Negl	Negl	Negl	Negl	Negl	Low	Low	
UR-55.3	Fish-bearing	Low	Low	Low	Low	Negl	Negl	Negl	Negl	Negl	Low	Low	
UR-43.9	Fish-bearing	Low	Low	Low	Low	Negl	Negl	Negl	Negl	Negl	Low	Low	
UR-37.1	Fish-bearing	Low	Low	Low	Low	Negl	Negl	Negl	Negl	Negl	Low	Low	

Figure 15: Summary of the magnitude ratings for each COPC at each node and impacts of the mixture of COPCs to each node and waterbody

Based on the results of this analysis Skeena identified copper, nickel and zinc as COPCs that may cause moderate residual effects, and the other COPCs, except for sulphate, were excluded from further consideration. Copper, nickel and zinc varied seasonally but exceeded moderate thresholds for a portion of the year. In addition, copper, nickel, and zinc have the potential to act in an additive manner as the seasonal spikes in concentrations are occurring at the same time.

Skeena noted that sulphate was also retained, although it presents low magnitude effects, there is a potential for osmotic stress. Water quality predictions indicate that water hardness will change substantially in Tom MacKay Creek, which would be beneficial to a point but could contribute to an excess of major ions, in turn potentially contributing to osmotic stress. The water quality guideline for sulphate is not applicable at water hardnesses greater than 250 mg/L CaCO3, and therefore, future monitoring may need to include major ions in the sampling program and may need to develop a site-specific threshold for sulphate. There is a high degree of confidence that residual effects would be limited to periphyton and/or benthic invertebrate communities in Tom MacKay Creek. The residual effect will be present during the Operations, Closure and Post-closure phases of ECRP.

Skeena concluded that ECRP activities would have residual effects on periphyton and benthic macroinvertebrates in Tom MacKay and Ketchum creeks because of changes in water concentrations of copper, zinc, nickel, sulphate and hardness. These effects would likely be expressed more as a change in community structure and are not likely to result in an alteration of the ecological function of the community due to functional redundancy.

17.5.4.3 Changes in Water Quality Causing Increased Bioaccumulation

Mercury is frequently assessed because it can biomagnify in aquatic food chains. Skeena predicted that project activities would not increase mercury concentrations in water, including fish bearing waters. Skeena concluded that no residual effects from mercury bioaccumulation are expected as all measured and predicted fish tissue concentrations were substantially lower than the applicable guidelines.

Selenium can enter the aquatic food chain through periphyton and benthic-dwelling organisms and be bioaccumulated as periphyton are consumed by invertebrates which are subsequently consumed by fish. Fish can transfer a portion of their cumulative selenium body burden to their eggs, and elevated selenium concentrations in fish eggs can cause direct mortality to the eggs as well as malformations in fry which can effectively be a lethal effect.

Skeena noted that the selenium biogeochemical processes involve complex site- and species-specific interactions and a water-only guideline is not appropriate. The risk of increased effects on aquatic organisms will increase as selenium water concentrations increase, and if selenium is changed into more bioavailable forms, but there is no absolute relationship like there is for other metals and ions.

Skeena collected samples of benthic invertebrates and analyzed their tissues for selenium concentrations as part of their baseline studies. Selenium concentrations in benthic invertebrates exceeded the default interim tissue guideline of 4 mg/kg in multiple upstream background locations including Ketchum Creek, Harrymel Creek and the Unuk River. This is evidence that selenium tissue concentrations exceed the interim tissue guideline because of natural background conditions.

Skeena also analyzed selenium fish tissue concentrations from Dolly Varden sampled from a variety of locations throughout the Unuk River watershed as part of their baseline studies. There was no obvious difference in tissue concentrations based on sampling location. Many of the fish captured below the historical mining activity have very low selenium muscle concentrations. Harrymel Creek was not receiving inputs from historical mining activities, but one of the fish captured in this location had the second highest selenium concentration. Only two fish of the 49 sampled had a muscle selenium concentration that exceeded the tissue residue guideline of 4 mg/kg dwt. All concentrations were at least an order of magnitude lower than the species-specific tissue effect benchmark for Dolly Varden.

Skeena used a trophic transfer model, described in Chapter 16 (*Section 16.7.3.3*) of the Revised Application, to estimate the likely future selenium tissue concentrations in fish based on the predicted worst-case water concentrations from *Chapter 15* (Surface Water) of the Revised Application. Skeena noted that the trophic transfer model output should be interpreted as a nominal estimate for qualitative discussion and there is likely a tendency for the model to underpredict tissue concentrations because selenium water concentrations are generally low.

Skeena concluded that there is evidence that selenium would bioaccumulate in portions of the aquatic food chain because of project activities. Water concentrations are expected to exceed the water quality guideline in Tom MacKay Creek and portions of Ketchum Creek. The magnitude and frequency of exceedances decrease with distance (see *Section 16.7.1.11* in the Revised Application). This could result in benthic invertebrate tissue concentrations that exceed the threshold for protecting invertebrate communities. However, there is also evidence that selenium tissue concentrations exceed the literature-based threshold because of natural background conditions.

Skeena also concluded that notwithstanding the potential for increased bioaccumulation of selenium in aquatic invertebrates in Tom MacKay Creek, hazards to fish populations are low. Trophic transfer modelling from the predicted future water concentrations indicates that bioaccumulation of hazardous concentrations of selenium in fish is unlikely but there is uncertainty in that conclusion because the generic assumptions used in the trophic transfer factor model may be underpredicting site-specific bioaccumulation. Skeena's Revised Application noted that there are no fish present in Tom MacKay Creek or in Ketchum Creek where elevated water concentrations, and thus elevated invertebrate tissue concentrations, are likely to occur. The nearest potential fish are in a short 200 m section of Ketchum Creek immediately upstream of its confluence with the Unuk River. There is a possibility that an individual fish might accumulate more selenium if it spent 100% of its time in the lowest portion of Ketchum Creek feeding on invertebrates that drifted down from Tom MacKay Creek, but this is not a likely scenario and would only apply to a very small number of fish.

17.5.4.4 Loss of Aquatic Habitat to Project Footprint

Skeena assessed the impacts of the potential loss of watercourses and waterbodies due to the ECRP mine footprint expansion and its effects on aquatic resources; all the lost streams were confirmed as non-fish-bearing. Table 18 below provides a summary of the maximum extent of aquatic habitat that would be lost or altered by the ECRP footprint expansion throughout the Construction and Operations phases.

Table 18: Predicted Changes to Quantity of Aquatic Habitat in the Assessment Footprint Resulting from Physical Disturbance of Project Footprint

Habitat	Lost to Project Footprint	Total Located within Assessment Footprint	Total Within Ketchum Creek Watershed
Watercourses (km)	40.7 km	86.6 km	240.7 km
Waterbodies (ha)	3.26 ha	33.5 ha	120.5 ha

Headwater areas of streams are important areas of autochthonous nutrient and organic matter collection and processing which provides resources for downstream areas through drift and downstream flow. Skeena predicted that a total of 40.7 km of watercourses and 3.26 ha of waterbodies, representing 16.5 % of watercourses and 2.6 % of waterbodies in the Ketchum Creek watershed, would be expected to be lost to the Project Footprint. The segments expected to be lost were generally considered low order streams in their respective watersheds or are those draining into the Tom Mackay Storage Facility (TMSF) and their loss would not have much of an effect on the water and resources flowing down into fish-bearing water.

17.5.4.5 Changes in Water Quantity Causing Loss and/or Alteration of Aquatic and Fish Habitat

Changes to surface water quantity can lead to effects on fish if the change in flow reduces habitat quality or access to different habitats. Changes in surface water quantity can also affect aquatic resources if there is less physical habitat available or because of changes in oxygenation, nutrient availability, or water temperature from low water flows cause alterations to stream productivity or benthic invertebrate abundance or diversity.

Skeena modelled future flows and identified that project activities were predicted to change flow rates from No Project conditions in Tom MacKay Creek, Ketchum Creek, Eskay Creek, Coulter Creek, and the Unuk River as follows:

- Tom MacKay Creek was assessed to have reductions in flow of up to 54% during winter months compared to the No Project Case and average annual flows predicted to remain within 45 % of the No Project Case, with the reductions primarily due to water management activities in the TMSF.
- Ketchum Creek was assessed to have reductions in flow of up to 1%, occurring in October, during Construction, and up to 8.6% during Operations, compared to the No Project Case. Changes in the average annual flow were negligible
- Eskay and Coulter creeks were assessed to have predicted monthly average flows during all phases that were higher than under No Project Conditions. Increases in streamflow can be a positive effect, but may promote erosion, affect channel stability and increases in total suspended solids and negatively affect aquatic life and reduce habitat especially during high flow months. The increase in flow is up to 44% greater than the No Project Case during the month of April. This was not expected to result in additional erosion to the point that channel stability is compromised.
- The Unuk River was assessed to have monthly average flows throughout the assessment period that would remain within 7.4% of the No Project Case flows during all Project phases, which was below the threshold where there would be measurable changes to fish habitat and productivity.

Skeena evaluated the risk of changes to instream flows from ECRP by comparing the B.C. Instream Flow Guidelines for Fish to the results of the water quantity assessment (*Chapter 15* Surface Water). Skeena concluded that the instream flow thresholds calculated from the modelled hydrological data indicated that the flows would fall marginally below the threshold for non-fish-bearing streams in lower Tom MacKay and Ketchum creeks.

17.5.5 Proposed Mitigation Measures by Skeena

Skeena has committed to a variety of mitigation measures to reduce effects to fish, fish habitat and aquatic resources for ECRP. Below is a selection of the most important mitigation measures in the Revised Application:

- Diversion of non-contact water (including snow management) around the disturbed footprint areas to the maximum practical extent with the aim of avoiding mixing of non-contact and contact water;
- Establish water management structures, including non-contact water diversions, conveyance ditchlines, active diversions and/or crossings to enable flow around active construction and operations areas;
- Managing contact water, including sediment-laden runoff, to reduce potential adverse effects to downstream receiving environments;
- Implementing treatment, as required, to maintain mine effluent water quality below the appropriate water quality guidelines or approved discharge limits prior to discharge of water to the receiving environment;
- Incorporating seepage mitigation measures at the TMSF and the water collection ponds;
- Implementing metal leaching/acid rock drainage (ML/ARD) management practices, including the subaqueous management of PAG materials in the TMSF;
- Implementing progressive reclamation efforts (including covering and/or revegetating disturbed areas, where practical) to reduce contact water and promote positive drainage; and
- Develop a site-specific selenium trophic transfer model and update aquatic effects monitoring program with selenium monitoring requirements.

For a summary of Skeena's proposed management plans and mitigations related to fish and fish habitat see *Appendix A-1* of the Revised Application.

17.5.6 Key Issues Raised

The following key issues were raised by members of the Technical Advisory Committee and Tsetsaut Skii km Lax Ha:

17.5.6.1 Fish Tissue Baseline Data

ECCC commented that the fish tissue baseline data is insufficient, which introduced uncertainty into the effects assessment for fish and fish habitat and would make it difficult in the future to determine if observed effects are due to ECRP or have been pre-existing. ECCC recommended the development of a condition that would require Skeena to update the fish tissue baseline data, including:

- Additional fish tissue baseline data should be collected prior to impacts from ECRP occurring;
- The updated fish tissue baseline should be designed to reduce the uncertainty regarding effects to fish and to allow for meaningful comparison of future fish tissue monitoring results;
- The updated fish tissue baseline data should be incorporated into the site-specific updates to the bioaccumulation modelling; and,
- Should include fish samples from the Unuk River mainstream at far-field locations downstream of Harrymel Creek.

NOAA agreed with these recommendations.

In consideration of the concerns raised by ECCC and NOAA, the EAO has proposed Condition 18: Fish Tissue Baseline Report which would require additional baseline fish tissue data and include fish samples from the Unuk River at far field locations downstream of Harrymel Creek (See *Section 9.0* for full description).

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to fish and fish habitat and federal sustainability requirements related to effects of ECRP on fish and fish habitat (See *Appendix 2* and *Appendix 13*). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of draft potential federal conditions.

17.5.6.2 Sources of Uncertainty of Effects of Water Quality to Fish and Aquatic Resources

ECCC and ENV identified several sources of uncertainty regarding Skeena's analysis effects of changes in water quality on aquatic resources and fish.

ECCC commented that Skeena's conclusion of a medium risk to fish and fish habitat from changes in water quality on periphyton, benthic macroinvertebrates and fish may be an underestimation. ECCC identified two main sources of uncertainty.

One source of uncertainty was the use of a narrative assessment to determine the magnitude of effects for each COPC. Skeena deconstructed the underlying B.C. Water Quality Guideline toxicity data to assign which hazard quotient value represents low, moderate or high magnitude of effect. The methods appear to follow generally accepted ecological risk assessment protocols, but without sufficient time for detailed review, ECCC cannot ascertain if Skeena's effects thresholds are appropriate to assess risk to fish as "Medium". A careful review should be conducted prior to establishing discharge limits or receiving environment water quality thresholds during follow-up or permitting.

The other source of uncertainty was that exposure parameters of the hazard quotient were based on base case water quality model predictions. Base case predictions are considered uncertain because they assume effective contact water capture and treatment in perpetuity and did not consider an upper-case scenario of reduced effectiveness of the mine contact water capture and treatment. ECCC recommended that prior to Construction, Skeena (i) carry forward an upper case water quality predictions into the hazard quotient equation and (ii) identify additional mitigation measures that can

be implemented in a timely manner such that effects to fish remain Medium Risk, even if future water quality monitoring shows a water quality decline worse than predicted under the base case scenario.

ECCC noted that the combined uncertainty in the assessment means that they can not provide quantitative comments on whether ECRP is likely to result in effects to fish. They suggested that the uncertainty could be addressed through conditions that should be met prior to project construction and proposed the following example of condition requirements:

a) Model an upper-case water quality scenario, which considers variability in input parameters such as source terms, climate parameters, 95th percentile baseline data, and reduced effectiveness of the mine contact water management and treatment. Stochastic modelling could be used to develop this upper case scenario;

b) Demonstrate the effectiveness of the proposed water treatment strategy to limit the effect to fish to 'Medium Risk' under base case water quality;

c) Demonstrate what additional mitigation measures could be implemented in an effective and timely manner in case future water quality will be as predicted in the upper-case scenario; and

d) Develop a comprehensive and realistic adaptive management plan, that describes when and how the additional mitigation measures identified in c) will be implemented in response to water quality monitoring results.

ENV also commented that if water treatment can not be continued in perpetuity or alternative mitigation strategies are not implemented, aquatic receptors will be exposed to much higher POC concentrations. If this occurs, risk of impacts will be substantially higher than what is outlined in the Application. Treatment in perpetuity is a substantial risk to overall project viability and environmental protection given the potential need to fund and maintain water treatment for an indefinite amount of time.

ENV identified an additional source of uncertainty, if major ion concentrations relationships change or projected hardness is not achieved, risk to aquatic receptors may be greater. Skeena provided a version Appendix Table X (Summary of the magnitude ratings for each COPC at each node and impacts of the mixture of COPCs to each node and waterbody) with ratings using ambient TMFs. This table indicated a potential increase in nickel risk from moderate to high in Tom Mackay and Ketchum Creeks for invertebrates only (not fish) in the event induced hardness and associated induced hardness assumptions are not achieved. This shift reflects the low threshold between moderate and high invertebrate risk (i.e., HQ 2-3 vs 3) and indicates a need to closely monitor nickel concentrations.

In consideration of the concerns raised by ECCC and ENV, the EAO has proposed the following Certificate Conditions (see *Section 9.0* for full description):

- Condition 16: Water Quality and Quantity Model Validation Report, which requires the development of a report on the result of water quality baseline monitoring and identification of effects not identified during the environmental assessment; and,
- Condition 17 Aquatic Effects Monitoring Plan which includes a requirement to monitor effects to aquatic resources and identify deviations from effects predicted in the Revised Application; the specific requirements of this plan will be finalized through the *Environmental Management Act* permitting process.

Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.5.6.3 Mercury

ENV commented that elevated mercury invertebrate tissue concentrations were documented in the Aquatic Resources Existing Conditions Report, Fall 2023 in Tom Mackay and Ketchum Creeks. In response Skeena provided a memo to address ENV's comments about mercury. ENV commented it is unclear if elevated invertebrate mercury tissue

concentrations are natural and further monitoring through the Aquatic Effects Monitoring Plan is necessary to assess mercury bioaccumulation trends. ENV also required a one-time sediment and methyl mercury (bioavailable form of mercury) study, as part of the Bulk Technical Sample permit, to better understand bioaccumulation risk. Following methylmercury sampling, mercury risk should be re-assessed. ENV is also interested in ongoing mercury monitoring and trend analysis.

In consideration of the ongoing methylmercury study through the Bulk Technical Sample permit and potential monitoring of mercury through an Aquatic Effects Monitoring Program required by permitting the EAO is satisfied that this has been adequately addressed for the purposes of the ECRP assessment.

Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.5.6.4 Sources of Uncertainty of Effects of Water Quantity to Fish

ECCC, TCG and DFO raised concerns regarding uncertainty around the effects of water quantity on the fish bearing portion of Ketchum Creek. ECCC expressed low confidence in the flow change predictions for the fish bearing portion of Ketchum Creek and recommended that monitoring of flows continue to better characterize baseline flows as well as continue during Construction to validate the predictions. If flow predictions change, impacts to fish and fish habitat may be greater than currently predicted. TCG commented that the project proposed significant changes to 7-day low flows and winter flows in operations that could have negative effects on the quality and quantity of salmon habitat. DFO commented that due to the low winter baseflows, Ketchum Creek is highly sensitive to changes in flow during this period. The timing and magnitude of the predicted flow alterations vary through the Project Phases. Given the uncertainty in the models used to predict flow changes, there is the potential for changes in flows that exceed the predicted values.

Skeena clarified that hydrometric monitoring of Ketchum and Tom MacKay Creeks is ongoing and is anticipated to continue. Monitoring requirements for the Project will be established during permitting. Also, that updates to numerical models during the life of mine will be considered based on an adaptive management approach that incorporate monitoring results.

IAAC noted that in June 2025, Skeena submitted a Request for Review to Fisheries and Oceans Canada to determine whether an authorization under the *Fisheries Act* would be required for potential effects to the lowest 200 m of Ketchum Creek. In July 2025, after reviewing the proposal, *Fisheries and Oceans Canada determined* that the project requires a *Fisheries Act* authorization given that the reduction of flow in this section of Ketchum Creek, in late winter and early spring during Operations, is likely to result in the death of fish by means other than fishing and the harmful alteration, disruption, or destruction of fish habitat.

In consideration of the concerns ECCC, TCG and DFO, the EAO has proposed Condition 17: Aquatic Effects Monitoring Plan, which includes a requirement to monitor effects to aquatic resources and identify deviations from effects predicted in the Revised Application. The EAO has recommended Follow-up programs to IAAC for monitoring the surface water flows and levels in Ketchum Creek and implement modified or additional mitigations if an increase in adverse effects to fish and fish habitat are identified. Also, in consideration that DFO is requiring a *Fisheries Act* Authorization of lower Ketchum Creek, the EAO is satisfied that this has been adequately addressed for the purposes of the ECRP assessment.

17.5.6.5 Selenium

ECCC, State of Alaska and Tsetsaut Skii km Lax Ha all requested that Skeena develops the selenium trophic transfer model that they committed to in the Revised Application.

ECCC commented that they agree with Skeena that the non-site-specific selenium bioaccumulation modelling is uncertain and supports Skeena's commitment to conduct site-specific selenium bioaccumulation modelling as part of the Follow-Up Strategy (*Appendix 2*). ECCC recommended that this commitment is formalized as a condition. This condition should include the identification of feasible mitigation measures that can be implemented if site-specific bioaccumulation

modelling identifies a risk to fish and fish habitat or if follow-up monitoring identifies higher than anticipated selenium tissues levels. ECCC noted it is important to consider feasible mitigation strategies prior to construction of ECRP, since many selenium mitigation measures must be incorporated as part of the mine design and plan to be effective (e.g., source control, waste rock management).

State of Alaska commented that while the statistics are limited to the population size, the fact that two fish do have concentrations of selenium that exceed tissue residue guidelines and evidence of bioaccumulation in macroinvertebrates indicates that additional study of background and potential watershed-specific sources is warranted.

Tsetsaut Skii km Lax Ha commented that given bioaccumulation of selenium is considered a moderate risk, it is essential to better define how and where this risk may affect fish habitat and fish stocks that are critical for harvesting. They would like to understand the full extent of the risks to local fish populations and the community members who rely on them. Tsetsaut Skii km Lax Ha identified that the development of a trophic transfer model would significantly improve the understanding of the spatial distribution and intensity of selenium's potential impact on fish, helping to identify areas where harvesting may be most at risk.

In consideration of concerns raised by ECCC, the State of Alaska, and Tsetsaut Skii km Lax Ha, the EAO has proposed Condition 18: Fish Tissue Baseline Report, which includes requirements for collection of baseline concentrations of selenium in fish tissue and ongoing monitoring of fish tissue. Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.5.6.6 Spawning Surveys and Fish Habitat Assessments

ENV requested information is gathered through fish habitat assessments and spawning surveys. ENV commented that they may recommend additional spawning surveys are completed in the Unuk River closer to the mine site. ENV was of the view that it would be beneficial to understand if coho or other species routinely spawn near the mine site and if higher quality spawning habitat was missed during previous assessments. DFO stated that the current information provided on chinook and coho salmon highlights that the high value fish habitat in the watershed including spawning habitat is limited to tributary streams. The main emphasis should be on confirming salmon use within Ketchum Creek. The recommended measures are detailed in the *Fisheries Act authorization required letter*. TCG asked if specific and detailed fish habitat assessments have been completed to determine the habitat values associated with the lower, accessible portions of Ketchum Creek. Skeena acknowledged that conducting additional spawning surveys may become a Certificate condition.

In consideration of concerns raised by ENV, TCG and DFO, the EAO has proposed Condition 18: Fish Tissue Baseline Report, which would require Skeena to report on fish quality. Also, in consideration that DFO is requiring a *Fisheries Act* Authorization, or evidence that harmful alteration, disruption, or destruction of fish habitat are not occurring within lower Ketchum Creek and the possibility that additional spawning surveys in the Unuk River might be addressed in permitting, the EAO is satisfied that this has been adequately addressed for the purposes of the ECRP assessment.

Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.5.6.7 Lentic Sampling

ENV stated that they consider the lack of lentic sampling a source of uncertainty regarding what aquatic receptors are present in the receiving environment and that the effects assessment may understate potential risk in lentic areas as sampling focused on fast flowing lotic environments. ENV noted that they understood that lentic areas are limited (i.e., very minor proportion of receiving environment) and Lake Km 54 is upstream of the water treatment facility. ENV acknowledged sampling is planned in 2025.

Skeena confirmed that there has been no sampling completed on Lake KM 54 but sampling is planned for 2025 to meet permit conditions. Skeena noted there is little to no lentic environments associated with the creeks, but Skeena has previously acknowledged that further efforts to target "lentic-like" environments along the Unuk River will be considered as part of the development of a site-specific selenium trophic transfer model.

ENV responded that lentic areas, such as Lake KM 54 on Tom Mackay Creek, have the potential conditions to facilitate enhanced selenium bioaccumulation thereby increasing overall risk. Selenium speciation analysis, invertebrate tissue collection, and a robust wetland assessment required in EMA permitting could refine this risk.

In consideration of the possibility that this issue could be addressed through *EMA* permitting the EAO is satisfied that this has been adequately addressed for the purposes of the ECRP assessment.

Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.5.6.8 Nutrient Enrichment

ECCC, ENV and TCG commented on phosphorus being screened out of from further residual effects assessments in the Application despite identifying that residual effects of increasing productivity are likely to occur in Tom MacKay Creek, and lower Ketchum Creek and requested additional information on what effects are likely to occur.

Skeena responded that they recognize that eutrophication can lead to undesirable effects as noted by the reviewer. The structure and composition of the algal and benthic communities in Tom MacKay and Ketchum Creek will be part of the Aquatic Effects Management Plan submitted with Skeena's MA/EMA permit Application.

ENV commented that enrichment effects begin with increased algal growth and escalate to changes in dominant taxa, decreased biodiversity, and reduced fish survival (CCME 2004[17]). Nutrient enrichment benchmark exceedance indicates risk, and not necessarily that an effect will occur (CCME 2004). The effects assessment followed the CCME phosphorus guidance framework (CCME 2004) and concluded that residual effects of increasing productivity are likely to occur in Tom Mackay and lower Ketchum Creeks. EMA permitting will need to ensure nutrient eutrophication is adequately monitored.

In consideration of the possibility that this issue could be addressed through EMA permitting the EAO is satisfied that this has been adequately addressed for the purposes of the ECRP assessment. Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.5.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, concerns raised by reviewers and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on fish and fish habitat:

- Effects of changes in water quality on aquatic resources and fish;
- Effects on sediment quality from changes in water quality;
- Bioaccumulation of metals in aquatic resources and fish; and
- Loss and/or alteration of aquatic and fish habitat.

[17] Available online at *Canadian Water Quality Guidelines for the Protection of Aquatic Life - Phosphorus: Canadian Guidance Framework for the Management of Freshwater Systems*.

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

Table 19: Summary of Residual Effects for Fish and Fish Habitat

Residual Effect	Assessment Rating*	Significance and Rationale
Effects of changes in water quality on aquatic resources and fish. Changes in water concentrations of copper, nickel, phosphorus, zinc, sulphate and hardness would be expected to have effects on periphyton and BMI.	Context (resilience): Moderate Magnitude: Low to moderate Extent: Local Duration: Permanent Frequency: Regular Reversibility: Irreversible Affected Populations: Disproportionate Risk (likelihood and consequences): Medium Uncertainty: High Importance: High	Not significant The magnitude of effects on periphyton and benthic macroinvertebrates would be moderate in Tom Mackay Creek and low in other waterbodies. The magnitude of effects would be low for fish in the Unuk River and the fish accessible portions of its tributaries. The geographic extent would be local as residual effects are not expected outside the local assessment area and moderate effects are only expected in Tom Mackay Creek. The duration of effects would be permanent and irreversible as moderate magnitude ratings for hazard quotients of at least one COPC is expected to continue in-perpetuity. Frequency is regular because moderately rated exceedances of hazard quotients would occur seasonally in the winter months throughout all phases. Resilience is moderate as periphyton and benthic macroinvertebrates might be able to acclimate and adapt to the expected range of future metal concentrations. The risk is categorized as medium since the magnitude of effects is low to moderate, local in extent, and has a high probability of occurring. The uncertainty is characterized as high. The toxicological assessment included a detailed examination of the available literature with respect to effects on resident species as well as commonly tested species that are used as surrogates. The toxicological analysis is still conservative because those data do not account for the ability of organisms to adapt and acclimate to naturally elevated concentrations of metals. There is still uncertainty related to the effects of mixtures of COPCs which includes an appreciation that mixtures of major ions can cause osmotic stress even if the individual ions are not regulated. Importance is high as any potential adverse effects to fish has been identified as a top interest by Indigenous Nations, community members, the public, and government agencies. Also impacts to periphyton and benthic macroinvertebrates has also been identified as an interest by Indigenous Nations, community members, the public, and government agencies.
Effects on sediment quality from changes in water quality Changes in water quality would cause accumulation of metals in sediment.	Context (resilience): High Magnitude: Low Extent: Regional Duration: Permanent Frequency: Regular Reversibility: Irreversible Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: Moderate Importance: Low	Not significant The magnitude of effect would be low because sediment formed from changes to water quality would be fine-gained sediment, which would not be expected to accumulate due to high water flows and scouring during annual freshet. The geographic extent is regional because transport of accumulated metals in sediment would encompass both Tom Mackay and Ketchum creeks and would extend into the Unuk River. The duration of the effect would be permanent and the reversibility irreversible because the changes in water quality that will contribute to sediment loading are expected to be permanent. The frequency would be regular because the water quality variables likely to influence sediment quality are expected to have elevated water concentrations during the winter months throughout operations, closure and post-closure phases. Resiliency is high because the affected streams regularly experience scour at high flow periods which would remove the accumulating sediments. Importance is low, as adverse effects to sediment had been identified by some individuals but not stated as an interest by Indigenous Nations, community members, the public and government agencies. The risk is low for changes in sediment quality from accumulation of COPCs in Tom Mackay and Ketchum creeks and the Unuk River. This is based on the low magnitude of potential impacts and the low likelihood of occurrence of a measurable change in

Residual Effect	Assessment Rating*	Significance and Rationale
		sediment concentrations given that the waterbodies are routinely scoured during freshet. There is moderate uncertainty in the characterization of effects to sediment quality. A detailed geochemical analysis had not been completed to determine deposition rates, but there is confidence that sediment in the potentially impacted watercourses would be subject to natural geomorphological processes that resuspend and transport on an ongoing basis.
Bioaccumulation of metals in aquatic resources and fish Bioaccumulation of selenium and mercury in periphyton, benthic macroinvertebrates and fish from changes in water quality.	Context (resilience): Low Magnitude: Low to moderate Extent: Local Duration: Medium term Frequency: Regular Reversibility: Reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: High Importance: High	Not significant The magnitude of effect from Mercury would be low as there was no evidence that mercury would bioaccumulate to hazardous levels in aquatic food chains due to project activities. The magnitude of effect from Selenium would be Moderate because one or more fish tissue concentrations exceeded the guideline of 4 mg/kg dw but selenium concentrations will remain below species-specific tissue thresholds for Dolly Varden. The extent of the effect is local, as the model suggested that the increased selenium bioaccumulation in aquatic invertebrates would occur in Tom Mackay Creek and may extend into the upper reaches Ketchum Creek and it would be unlikely that these invertebrates would affect fish in the 200 m of fish habitat available in Ketchum Creek. The duration of effects is medium term and the effect reversible as selenium concentrations are expected to be elevated throughout the operations phase (13 years) and then decrease at the end of operations which is expected to reduce the bioaccumulation in benthic invertebrates and periphyton back to a level consistent with baseline concentrations. The frequency of effect is expected to be regular because selenium water loading will occur seasonally during winter months through the operations phase. Resiliency is low because periphyton, benthic macroinvertebrates, and fish are not able to compensate for food chain bioaccumulation. The risk for changes in water quality impacting the bioaccumulation of metals is moderate for aquatic resources and low for fish. There appears to be a high likelihood of bioaccumulation aquatic invertebrates within the local area of Tom Mackay Creek and upper reaches of Ketchum Creek and predicted be at a level where direct effects could occur. The risk to fish is low as the likelihood of bioaccumulation occurring in fish from feeding on invertebrates drifting down from Tom Mackay and the upper reaches of Ketchum Creek is low. Uncertainty with the conclusions is high as the trophic transfer model used in the analysis has a lot of uncertainty including the potential for underpredicting the site-specific bioaccumulation. Also, while there is lots of evidence that Dolly Varden is more tolerant to selenium, there is uncertainty with respect to other fish species that might use the 200 m of fish habitat in Ketchum Creek. Importance is high as any potential adverse effects to fish has been identified as a top interest by Indigenous Nations, community members, the public, and government agencies. Also impacts to periphyton and benthic macroinvertebrates has also been identified as an interest by Indigenous Nations, community members, the public, and government agencies.
Loss and/or alteration of aquatic and fish habitat Loss of aquatic habitat from mine footprint Construction and	Context (resilience): Low Magnitude: Low to moderate Extent: Local Duration: Permanent Frequency: Regular Reversibility: Irreversible	Not significant The magnitude of effect to aquatic resources is moderate due to the length and area of habitat that would be lost or altered by the Project Footprint and water management activities. The magnitude of effect to fish habitat is low due the limited extent of habitat impacted and the small decrease in flows compared to current conditions. The geographic extent of the impact is local as residual effects are limited to the ECRP mine footprint as well as throughout Tom Mackay and Ketchum Creeks. The residual effects are expected to be permanent and irreversible, as no remediation or offsetting of lost

Residual Effect	Assessment Rating*	Significance and Rationale
loss and/or alteration of aquatic and fish habitat from changes to water quantity and flow	Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: High and Low Importance: Moderate	aquatic habitat is planned and changes to water flow are predicted to occur in perpetuity. The frequency of effects is expected to be regular, as the loss of aquatic habitat would occur throughout Construction and Operations as infrastructure gets built, and the changes in water flow are predicted to occur seasonally throughout all phases of ECRP. The resilience is considered low because the landscape is not able to compensate for lost fishless aquatic habitat or changes in water flow. Importance is moderate because adverse effects to non-fish bearing aquatic habitat and water flows have been identified as an interest by Indigenous Nations, community members, the public, and government agencies, but not stated as a top interest. The risk to aquatic resources is characterized as moderate because the predicted magnitude of effects is moderate, the geographic extent of the effects is local and the probability is high that the effects would occur. The risk to fish habitat is low due to the limited geographic extent of the effect and the low magnitude of the effect. The uncertainty is low for the loss of habitat, which is well understood, while the uncertainty is high for the water flow analyses and the impacts to fish in Ketchum Creek as the importance of that fish habitat is not understood. While the flow thresholds were conservative, the water flow analysis used a synthetic dataset built using an extrapolation of data collected over a relatively short period of time.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.5.8 Cumulative Effects Assessment

There are six existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP: the historical Eskay Creek Mine, the Eskay Creek Technical Sample Project, KSM Mine, Brucejack Mine, Volcano Creek Hydroelectric Project, and Forest Kerr Hydroelectric Power Project.

Skeena evaluated the potential residual cumulative effects associated with total selenium in water which forms the basis for the residual cumulative effects with respect to selenium bioaccumulation in the aquatic food chain and its possible effects on fish. Skeena combined the available water quality modelling data from the KSM and Brucejack mines with the inferred future load of total selenium that would enter the Unuk River from Sulphurets Creek. The cumulative concentrations of the projects will likely lead to sustained exceedances of the ambient water quality of 2 µg/L immediately downstream of Sulphurets Creek. Skeena concluded that in the absence of a site-specific trophic transfer factor model that accounts for the cumulative loading from different projects as well as the differences in selenium biogeochemistry that likely occurs between different habitats, the magnitude of the residual cumulative effect conservatively assumed to be moderate. A key point of context is that the contribution of ECRP to that cumulative effect is expected to be minimal, based on the observation that water concentrations upstream of Sulphurets Creek are expected to remain below the water quality guideline that is intended to be protective of selenium bioaccumulation in fish. In addition, the selenium concentration difference between the No Project and Project Case scenarios (Table 16.8-2; worst case years) is minimal.

The EAO considered the existing conditions at the mine site, the predicted residual effects from ECRP, the mitigation measures proposed by Skeena, the EAO's proposed Condition 17: Aquatic Effects Monitoring Plan and Condition 18: Fish Tissue Baseline Report, and the EAO's assessed residual effect to bioaccumulation. Given these considerations, the EAO concludes that the cumulative effects to bioaccumulation from ECRP would be moderate but selenium loading from ECRP is expected to decrease at the conclusion of the Operations phase, which is expected to reduce the bioaccumulation in benthic invertebrates and periphyton back to a level consistent with baseline concentrations.

Skeena evaluated the cumulative effects for fish and aquatic habitat loss and/or alteration with the Regional AA and determined that ECRP would result in the direct and indirect loss or alteration of up to 40.7 of 3600 km of watercourses

and 3.26 of 920 ha of waterbodies of non-fish-bearing aquatic habitat in the, which is 1.1% and 0.4% reduction from existing conditions, respectively. The cumulative loss or impairment of watercourses and waterbodies in the Cumulative Effects AA (CEAA) from other projects is predicted to result in a cumulative loss or impairment of 5.5% of watercourse (km) and 8.8% of waterbody area in the CEAA.

The EAO considered the existing conditions at the mine site, the predicted residual effects from ERCP, the mitigation measures proposed by Skeena and the regulatory tools to implement those mitigation measures, and the EAO's assessed residual effect to loss and/or alteration of aquatic and fish habitat. Given these considerations, the EAO concludes that the impacts to fish and aquatic habitat loss and/or alteration is low magnitude because of the length and area of habitat that will be lost relative to the total length and area in the Regional AA and determined that no significant cumulative effects to fish and fish habitat are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.5.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the fish and fish habitat valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions including, Condition 16 (Water Quality and Quantity Model Validation Report), Condition 17 (Aquatic Effects Monitoring Plan) and Condition 18 (Fish Tissue Baseline Report); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA for fish and fish habitat (*Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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17.6 Terrain and Soils

17.6.1 Summary

Terrain and soils were selected as a valued component for the ECRP environmental assessment due to its importance in ecosystem health, including vegetation and wildlife habitat. Changes to terrain and soil can lead to effects on human health through direct ingestion and plant metal uptake. Skeena assessed the potential effects to terrain and soils based on baseline field studies, additional field surveys and Indigenous knowledge.

Skeena identified the potential effects of ECRP to be changes in soil quality, soil quantity, and terrain stability. Skeena also described mitigation measures that would reduce these potential effects to terrain and soils and determined that there would be no residual effects to terrain and soils as a result of ECRP.

Reviewers raised concerns about Skeena's assessment of potential terrain hazards, reclamation efforts and Skeena's residual effects characterization.

The EAO considered Skeena's assessment and proposed mitigation measures, the key issues raised by reviewers, the proposed Certificate condition requiring the development of an End Land Use Plan and concluded that there would not be any residual or cumulative effects to terrain and soils. The EAO concludes that ECRP would not have significant adverse or significant cumulative effects on the terrain and soils valued component. The EAO had no recommendations for federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects of ECRP on terrain and soils.

17.6.2 Assessment Boundaries

17.6.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to terrain and soils (see *Figure 17.3-1* in Chapter 17 of the Revised Application):

- Local Assessment Area: This area included the ECRP mine site, and the Eskay Creek Mine Access Road along Volcano Creek.
- Regional Assessment Area: This area included the land anticipated to provide habitat for wildlife species that may encounter project infrastructure during a season or lifetime.

17.6.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of effects to terrain and soils:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.6.3 Existing Conditions by Skeena

Existing conditions related to terrain and soils were assessed by Skeena in Chapter 17 (*Section 17.4*) of the Revised Application and are summarized here.

Skeena conducted soil mapping within the Local AA and rated the suitability of the soils for use in reclamation as well as terrain stability.

Soil and plant tissue samples were collected and analyzed for 35 metals. At the time of sampling, 11 metals (antimony, arsenic, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, and zinc) were found to exceed soil

quality guidelines for the protection of environmental and human health. Acid generating materials are present that produce metal leaching and acid rock drainage.

Much of the Local AA and the Assessment Footprint consists of bedrock and geomorphically active, moderately steep, and steep terrain. In the Assessment Footprint, rockfall (17%) is the most common geohazard followed by debris flows (4%) and debris slides (3%).

17.6.4 Potential Project Effects by Skeena

Skeena identified the following potential effects to terrain and soils due to ECRP in Chapter 17 (*Section 17.5*) of the Revised Application, which are summarized here.

Within the area where mine construction and production would occur, terrain would be permanently converted from a natural state to one that is comprised of anthropogenic landforms and facilities, which includes excavations, tailings storage, and waste rock dumps. There are no unique geological, terrain, soil related features within the Assessment Footprint.

17.6.4.1 Change in terrain stability and morphology

Terrain stability refers to the risk of mass movements such as slides, slumps, debris flows, and earthflows, which may occur due to natural factors (e.g., precipitation, snowmelt, loss of vegetation) or project activities (e.g., excavation, blasting, road construction). Movement of soil cover, soil, and sediment from the Assessment Footprint has the potential, particularly in areas with slopes, to result in terrain instability. These movements can affect water quality, hydrology, and habitats.

Key project components—such as the North Pit, South Pit, MRSA, TMSF, and its dams—will undergo significant changes to surficial materials, especially during Construction and Operations. These changes may temporarily or permanently alter local topography.

Skeena assessed that the proposed mitigation measures would reduce terrain stability risks to negligible levels.

17.6.4.2 Change in soil quantity (i.e., soil volume)

ECRP may cause soil disturbance and removal, particularly during the Constructions and Operations phase, through activities such as topsoil stripping, infrastructure development, and road building. Skeena predicted that while some soil loss may be permanent (e.g., due to continued road use or landslides), most soil will be salvaged and stockpiled for use during Reclamation and Closure.

Skeena determined, through a Pre-disturbance Soil Assessment, that sufficient volumes of topsoil and subsoil are available for use in Reclamation, with no expected soil deficit, and considered the potential effect on soil quantity as negligible.

17.6.4.3 Change in soil quality through physical and chemical properties of soil

Soil quality and landscape capability can be impacted through processes such as soil salvage, grading and stockpiling. Potential effects can include acidification, eutrophication, contamination, dust accumulation, erosion, compaction, and admixing of soil layers.

Airborne emissions (NO2 and SO2) can cause soil acidification and eutrophication. Skeena predicted increases in NO2 and SO2 concentrations to decline substantially during Reclamation and Closure and continue to decline further during Post-closure. Skeena anticipated no effects from air emissions to terrain and soils. Skeena predicted that soil contamination risks stemming from spills and/or chemical releases would be considered localized and mitigatable.

Dust accumulation on native soil surfaces can adversely affect soil quality. Dust particles settling on the surface of vegetation also poses a risk, that Skeena recognized as a concern expressed by Tahltan land users. Skeena predicted the effects of dust fall on soils to be negligible. Soil salvage and stockpiling during the Construction phase and soil

replacement during the Reclamation and Closure phase have the potential to alter soil quality due to admixing. Additionally, Skeena predicted no negative effects to terrain and soils from soil compaction, soil erosion or ML/ARD.

17.6.5 Proposed Mitigation Measures Skeena

Skeena has committed to implementing the following key mitigation measures to prevent or minimize the potential effects of ECRP on terrain and soils in its Revised Application:

- Metal Leaching/Acid Rock Drainage Management*:* Excavated materials would be monitored, and potentially acid generating materials would be segregated from non-potentially acid generating materials for active management. The initial key component of the plan is identification of metal leaching, potentially acid generating, and non-potentially acid generating materials such that identification and appropriate segregation of these materials is completed. Monitoring is another key component of the plan.
- Mine Reclamation: B.C.'s reclamation laws ensure that land, watercourses and cultural heritage resources are returned to a safe and environmentally sound state, and do not leave an ongoing legacy or require public funds for clean-up activities. To safeguard the environment, public safety, and taxpayer dollars, mines are required to post reclamation security with the province. Reclamation security bonds cover the cost of reclaiming a site if a mining company defaults on their obligation to do so or becomes unable to pay their debts. This security is only returned once the mine site has been reclaimed to a satisfactory level and there are no ongoing monitoring or maintenance requirements. Reclamation objectives (i.e., what this is able to achieve) for ECRP will be determined post-environmental assessment during the *Mines Act* permit process. Not all ECRP activities would cease when mine production ends, not all facilities would be decommissioned, and not all sites would be reclaimed. Post-mine production, operations associated with active water treatment and management would continue, followed by an indeterminate period where both active and passive water treatment operations would be required. The TMSF is a permanent structure that must remain stable and function effectively in perpetuity, which will require some degree on ongoing monitoring and maintenance.
- Best Management Practices: Mitigation measures other than those discussed above are primarily best management type practices, many of which are already in place for the existing mine, to prevent or minimize avoidable negative effects to the extent that is achievable, which would be applied through various management plans. This includes measures such as:
    - Managing landslide and debris slide risk, and soil erosion;
    - Salvage of topsoil where safe to do so, and storage of it for use in reclamation; actions to prevent the spread of invasive plant species; and
    - Dust suppression measures, and avoidance measures.

For a summary of Skeena's proposed management plans and mitigations related to terrain and soils, see *Appendix A-1* of the Revised Application.

17.6.6 Key Issues Raised

The following key issues were raised by the Technical Advisory Committee, TCG and Tsetsaut Skii km Lax Ha.

17.6.6.1 Terrain Hazards

Tsetsaut Skii km Lax Ha and NRCan raised concerns regarding Skeena's assessment of terrain hazards within the footprint of ECRP infrastructure. Skeena's terrain hazard assessment identified a potential debris slide and rock slump located along the eastern slope of the TMSF. NRCan expressed concern that these features could fail during pond filing, potentially generating a displacement wave within the TMSF. NRCan requested additional information regarding the stability of the rock slump and debris slide.

Tsetsaut Skii km Lax Ha also raised concerns that Skeena's assessment did not address the possible damage or impacts that could result from a deep-seated rockslide or displacement wave.

In response, Skeena provided the EAO with *Technical Memo 33*, which included an analysis for estimating the volume of a potential landslide along the eastern side of the TMSF. Skeena concluded that the gully side of the Tom MacKay Creek provides sufficient protection from landslides given its analysis. Furthermore, Skeena committed to providing NRCan report(s) related to field mapping and any subsequent investigations and analysis, such as site investigations and slope stability analyses, as part of the permitting authorization process.

Both NRCan and Tsetsaut Skii km Lax Ha were satisfied with Skeena's response to their concerns.

The EAO is satisfied that this concern can be sufficiently resolved for the purposes of the environmental assessment, based on Skeena's commitment to providing NRCan with all relevant reports and analyses during the permitting process, ensuring that terrain stability can be appropriately addressed through further technical review and regulatory oversight.

The EAO does not have any recommendations for federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects of ECRP on terrain and soils.

17.6.6.2 Reclamation

TCG raised concerns regarding the uncertainties associated with reclamation/restoration and the low confidence of their success adds to considerations regarding cumulative effects to terrain and soils. TCG also raised concerns that the shared values and the objectives developed between Skeena and TCG had for closure had inconsistencies. In terms of terrain and soils, they stated concerns with the estimate that there is adequate soil available for effective closure. Terrain features such as the MRSA are unlikely to retain adequate moisture and any coarse material without topsoil addition is unlikely to be successfully revegetated. TCG also noted that currently, the PAG pit walls will not be revegetated, and will remain a ML/ARD source and anthropogenic feature in contrast to the natural landscape. Additionally, the MRSA, TMSF and pit will also remain anthropogenic features in a natural environment.

In response, Skeena acknowledged the comment and welcomed further discussion with TCG on the effects assessment and proposed Reclamation and Closure Plan that will be developed during the *Mines Act* permitting process.

In consideration of the concern raised by TCG, the EAO has recommended Condition 26: End Land Use Plan, that will require Skeena to use modelling, or other planning exercises, to reconcile or minimize negative differences in terrain profiling and contouring and optimization of soil conditions.

The EAO does not have any recommendations for federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects of ECRP on terrain and soils.

17.6.6.3 Residual Effects

TCG raised concerns about how Skeena identified no residual effects when the applied mitigation measures were classified as moderate, noting that *Section 17.5.3* of the Revised Application states "predicted effectiveness of these mitigation measures is also considered to determine if the Project will have any residual effects. If implementation of mitigation measures is expected to eliminate a potential effect (i.e., the measures are classified as highly effective), then no residual effect is identified for that VC". In response, Skeena stated the evaluation of the potential for a residual effect was accomplished by applying methodologies described in *Section 10.5* of the Revised Application, and using professional judgement, it had been determined that there were no residual effects to terrain and soils as a result of ECRP.

The EAO acknowledges the concern of TCG, however is of the view that Skeena has provided sufficient rationale to support their determination of no adverse residual effects to terrain and soils.

17.6.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, the concerns raised by the TAC, TCG and Tsetsaut Skii km Lax Ha and Skeena's responses to these comments are set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would not result in residual adverse effects on the terrain and soils valued component.

17.6.8 Cumulative Effects Assessment

The potential for cumulative effects arises when the residual effects of a project overlap and interact with the residual effects of other projects or activities. Because no residual effects are predicted for the terrain and soils valued component; no cumulative effects have been assessed.

17.6.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the terrain and soils valued component. This conclusion considers the information and analysis presented in this chapter; the views of reviewers of the Revised Application and Skeena; and the proposed mitigation measures identified in the provincial table of conditions including Condition 26 (End Land Use Plan).

DRAFT

17.7 Vegetation and Ecosystems, Wildlife and Wildlife Habitat

17.7.1 Summary

Vegetation and ecosystems and wildlife and wildlife habitat were selected as valued components for the ECRP environmental assessment due to their identified importance by First Nations, provincial and federal government agencies and the public, and the potential for these values to be affected by activities associated with mining, such as land clearing, mine construction, road use and ongoing operations. Skeena identified the potential effects of ECRP as changes to ecosystem extent or function, plant species of interest, vegetation quality, wildlife habitat, wildlife movement, wildlife mortality risk, and wildlife health.

Much of the Assessment Footprint is comprised of alpine and forest parkland ecosystems and is subject to existing and ongoing physical and sensory disturbances. Wildlife habitat that is or may be utilized by many different wildlife species including species of conservation concern would be lost, including wetlands and moderate to high suitability habitat for moose, mountain goat, grizzly bear, wolverine, marten, fisher, and hoary marmot. However, the proportional loss of those habitats relative to their availability within the Local AA would typically be low in magnitude (i.e., up to 5% loss for species of conservation concern or up to 10% loss for other species). Wildlife would also experience low magnitude sensory disturbance and mortality, or increased risk of mortality, with amphibians being more affected (i.e., moderate magnitude) due to their less mobile nature. Sensory disturbance and mortality risk would diminish after mine production ends. Exposure to potential contaminants of concern was predicted to have a negligible affect on species considering standard mitigation measures.

Reviewers raised concerns about the sufficiency and effectiveness of proposed mitigation measures, including for species of conservation concern (e.g., bats, barn swallows), lack of evidence supporting the success of proposed reclamation strategies in sensitive mountain pass ecosystems, uncertainty associated with management and monitoring plans and the effects to changes in wildlife movement, and that habitat offsets or financial compensation for the predicted losses of ecosystems and culturally valued plant species were not proposed.

The EAO considered Skeena's assessment and proposed mitigation measures and management plans, the key issues raised by reviewers, proposed Certificate conditions requiring development of a Construction Environmental Management Plan, Wildlife Effects Monitoring Plan, and End Land Use Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA, and concluded that there would be residual effects to vegetation and ecosystems and wildlife habitat from ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse residual or significant cumulative effects on the vegetation and ecosystems and wildlife and wildlife habitat valued components.

17.7.2 Assessment Boundaries

ECRP is within Tahltan Territory, Tahltan Consent Area, and Tahltan landscape, cumulative effects, and regional Areas of Interest.

17.7.2.1 Spatial Boundaries

The following same spatial boundaries were used in the assessment of effects to vegetation and ecosystems and wildlife and wildlife habitat (see *Figure 18.3-1* or *Figure 19.3-1* in Chapter 18 and Chapter 19, respectively, of the Revised Application):

- Project Footprint: The approximately 731 hectares (ha) area, of which approximately 521 ha will be new disturbance, where physical works and activities will occur during mine construction and production, including those associated with mining, ore processing, waste rock disposal, and tailings storage.

- Assessment Footprint: The approximately 2,276 ha area around the Project Footprint, that is delineated in the proposed Certificate (i.e., Skeena's "Requested Project for Certification"), which is to allow for minor adjustments to the Project Footprint when physical activities are being conducted. This is the area that Skeena assumes will be lost or altered, and which is delineated in the *Mines Act* permit for the existing Eskay Creek Mine.
- Local Assessment Area: The area within which most direct and immediate, and indirect project effects are expected to occur. The Local AA includes a buffer extending to the height of land or 1.0 to 1.5 km around the outer limits of the proposed infrastructure and linear developments (the exploration access road and the proposed mine site), whichever comes first.
- Regional Assessment Area: The maximum spatial extent over which project effects are expected to occur, totaling approximately 184,366 ha, which is inclusive of the other assessment areas. The Regional AA was based on watershed boundaries, heights of land, and information relevant to wildlife species (e.g., home range sizes, habitat use, seasonal movement patterns).
- Cumulative Effects Assessment Area: The area within which the residual effects of ECRP are likely to interact cumulatively with the effects of other past, present, and reasonably foreseeable future projects and activities, which is the same boundary as the Regional AA.
- Transportation Corridor Assessment Area: The route outside of the Assessment Footprint that is used for the transportation of project-related concentrate, supplies, and personnel.

17.7.2.2 Temporal Boundaries

The following same temporal boundaries were used in the assessment of effects to vegetation and ecosystems and wildlife and wildlife habitat:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.7.3 Existing Conditions by Skeena

Existing conditions related to vegetation and ecosystems and wildlife and wildlife habitat were assessed by Skeena in Chapter 18 (*Section 18.4*) and Chapter 19 (*Section 19.4*) of the Revised Application, respectively, and are summarized here.

17.7.3.1 Vegetation and Ecosystems

The existing Eskay Creek Mine operated from 1994 to 2008. Acid generating materials are present that produce metal leaching and acid rock drainage. The mine has been in care and maintenance since 2008, and site reclamation and water treatment activities have been occurring. Paired soil and plant tissue samples were collected and analyzed for 35 metals in 2020, 2021 and 2023. In 2020, 11 metals (antimony, arsenic, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, and zinc) were found to exceeded soil quality guidelines for the protection of environmental and human health. By 2023, only arsenic, chromium, nickel and selenium consistently exceeded guidelines. There are currently no guidelines for plant tissues.

The Assessment Footprint is 87% (1,993.7 ha) alpine and parkland ecosystems, including alpine heath (24%; 552.5 ha), alpine meadow (6%; 129.5 ha), anthropogenic (6%; 142.4 ha), avalanche (2%; 43.9 ha), disclimax shrub (<1%; 5.47 ha), forested parkland (13%; 288.5 ha), krummholz (18%; 410.0 ha), sparsely vegetated (13%; 290.3 ha), and water (6%; 131.4 ha). Riparian ecosystems and old-growth forest make up <1% (7.1 ha) and 5% (107.7 ha) of the Assessment Footprint,

respectively. Wetland ecosystems make up 1% (20.1 ha) of the Assessment Footprint, including fens (9.3 ha), and shallow water wetlands (10.8 ha). Wetlands are not extensive (2%) in the local and regional assessment areas.

There are no listed plant communities of interest or rare plant species in the Assessment Footprint, but approximately 29% (660.3 ha) of the area may be comprised of culturally valued plant site groups containing plants harvested for country foods. Invasive and exotic plant species are present within the local and regional assessment areas.

17.7.3.2 Wildlife and Wildlife Habitat

Wildlife surveys in the Regional AA identified the presence of six mammal species (excluding bats), eight bat species (two with high confidence, four with medium confidence and two with low confidence), six raptor species, 60 species of upland breeding birds (migratory songbirds), 36 species of waterbirds, and three amphibian species. Other species are known to be or may be present. Fish and fish habitat are discussed in *Section 17.5* of this Report.

There is the potential for 44 wildlife species of provincial and or federal conservation concern to occur within the Regional AA, of which the following 18 species have been confirmed present.

- Seven mammals: grizzly bear, hoary bat, little brown myotis, mountain goat, northern myotis, silver-haired bat, and wolverine.
- Ten birds: barn swallow, common nighthawk, harlequin duck, killdeer, long-tailed duck, olive-sided flycatcher, red-necked phalarope, rough-legged hawk, surf scoter, and Swainson's hawk.
- One amphibian: western toad.

Of the above, the following six species are listed as endangered, imperiled, or threatened: barn swallow, long-tailed duck, Swainson's hawk, little brown myotis, northern myotis, and silver-haired bat. No *Species at Risk Act*-defined critical habitat has been identified within the local or regional assessment areas.

The following were observed/recorded within or near to the Assessment Footprint: mountain goat, hoary marmot, little brown myotis, long-eared myotis, red-tailed hawk, Swainson's hawk, northern harrier, harlequin duck, long-tailed duck, red-necked phalarope, upland birds, common nighthawk, and western toad.

Wildlife species of cultural importance (e.g., with respect to country foods) that occur, or which may occur in the Regional AA include moose, mountain goat, grizzly bear, black bear, wolf, wolverine, marten, fisher, beaver, hoary marmot, upland breeding birds (e.g., grouse and ptarmigan), and waterbirds (e.g., geese and ducks).

Effective habitat (moderate to high suitability habitat identified by habitat suitability modelling) is present within the local and Regional AAs for moose, mountain goat, and furbearers (grizzly bear, wolverine, marten, fisher, hoary marmot). Habitat suitability modelling was not completed for black bears, bats, raptors, waterbirds, upland breeding birds, and amphibians.

Habitats used by bats for foraging and roosting are found throughout the Local AA but are limited near the Assessment Footprint. Conditions that would support hibernation of bats are unlikely in the Local AA. There are no known raptor nests within the Local AA with potential to interact with ECRP and the area lacks habitat elements that support nesting/breeding (e.g., large diameter trees for northern goshawk). Breeding waterbirds are relatively common in the small waterbodies within the Local AA but are not observed in great concentrations. There is little seasonal staging habitat to accommodate large flocks of waterbirds. Most upland birds that breed in the Local AA are relatively common. Breeding habitat suitability for amphibians is generally low within the Local AA.

17.7.4 Potential Project Effects by Skeena

Skeena identified the following potential effects on vegetation and ecosystems and wildlife and wildlife habitat due to ECRP in Chapter 18 (*Section 18.5*) and Chapter 19 (*Section 19.5*) of the Revised Application, respectively, which are summarized below.

17.7.4.1 Vegetation and Ecosystems and Wildlife Habitat

Post-mine production, vegetation and ecosystems and wildlife habitat within the mine site would continue to be influenced by anthropogenic landforms and facilities, and the quality and extent to which these values are present would be altered and reduced. The time it would take to re-establish vegetation, where that is possible, and the utilization of the mine site by wildlife would be affected by the characteristics of the majority high elevation alpine and parklands ecosystems (i.e., slowing-growing, shallow soils, extended winter with short growing season), and depending upon the species, sensory disturbance from on-going activities and the duration of those activities.

Surface water (hydrology) and groundwater (hydrogeology) conditions will change due to the development and operation of open pits, MRSA and expanded TMSF. As a result, the composition and function of vegetation and ecosystems and wildlife habitat would be altered over time in areas extending from the Project Footprint into the Local AA.

Air quality modelling conducted at discrete sensitive receptor locations in the Assessment Footprint predicted that dust deposition would contain increased concentrations of the following metals which are potential contaminants of concern: arsenic, chromium, nickel, antimony, copper, molybdenum, zinc, and selenium. Beyond the Assessment Footprint (i.e., into the Local AA), dust deposition would be highest directly outside the boundary and would decrease with increasing distance from the footprint.

Loss, prior to reclamation, would include alpine and parkland ecosystems (1,719.9 ha), forested and non-forested ecosystems (222.1 ha), riparian ecosystems (7.1 ha), old-growth forests (107.7 ha), and wetland ecosystems (20.1 ha), as well as loss of moderate to high wetland functions (19.1 ha), moderate to high wetland biochemical functions (27.7 ha), and moderate to high wetland habitat functions (47.4 ha). Overall, the loss or alteration of ecosystem extent or function is predicted to be moderate in magnitude.

Wildlife habitat that is or may be utilized by many different wildlife species, including 18 wildlife species of conservation concern, would be permanently lost and altered. This includes effective habitat for moose (2,353.5 ha), mountain goat (1,328.3 ha), grizzly bear (1,635.5 ha), wolverine (1,445.2 ha), marten (810.4 ha), fisher (219.0 ha), and hoary marmot (1,310.2 ha). Change in habitat is predicted to be low in magnitude for moose, marten and fisher; low to moderate for mountain goat, grizzly bear and wolverine; and moderate for hoary marmot. There would be loss or alteration of general habitat for black bear. There would be limited losses of potential bat maternity roosting habitat, raptor nesting habitat, waterbird breeding and migration habitat, amphibian breeding habitat, and western toad overwintering habitat. Notable loss or alteration of species of conservation concern habitat or unique habitats for upland breeding birds is not anticipated. Except for hoary marmot dens, there are no known sensitive wildlife features (e.g., mineral licks, raptor nests) that would be affected by project activities.

17.7.4.2 Wildlife Movement

There is no known large-scale presence or use of wildlife corridors and movement patterns. Physical and sensory barriers associated with the mine site would fragment wildlife habitats and restrict or hinder wildlife movement and contribute to existing barriers, but wildlife would be able to move around the mine and maintain seasonal movement patterns.

Most sensory disturbance would occur within the Local AA which may result in avoidance by species such as mountain goat, but the noise generated by helicopter traffic may disturb wildlife beyond this. Effects vary depending upon the species and are expected to improve once mine production ends.

17.7.4.3 Wildlife Mortality

Wildlife mortalities may occur from collisions with vehicles and infrastructure, destruction or abandonment of residences, removal of animals attracted to the site, works that entrap wildlife, and loss or modification of habitat leading to changes in abundance or distribution of predator and prey species.

Within the Assessment Footprint, there would likely be mortalities of less mobile wildlife species such as amphibians, rodents, or fledgling birds, or those that burrow or hibernate in the soil (e.g., hoary marmot). The greatest potential for mortalities is to western toad, a species of conservation concern. There would also be increased risk of mortalities to other species. Mortalities and the risk of mortalities are expected to diminish once mine production ends.

Collisions on provincial roads/highways that would be used by vehicles associated with ECRP are thought to be under-reported, and typically involve species such as moose, grizzly bears, and black bears. Typically, mortalities of small wildlife species (i.e., mammals, birds, amphibians) are not detected and recorded.

17.7.4.4 Wildlife Health

Within the Assessment Footprint, exceedances of selenium water quality guidelines to protect wildlife are predicted for water and aquatic invertebrate tissues (as a dietary item for wildlife) in Tom MacKay Creek and Ketchum Creek. Wildlife most likely to be adversely affected by changes in water quality are aquatic-dependent species such as waterbirds and amphibians, but few have been observed using these watercourses within the Local AA.

Predictions are not available for concentrations of contaminants of potential concern in game animal tissues (i.e., large mammals, small mammals, and birds) within the Assessment Footprint (where some habitat would be retained); however, outside of the Assessment Footprint:

- Wildlife species most likely to be adversely affected are those that are non-migratory with small home ranges, which results in continuous exposure, such as hoary marmot. The area where exceedances of contaminants are predicted to be the greatest, contain small patches of low-suitability habitats for that species.
- Tissue metal concentrations of antimony, bismuth, boron, selenium and uranium are predicted to increase by at least two times in wildlife tissues during mine production, with antimony, and uranium remaining elevated through post-closure. Guidelines for the protection of wildlife health have not been developed for metals besides selenium. Aside from selenium, the predicted increases in tissue concentrations of these other metals are, individually, not expected to result in toxicity and adverse effects to wildlife.
- The chronic selenium tissue guideline level for the protection of wildlife health could be exceeded, but this guideline applies to bird eggs and there is uncertainty in its applicability to mammals. Studies to date suggest that aquatic-dependant mammals may be less sensitive to selenium than fish or birds.
- Water quality modelling predicted elevated total molybdenum concentrations in surface water in all evaluated waterbodies except Harrymel Creek, but the wildlife guideline is only exceeded in Tom MacKay Creek. Bioaccumulation of molybdenum through water and vegetation can adversely affect moose and mountain goat, but these would range over a wide area and exposure to higher concentrations would not be continuous.

Based on the above, adverse effects on wildlife health were not predicted.

17.7.5 Proposed Mitigation Measures by Skeena

Skeena has committed to implementing several mitigation measures to prevent or minimize the potential effects of ECRP on vegetation and ecosystems and wildlife and wildlife habitat. Below is a selection of key mitigation measures associated with existing or newly proposed management plans (e.g., Vegetation Management Plan, Reclamation and Closure Plan, Air Quality and Fugitive Dust Management Plan, Wildlife Management Plan) and best management practices.

- Not disturbing vegetation and soil where clearing is not required; planning and placement of cleared areas, and management of their edges to prevent issues like windthrows;
- Pre-clearing surveys, monitoring and reporting for wildlife, fencing to exclude wildlife;
- Water quality testing, and monitoring for wildlife use of mine contact water/effluent ponds;

- Avoidance of sensitive wildlife features such as active marmot dens if/where possible;
- Salvage of topsoil where safe to do so, and storage of it for use in reclamation, re-seed with native seeds mix to prevent the spread of invasive plant species;
- Dust suppression measures, noise suppression and avoidance measures including timing windows, and helicopter wildlife setbacks;
- Plowing refuge areas for wildlife along mine roads during winter; reducing traffic volume, speed limits, and access management; road stream crossing wildlife passages;
- Waste management procedures, and wildlife policies for employees; and
- Constructing artificial roosting structures for bats if necessary to replace known bat roosts.

For a summary of Skeena's proposed management plans and mitigations related to vegetation and ecosystems and wildlife and wildlife habitat, see *Appendix A-1* of the Revised Application.

17.7.6 Key Issues Raised

17.7.6.1 Sufficiency and effectiveness of proposed mitigation measures

ECCC, TCG, Tsetsaut Skii km Lax Ha and WLRS all raised concerns about the sufficiency and effectiveness of certain mitigation measures proposed by Skeena to address potential adverse effects to vegetation and ecosystems, wildlife habitat, wildlife movement, and wildlife mortality.

ECCC raised concerns related to Skeena's commitment to constructing artificial roosting structures for bats, if necessary to replace known bat roosts. ECCC recommended that bat boxes not be constructed to mitigate for loss of bat roosting habitat because bat boxes are not designed to replace natural habitat and they may become ecological traps. ECCC also requested additional details regarding Skeena's barn swallow nest mitigation, stating that they were unable to determine applicability and effectiveness of the measures. ECCC also noted the importance of avoiding sensitive wildlife periods for migratory birds and species at risk. In response to these concerns, Skeena committed to considering ECCC's recommendations for nesting surveys and to engaging with ECCC on the development of detailed mitigation measures for artificial habitat structures for bats and barn swallow for inclusion in the updated Wildlife Management Plan.

TCG expressed concerns about the lack of evidence supporting the success of proposed reclamation strategies in sensitive mountain pass ecosystems. TCG's view was that these uncertainties could affect culturally significant plant and wildlife species, as well as the Tahltan way of life. TCG also emphasized the need for sufficient financial bonding to be secured until the applicable management and monitoring plans are in place, noting concerns around the uncertainty in fully reclaiming and restoring access for future generations to meet Tahltan Core Priorities, which in turn would affect Tahltan rights and way of life. Additionally, TCG was concerned that existing and potential future barriers created by access roads—due to administrative or resource development interests—pose current and future risks to Tahltan rights and way of life. TCG considers the uncertainty and lack of clear management and monitoring plans a challenge to meeting expectations of several Tahltan Sustainability Requirements. In recognition that further improvements can be made through collaborative research during the mine life, Skeena proposed to establish a Mine Closure Taskforce to identify and evaluate potential reclamation and closure options. Skeena also committed to ongoing collaboration with TCG on the detailed Reclamation and Closure Plan required for ECRP, including planning of reclamation research programs and future revisions to the Reclamation and Closure Plan to better align with Tahltan Sustainability Requirements and financial bonding.

Tsetsaut Skii km Lax Ha raised concerns that Skeena did not propose habitat offsets or financial compensation for the predicted losses of alpine and parkland ecosystems, riparian areas, old growth forests, wetlands, and culturally valued plant species due to ECRP. Skeena clarified that its assessment took a conservative approach in evaluating losses based on

the Assessment Footprint, rather than the Project Footprint, and actual losses would be less than predicted. Skeena also stated that ECRP is not located in a region of B.C. identified as requiring wetland offsetting by federal policy on wetlands conservation, and that the provincial environmental mitigation policy prioritizes impact avoidance and minimization measures over restoration and offsetting. Skeena committed to continued engagement with Tsetsaut Skii km Lax Ha to seek their input and involvement in ECRP as it relates to Tsetsaut Skii km Lax Ha interests. TCG also identified that offsetting for both aquatic and terrestrial Tahltan values would be a positive approach and areas for restoration outside of the project area may be identified by Tahltan as conditions to be considered by decision-makers. Skeena committed to continuing to work with the Tahltan Nation regarding wetland management and offsetting.

WLRS expressed concerns that effects to changes in wildlife movement due to ECRP are not well understood and recommended that adaptive management strategies be implemented during construction, and that a wildlife advisory committee is formed to deal with outstanding issues in the Project Footprint. Skeena responded that once results are available from the pre-construction remote camera surveys being completed at the request of TCG to confirm wildlife habitat use prior to construction, including for the use of wildlife movement corridors, site-specific mitigations would be integrated into the Wildlife Management Plan. Skeena also committed to establish, co-chair and participate in a Tahltan Wildlife Advisory Committee to deal with outstanding issues in the Project Footprint.

In consideration of the concerns raised by reviewers, the EAO has proposed the following Certificate conditions (see *Section 9.0* for full description):

- Condition 12: Skeena must develop a Construction Environmental Management Plan, detailing how human-wildlife conflict would be addressed and invasive plants managed;
- Condition 19: Skeena must develop a Wildlife Effects Monitoring Plan, detailing the methods and timelines for the long-term monitoring of bioaccumulation and metal uptake; impediments to movement, including a movement corridor study; wildlife injury and mortality, including vehicle strikes; loss of wildlife habitat; specific monitoring of species of importance to Tahltan, including but not limited to barn swallows, mountain goats, moose, and bears; and protocols and timeline for establishing a Tahltan Wildlife Advisory Committee; and
- Condition 26: Skeena must develop an End Land Use Plan, detailing existing land capability and use, predicted land capability and use after Closure of ECRP, efforts to reconcile differences between pre- and post-ECRP conditions, forecast of overall changes in land capability due to ECRP, and incorporation of mitigation targets related to vegetation and ecosystems and wildlife and wildlife habitat.

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to migratory birds and Indigenous peoples' health and current use of lands and resources for traditional purposes related to effects of ECRP on vegetation and wildlife (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of draft potential federal conditions.

17.7.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, concerns raised by the TAC, TCG and Tsetsaut Skii km Lax Ha, and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on the vegetation and ecosystems and wildlife and wildlife habitat valued components:

- Loss or alteration of vegetation and ecosystems and wildlife habitat.

The EAO concludes that ECRP would not result in residual effects to wildlife movement, mortality or health because, while habitats will be lost and altered, and individuals may be subject to change in movement, sensory disturbance, mortality, and exposure to contaminants—which will vary depending upon the species—population-level effects are not expected.

The EAO's characterization of the expected residual effects of ECRP on vegetation and ecosystems and wildlife habitat is summarized below, as well as the EAO's level of confidence in the effects determination (including their likelihood and significance).

Table 20: Summary of Residual Effects for Vegetation and Ecosystems and Wildlife Habitat

Residual Effect	Assessment Rating*	Significance and Rationale
Loss or alteration of vegetation and ecosystems and wildlife habitat due to physical disturbance associated with ECRP	Context (resilience): Moderate Magnitude: Low to medium Extent: Local Duration: Long-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: High Importance: Moderate	Not significant Within the Assessment Footprint, terrain would be permanently modified after reclamation and closure with permanent anthropogenic landforms and facilities (including the TMSF and North Pit) remaining on the landscape. Surficial materials including water would contain metals that are contaminants of potential concern. Much of the Assessment Footprint is subject to existing and ongoing physical and sensory disturbances; however, the existing strain on natural ecosystems, changed nature of the substrate from mining and reclamation, and predicted climate change effects result in moderate resilience. Loss and alteration of ecosystems and wildlife habitat would range from low to medium magnitude. Effects would extend beyond the Assessment Footprint into the Local AA and project activities and effects would be ongoing (i.e., continuous) for an indeterminate period beyond mine closure (i.e., long-term). While some ecosystems and wildlife habitats are anticipated to be re-established through mine reclamation, pre-mining conditions will not be fully restored. First Nations land users are expected to be disproportionately affected by loss and alteration of ecosystems and the ability to maintain traditional stewardship of the land. The overall risk of the residual effects is moderate based on a high likelihood of occurrence and a moderate, well understood, consequence. There is high uncertainty associated with the residual effects related to the characterizations of magnitude and extent. The assessment rating may not be conservative because the magnitude of effects in the Local AA is compared against a large Regional AA, selected based on wildlife species that may encounter project infrastructure during a season or lifetime, regardless of home range sizes and seasonal movement patterns. There is also a lack of evidence supporting the success of proposed reclamation strategies in sensitive mountain pass ecosystems to be able to restore the health of the land and water. Importance is moderate because many species, including those of conservation concern, occur or may occur in the project area, and moderate to high suitability habitat for several species will be affected.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.7.8 Cumulative Effects Assessment

In relation to ECRP, members of Tahltan Nation have previously raised concerns about the potential pressures posed by multiple past or proposed mine developments in their territory. Skeena used the Regional AA to assess potential cumulative effects for ECRP and determined that there are nine existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP regarding change in vegetation and ecosystems and wildlife habitat.

Cumulative effects assessment data summaries available for the Skeena Region[18] indicate that the grizzly bear population units within the Regional AA are currently flagged for exceeding the established benchmark for three of 10 indicators: percent front country (i.e., urban and rural landscapes), capability of ecosystems to produce high-quality food, and amount of protected high value habitat. Percent front country is considered a core indicator that identifies potential sources of risk to grizzly bears. No additional cumulative effects assessment data summaries available for the Skeena Region overlap with the Regional AA.

Change to wildlife habitat from physical anthropogenic disturbances within the Regional AA are predominantly associated with mineral mining and forestry activities. The former is limited to the existing Eskay Creek Mine and the KSM Mine. The latter has been limited because of relatively poor forest productivity and the remoteness of the region. Existing linear disturbances (e.g., roads and transmission lines) have already created barriers to wildlife movement within the Local AA.

ECRP does not require the construction of new access roads or other linear features. The habitat loss and alteration due to ECRP is not expected to directly or indirectly overlap with other physical activities that have been or will be carried out except for the existing Eskay Creek Mine that is within the Assessment Footprint, and existing Eskay Creek and future KSM Mine access roads.

Skeena identified that past, present, and reasonably foreseeable future projects are predicted to result in a 2% direct loss of native habitats within the Regional AA, including habitat for migratory birds and species of conservation concern. Due to the minor contribution of ECRP to the cumulative loss of habitat, no measures to mitigate cumulative effects are proposed in addition to the project-specific mitigations described for residual effects.

The EAO considered the existing conditions at ECRP, the anticipated mitigation measures proposed by Skeena and the regulatory tools to implement those mitigation measures, and the EAO's assessed residual effects and concludes that no significant cumulative effects to vegetation and ecosystems and wildlife habitat are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.7.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the vegetation and ecosystems and wildlife and wildlife habitat valued components. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions, including Condition 12 (Construction Environmental Management Plan), Condition 16 (Wildlife Effects Monitoring Plan), Condition 17 (Vegetation Effects Monitoring Plan) and Condition 26 (End Land Use Plan) (see *Section 9.0*); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

[18] Available online at *Skeena Region Cumulative Effects Explorer*.

17.8 Human Health

17.8.1 Summary

Human health was identified as a valued component in the environmental assessment for ECRP due to the potential for ECRP-related activities and components to impact various health outcomes. The assessment considers how changes to air quality, water quality, and the safety of traditional (subsistence) foods could affect physical health. It also considers broader determinants of health such asl mental wellness, access to health care, and food security.

Communities in the region surrounding the ECRP area already experience poorer health outcomes compared to the B.C. average. This includes higher rates of chronic diseases, mental health issues, and substance use—conditions made worse by limited access to health services, especially in rural and Indigenous communities. Indigenous groups also face additional health challenges due to historical and systemic inequities.

Skeena identified the potential effects of ECRP as changes in mental health and community well-being, mental health and/or quality of life due to landscape/environmental changes, incidence of infectious disease, incidence of chronic disease from environmental contaminants, and quality of nutrition.

A Human Health Risk Assessment (HHRA) was used to estimate potential health risks from project-related pollution. It identified that contaminants released during Construction and Operations—such as metals in dust and water—could accumulate in local foods, soil, and drinking water. The greatest risks were from exposure to certain metals including arsenic, aluminum, and selenium, through the ingestion of subsistence foods (wild game, fish, berries, and plants), which are a critical part of Indigenous diets and culture. However, while the HHRA used conservative assumptions to evaluate risks there are some uncertainties regarding modelling and effect pathways. For drinking water, some samples taken from Dease Lake, Telegraph Creek and Tatcho locations identified elevated concentrations of metals (arsenic, beryllium, lead, and manganese). Skeena noted however, while some wells identified elevated concentrations above guidelines, regular, long-term exposure to these elevated concentrations from local water sources in these communities are not expected, and the health impact is expected to be low.

Air quality is expected to be temporarily reduced due to elevated PM_{10} concentrations during Construction and Operations, around the Permanent Camp at the TMSF where off-duty workers reside. At the MPOI, carbon monoxide, nitrogen dioxide, PM_{10} and $PM_{2.5}$ are predicted to exceed provincial air quality objectives. Carbon monoxide and nitrogen dioxide are anticipated to have occasional short-term exceedances and PM_{10} and $PM_{2.5}$ are predicted to have more frequent exceedances, particularly during Operations. However, access restrictions around the mine site and proposed mitigation—like HVAC systems and air monitoring at the Permanent Camp at the TMSF—are expected to limit exposure and reduce health risks for most people.

Beyond physical health, ECRP could affect mental health and well-being. Changes to the landscape, concerns about contamination, and reduced access to traditional lands and foods may cause anxiety and stress—particularly in Indigenous communities. The presence of a transient, largely male workforce could also contribute to social tensions, substance use, and safety concerns, particularly for women and gender-diverse people. The assessment also considers how ECRP could affect nutrition and food security. If people avoid traditional foods out of fear of contamination, this could lead to a loss of nutrition and cultural connection. Rising living costs may also make healthy market foods less affordable, especially for low-income or remote households.

Reviewers raised concerns about potential health risks from air pollutants and other exposure to contaminants through drinking water and subsidence foods, particularly to worker camps and Indigenous communities. Reviewers flagged gaps in air quality modelling and monitoring commitments. Additionally, risks to community safety and of gender-based violences, particularly to Indigenous woman and girls, were highlighted.

The EAO considered Skeena's assessment and proposed mitigation measures, the key issues raised by reviewers, proposed Certificate conditions requiring development of an Air Quality Monitoring Plan, Human Health Management and Monitoring Program, Health and Medical Services Plan, and Socioeconomic Management Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA, and concluded that there would be residual effects to human health from ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significant adverse or significant cumulative effects on the human health valued component.

17.8.2 Assessment Boundaries

17.8.2.1 Spatial Boundaries

The following spatial assessment boundaries were used in the assessment of effects to human health (see *Figure 20.3-1* and *Figure 20.3-2* in Chapter 20 of the Revised Application:

- Local Assessment Area: The geographic regions where direct, indirect, or induced effects from ECRP may occur. The Local AA includes the Tahltan Nation, parts of the Regional District of Kitimat-Stikine (RDKS) and parts of the Stikine Region. It includes many incorporated and unincorporated communities, including Iskut, Dease Lake and Telegraph Creek.
- Human Health Risk Assessment Study Area (HHRA Study Area): The HHRA Study Area is a smaller part of the Local AA, chosen because it covers the areas most likely to be affected by ECRP. It follows air and water quality models and includes regions where changes in air, soil, and water quality may occur. The boundaries match the air quality valued component's CALPUFF domain and overlap parts of the Tahltan and Tahltan Consent Area, including the Iskut and Unuk River valleys and the Eskay Creek Mine Access Road (see figures in Chapter 12 *Section 12.3.1* of the Revised Application).
- Regional Assessment Area: The broader area where indirect and induced effects of ECRP may occur. The assessment excludes the areas or communities within the Local AA boundaries. It includes larger communities like Terrace, Smithers, District of Stewart, and the Village of Hazelton, as well as Nisga'a Villages and Gitanyow Nation communities. The Regional AA also includes the southern communities of Prince Rupert, District of Kitimat, District of Houston, and Village of Burns Lake to fully assess the impact of ECRP on health care infrastructure in the region.
- Transportation Corridor Assessment Area: This area includes the routes that will be used for transporting project materials, such as the Eskay Creek Mine Access Road and portions of Highway 37 and 37A. The Transportation Corridor AA covers regions that will experience increased traffic due to project-related activities.

17.8.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of effects to human health:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.8.3 Existing Conditions by Skeena

Existing conditions related to human health were assessed by Skeena in Chapter 20 (*Section 20.4*) of the Revised Application and are summarized here.

Health in the Local AA and Regional AA for ECRP is generally poorer than the B.C. average, with lower life expectancy, higher mortality rates, and greater burdens from chronic diseases and substance use. This is due to limited access to health services in rural areas and additional challenges faced by certain groups, including Indigenous people, low-income individuals, and those with pre-existing conditions. Indigenous communities can face further barriers due to historical and systemic inequities. There is some uncertainty in available health data, as the data is mostly regional and may not fully capture local health issues. Key health topics assessed include determinants of health, mental health, infectious and chronic diseases, injuries, nutrition, and access to health care.

17.8.3.1 Socio-Economic Determinants of Health

The socio-economic determinants of health in the Local AA and Regional AA reveal both strengths and challenges for local communities. Income and employment levels are generally at or above the B.C. average; however, Indigenous communities face lower employment and higher poverty. Women typically earn less despite lower unemployment. Safety and security concerns are significant, with many Tahltan Survey respondents expressing distrust in law enforcement due to historical racism and limited police capacity. Poor cell and internet access also impacts residents' sense of security, though Tahltan communities remain close-knit and supportive.

Substance use, particularly for tobacco, alcohol, and other substances, is higher than the B.C. average, with First Nations women disproportionately affected by overdoses. Substance misuse is considered the top health concern in Tahltan communities, though some evidence shows alcohol and tobacco use may be declining. Connection to the land is vital for Indigenous well-being emphasizing access to unpolluted, biodiverse environments.

Environmental determinants of health also play a key role in the region. Air quality meets B.C.'s air quality objectives but natural disasters and climate change increases risks, including wildfires, floods. Drinking water is generally safe, though some areas experience boil advisories., Housing shortages persist, and the Meziadin Junction landfill is nearing capacity. Surace water quality near ECRP show periodic metal concentrations above regulatory limits for aquatic life and drinking water quality, likely due to natural mineral content found in soils. Traditional land use remains vital, with hunting, fishing, and harvesting playing a key role in nutrition, mental wellness, and cultural practices, especially during times of hardship.

17.8.3.2 Mental Health

Community Well-being: Indigenous communities generally have lower wellness scores than non-Indigenous groups. However, First Nations people living on reserve report a stronger sense of community belonging, which is a key factor in mental wellness. Despite this, there is a lack of in-community services, recreation, and extracurricular activities that could improve well-being.

Mental Illness and Suicide Rates: The region has higher suicide rates and more hospitalizations for mental illness than the B.C. average. Self-perceived mental health is also lower. While anxiety and mood disorder rates are similar to the provincial average and declining overall, they are increasing among women, highlighting a gender disparity. Indigenous people, particularly women and non-binary individuals, experience higher rates of mental illness and past suicidal thoughts.

17.8.3.3 Infection and Chronic Diseases

Infectious diseases rates for chlamydia and gonorrhea are lower and declining since 2017 in the region, but syphilis is rising across the province, including in the Northwest. The area has higher death rates from pneumonia, flu, and other respiratory illnesses compared to the provincial average Indigenous communities faced higher COVID-19 infection rates and continue to experience long-term mental health and substance use impacts.

Chronic diseases are more prevalent in the region, especially heart disease, heart attacks, and chronic obstructive pulmonary disease (COPD), with COPD showing the most significant difference. A major contributing factor is smoking, which is over twice the B.C. average. Among regional Indigenous populations, Métis individuals have higher rates of chronic kidney disease, while First Nations across B.C. experience elevated rates of diabetes. Cancer rates are lower than the B.C. average but remains a concern for Tahltan, who continue to use traditional medicines like caribou weed, balsam bark, and spruce pitch for treating acute and chronic illnesses.

17.8.3.4 Chronic Health Risks from Environmental Contaminants

The HHRA estimated existing environmental health risks from naturally occurring contaminants before any potential emissions from ECRP. The HHRA assessed the potential health risk from 22 metals within the study area. Three groups were evaluated: Traditional Land Users, Full-time Residents, and Off-duty Workers, with toddler included, as a subset in both the Traditional Land Users and the Full-time Resident groups, for conservative exposure estimates.

The Base Case scenario (pre-Construction) found that 10 metals had hazard quotients (HQs) above 1.0. The highest HQs were arsenic (HQ = 13), cadmium (HQ = 7.6), lead (HQ = 8.9), manganese (HQ = 14), and nickel (HQ = 8.1). Market foods (grocery store items) were the biggest contributors to arsenic, manganese, and nickel exposure, while subsistence foods (wild game, birds, fish, plants, and berries) contributed most to cadmium and lead exposure. Drinking water posed minimal risk, except for arsenic in domestic sources, such as in the community of Dease Lake, which had an HQ of 2.1.

Food and water ingestion were the main exposure pathways; inhalation and skin contact were negligible. Soil ingestion moderately affected aluminum exposure. Conservative assumptions, like exclusive consumption of local foods and high intake rates, likely elevated HQs. HQs above 1.0 suggest potential risk under worst-case scenarios but do not necessarily indicate harm.

Subsidence foods generally showed similar or lower HQ's than market foods, except for cadmium and lead, indicating comparable or better quality. Elevated risks associated with certain parameters showing high HQs in subsistence foods have been observed in other parts of Canada, leading some regions to issue consumption advisories for these meats. For instance, elevated levels of cadmium have been detected in the meat and organs of large mammals such as caribou and moose in northern Canada. The HHRA provides a baseline for future comparison once ECRP begins.

17.8.3.5 Accidents and Injuries

Accidents and injuries in the region can result from both unintentional and intentional harm. Unintentional injuries, such as those occurring in transport, workplaces, homes, or leisure activities, are a major concern. In 2021, the Northwest had a higher unintentional injury death rate (46.7 per 100,000 people) than the B.C. average (34.7 per 100,000). Driver impairment and distraction contribute to traffic-related injuries, through congestion is not currently an issue. actors. Among First Nations, serious injury hospitalization rates have remained stable over the past 12 years, with a 2017 rate of 59.3 per 100,000. Unintentional injuries are the fifth leading cause of death in B.C.

Intentional injuries include interpersonal violence and self-harm. Tahltan Survey respondents raised concerns about lateral violence (harmful behaviours such as bullying, gossiping, and shaming) within Indigenous communities, linked to colonialism, trauma, and residential school legacies, and its impact on community relationships.

17.8.3.6 Nutrition

Food security is a key indicator of nutritional health, and the Local AA and Regional AA have some of the highest rates of food insecurity in B.C. Indigenous people are two to three times more likely to experience food insecurity than other racial groups. Subsistence foods play a crucial role in nutrition, mental health, and cultural well-being. Any perceived contamination of subsistence foods can reduce traditional food intake, leading to increased reliance on store-bought foods and associated health and cultural impacts.

Fish species like salmon, trout and eulachon, are vital to Tahltan nutrition, social structure, economy, and culture. Tsetsaut Skii km Lax Ha continues traditional practices including hunting, fishing, trapping, and harvesting medicinal plants and key foods including moose, salmon, soapberries, blueberries. Seasonal consumption of black bear, devil's club tea are valued for their health and medicinal benefits. These traditional food sources support Indigenous food sovereignty, offering both nutritional value and a deep connection to the land.

17.8.3.7 Health Care and Emergency Services

Existing health care and emergency services in the region are inadequate. Many residents rate their health care quality as fair or poor, and only half of Tahltan Survey respondents felt services were sufficient. Key challenges include limited mental health resources, a lack of medical specialists, and difficulties attracting and retaining health professionals. No pharmacies exist in the Local AA, causing medication delays, though small health centers run by Northern Health or First Nations Health Authority can provide emergency prescriptions.

Emergency services are limited, with no 911 service, only one ambulance in Dease Lake, and weather-related delays in medical evacuations. Mental health support is particularly limited, with no permanent clinical counselors or mental health therapists in Tahltan communities, and a strong demand for more trauma, addictions, and mental health services. Students have also requested more mental health education and training. Emergency response planning is in place, with the Regional District of Kitimat-Stikine conducting regular disaster response drills to improve coordination and preparedness.

17.8.4 Potential Project Effects by Skeena

Skeena identified the following potential effects on human health due to ECRP in Chapter 20 (*Section 20.5*) of the Revised Application, as described below.

17.8.4.1 Changes to Mental Health and Community Well-being

Landscape/Environmental Changes and Mental Health Effects

ECRP is expected to influence mental health and community cohesion, particularly during the Construction and Operations phases. Changes to the landscape—such as changes in air quality, increased noise, vibrations, and artificial lighting—may affect residents' enjoyment of the land for recreational and traditional purposes. These alterations could cause distress, particularly for Indigenous communities who have cultural and spiritual ties to the land. Anxiety may also arise from concerns about contamination, environmental degradation, and reduced access to clean water and natural resources. While these concerns persist into reclamation and closure, their intensity is expected to diminish over time.

For First Nations, the connection to the land is deeply tied to spiritual meaning, cultural practices, and overall well-being. The Tahltan people, for example, prioritize a healthy environment for harvesting traditional foods and medicines. Disruptions to traditional land use and harvesting sites can negatively affect food security, cultural transmission, and social structures. Fear of environmental contamination may lead to an avoidance of harvesting, which can interrupt the transfer of traditional knowledge between generations, reduce the consumption of certain foods, and contribute to food insecurity as well as create anxiety about the safety of resources and potential health risks. Indigenous-led environmental stewardship programs, such as the Tahltan Guardian initiative, work to monitor and mitigate these concerns.

Impact of Workforce In-Migration and Fly-in/Fly-out (FIFO) Work Schedules

Beyond environmental concerns, the arrival of non-local workers may lead to demographic shifts that impact social cohesion, identity, and safety. The presence of a largely male workforce could contribute to increased rates of crime, substance misuse, gender-based violence, and social tensions, particularly in Indigenous communities. Women and gender-diverse individuals may face a heightened risk of harassment and violence due to these changes. Workforce migration during the course of mine operations could see an increase in workers and their families settling in surrounding towns and communities, placing pressure on housing, infrastructure, and social services.

A significant number of project employees residing in the Regional AA and Local AA will work on a two-weeks-on, two-weeks-off FIFO schedule. While FIFO work provides stable employment, it is also associated with increased stress, anxiety, family strain, and substance misuse. Studies indicate that long periods of separation can create challenges for workers and their families, contributing to mental health concerns. In Indigenous communities, rotational work may further disrupt cultural practices such as seasonal harvesting and participation in traditional events. Surveys conducted among the Tahltan community highlight concerns about safety, substance use, and disruptions to traditional ways of life linked to FIFO work.

17.8.4.2 Changes to Infectious Disease Risks

The influx of non-local workers and the use of labour camps during Construction and Operations may increase the spread of infectious diseases, particularly within close living quarters. Workers may carry illnesses back to their home communities, and new diseases could be introduced to the region. Additionally, increased housing pressures in communities like Smithers and Terrace during Operations may contribute to overcrowding, further amplifying the risk of disease transmission.

The primary concern is respiratory or diarrheal diseases. While there is some risk to women, particularly sex workers, who may face an increased risk of STIs due to the influx of male workers, it is considered low because of the restricted access to workforce camps and limited interaction between workers and local populations. In contrast, respiratory infections (such as influenza, pneumonia, and COVID-19) and diarrheal diseases (such as noroviruses) are more likely to spread within labour camps and through community interactions. ECRP's anticipated workforce in-migration, combined with limited housing availability, could force vulnerable populations—including low-income individuals, Indigenous people, and gender-diverse groups—into overcrowded or substandard housing, which could increase their exposure to infectious diseases.

Certain groups face an elevated risk of infection, including individuals with chronic respiratory conditions like COPD and asthma, both of which are prevalent in the region. Indigenous populations, who have higher smoking rates than the provincial average, are particularly vulnerable to respiratory and digestive infections. Elders, seniors, and young children are also more susceptible to severe illness, while Indigenous and gender-diverse populations are disproportionately affected by housing insecurity, further heightening their risk. Limited healthcare access in remote communities adds another layer of concern, as an increase in disease outbreaks could strain an already overburdened system.

While the risk of infectious disease transmission is expected to decline post-closure, proactive measures will be necessary to mitigate impacts during project Operations. Improving healthcare access, addressing housing pressures, and implementing infection prevention strategies within workforce camps and local communities will be essential in reducing these risks.

17.8.4.3 Chronic Disease from Environmental Exposure

During the Construction and Operations phases, mining facilities and associated project activities (e.g. onsite equipment, vehicles, and transportation) will generate dust and emissions, potentially increasing exposure to environmental contaminants. Airborne pollutants such as metal-containing particulate matter, nitrogen oxides, sulfur dioxide, and diesel particulate matter may disperse beyond the ECRP site, affecting air quality and depositing contaminants onto soil, vegetation, and water sources. Additionally, surface soil disturbance, blasting, and excavation could mobilize naturally occurring metals, leading to water contamination through mine contact water discharge, seepage, and effluent release. These pollutants could accumulate in the environment and enter the food chain, posing potential health risks to local populations.

Exposure to pollutants from the mine site and transportation routes may contribute to an increased risk of chronic diseases, such as cancer and respiratory conditions. Mine activities that generate emissions to air, water, and soil pose risks to human health, particularly for Indigenous land users who rely on traditional harvesting. Individuals with pre-

existing health conditions may be more vulnerable to these changes. These risks are most prominent during Operations but persist in reclamation and post-closure, as residual contamination could continue affecting the food chain.

Human receptors at risk include full-time residents near the ECRP site, traditional land users who engage in hunting, fishing, and foraging, and off-duty workers residing in the onsite camp. These groups may be exposed to contaminants through inhalation, ingestion of contaminated food and water, or direct skin contact with soil and water. Indigenous and non-Indigenous subsistence harvesters are particularly vulnerable due to their reliance on traditional food sources, which may be affected by metals in dust and waterborne pollutants.

While some metals, such as iron and manganese, are essential nutrients, others, including arsenic and lead, are toxic even at low concentrations. Air pollutants like nitrogen dioxide and fine particulate matter can contribute to respiratory and cardiovascular diseases, while long-term exposure to heavy metals may increase the risk of cancer and organ toxicity. The severity of health impacts depends on exposure levels and the specific contaminants present.

The HHRA evaluated the potential for chronic disease linked to project-related pollutant exposure, focusing on cumulative and long-term effects. Even with mitigation measures such as water treatment facilities and emissions controls to minimize risks, continuous monitoring would be essential to ensure the protection of community health, particularly for vulnerable populations.

17.8.4.4 Accidents, Injuries, and Road Safety

Increased transportation activity during Construction and Operations raises the risk of accidents, injuries, and fatalities. The movement of materials and industrial traffic could create additional road hazards. These potential effects decrease in likelihood during reclamation and post-closure.

17.8.4.5 Nutrition and Food Security

ECRP has the potential to impact food security, particularly for Indigenous populations who rely on subsistence hunting, fishing, and gathering. Contaminants entering the food chain, reduced access to traditional harvesting areas, and increased competition from non-local workers may alter consumption patterns, leading to a greater reliance on store-bought foods. This shift could negatively affect dietary quality, as traditional foods are often more nutritious and culturally significant. Additionally, inflationary pressures associated with the operation of ECRP may drive up food costs, resulting in a higher cost of living and reduced finances for healthy foods. This could disproportionately affect vulnerable populations such as low-income individuals, seniors, and single parents.

Economic changes linked to ECRP, including cost-of-living increases, could further limit access to affordable and nutritious foods. Historical disruptions to Indigenous food systems have already contributed to increased rates of chronic diseases such as diabetes, cardiovascular disease, and cancer. The potential for contamination—even if risks are minimal—may also lead to a decline in subsistence food consumption due to perception and concerns over safety, further reducing dietary quality and worsening health disparities.

These concerns extend beyond the operational phase, as residual environmental contamination may continue to impact food sources into reclamation and post-closure. Ensuring long-term food security requires measures to protect traditional harvesting, mitigate cost-of-living impacts, and address contamination risks to safeguard the health and well-being of affected communities.

17.8.4.6 Economic Impacts on Health

While increased employment and income during Construction and Operations can improve health outcomes by enhancing access to housing, food, and healthcare, the boom-and-bust nature of resource development presents long-term risks. Financial instability following job losses during reclamation and closure could negatively impact mental and physical health, particularly for vulnerable populations such as Indigenous women, youth, and rural residents. Economic

inequality resulting from project-related income disparities may contribute to social tensions and increased substance use.

17.8.4.7 Pressure on Health and Safety Services

ECRP may place additional strain on local healthcare and emergency services due to population increases and higher accident risks. If local infrastructure is overwhelmed, residents may experience reduced access to medical care, exacerbating health disparities. Vulnerable groups—including seniors, individuals with chronic illnesses, and those with mental health challenges—may face the greatest difficulties in accessing necessary health services. Law enforcement resources may also be strained due to potential increases in social tensions and crime linked to in-migration.

17.8.5 Proposed Mitigation Measures by Skeena

Skeena has committed to implementing or continuing appropriate mitigation, monitoring, and follow-up programs to address and monitor existing and potential mental health effects. New and existing mitigations include:

- Health and Medical Services Plan (HMSP): Establishes an onsite medical facility (that includes overdose treatment capabilities), communication protocols to be used between the worksite and local health service providers, tracks health-related incidents, provides mental health support informed by Northern Health's recommendations and implements a Communicable Disease Prevention Plan to address infectious diseases such as respiratory and norovirus infections.
- Workforce Policies: Identifies company expectations for worker behaviour and control measures for drug and alcohol, bullying/harassment, violence, code of conduct, and provisions for protected "whistleblower" complaints.
- Health and Safety Policies: Regular worker training to reinforce workplace safety procedures.
- Cultural Sensitivity and Bystander Training: Employees receive cultural awareness training and bystander intervention education to foster inclusivity and respect.
- Minimize Project-related in-migration: Implement local-focused recruitment and selection policy prioritizing local Indigenous Nation members, promoting procurement from local, regional and Indigenous-owned businesses, and partnering with local training and employment programs to enhance local workforce participation and reduce the need to hire from outside the Local AA and Regional AA.
- Environmental and Social Responsibility Policy: Ensures sustainability, environmental stewardship, and social accountability, with tracking and auditing systems in place. Mitigations for the effects on Indigenous communities' ability to harvest and access subsistence or cultural animals/plants will be mitigated through emissions control, noise control, and the prevention of non-locals from harvesting. Skeena has committed to ensuring Reclamation occurs according to the Tahltan approved plan.
- Community Feedback Process: Provides multiple ways for Indigenous Nations, stakeholders, employees, and the public to report concerns via an online portal, telephone, and physical drop boxes.
- Post clear signage at TMSF and North Pit: During closure phases signage will be posted to indicate non-potable water, supported by access control mitigations, to prevent consumption.
- Drinking water controls: Ensure drinking water at camps meet drinking water quality guidelines and standards, using water treatment or providing bottled water if standards cannot be met.
- PM_{10} Exposure Mitigations: HVAC with filtration will be incorporated into the Permanent Camp design and additional policies will be developed to minimize off-duty worker exposure to elevated concentrations of PM_{10}.

For a summary of Skeena's proposed management plans and mitigations related to human health, see *Appendix A-1* of the Revised Application.

17.8.6 Key Issues Raised

17.8.6.1 Air Quality, Contaminant Exposure, and Health Risks

Several members of the TAC raised concerns regarding airborne pollutants (including how they were modelled) and their potential health impacts on workers, residents, and Indigenous communities. Health Canada specifically recommended including a diesel particulate matter (DPM) lung cancer risk assessment, that Skeena later completed and incorporated into the Revised Application. Similarly, concerns persist regarding monitoring commitments for nitrogen dioxide (NO_2) and particulate matter ($PM_{2.5}$), particularly in areas where exposure levels may be close to regulatory thresholds.

The air quality at worker accommodation camps was another area of contention, with TCG highlighting that predicted NO_2 levels were at the Air Quality Objective (AQO) limit. This raised concerns that even minor modeling discrepancies or meteorological variations could lead to exceedances, yet these risks were not explicitly acknowledged in the assessment. Additionally, TCG noted inconsistencies in carbon monoxide (CO) modeling between the worker camp and surrounding areas, indicating a possible need for further verification. Reviewers made recommendations for follow-up air quality monitoring to be included as part of a Human Health Management and Monitoring Plan.

In consideration of the concerns raised by reviewers, the EAO has proposed the following Certificate conditions (see *Section 9.0* for a full description):

- Condition 20: Skeena must develop an Air Quality Effects Monitoring Plan, which includes requirements to update air quality monitoring; and
- Condition 21: Skeena must develop a Human Health Management and Monitoring Plan, which would require Skeena to implement mitigation and monitoring measures to reduce impacts to air quality.

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to health, social or economic conditions of the Indigenous peoples of Canada and federal sustainability requirements related to effects of ECRP on human health (See *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of draft potential federal conditions.

17.8.6.2 Indigenous Community Safety and Gender-Based Violence Risks

A significant concern raised by IAAC, PHAC, and TCG pertains to the potential increase in risks to Indigenous women and girls due to the influx of transient workers. Historical data and reports, such as the National Inquiry into Missing and Murdered Indigenous Women and Girls (MMIWG), have established a clear link between large industrial projects, transient workforces, and increased gender-based violence. However, some reviewers felt that Skeena downplayed these risks, asserting that limited in-migration is expected. Despite multiple requests for explicit integration of gender-based violence concerns into public safety, human health, and socio-economic assessment chapters, these were not incorporated. Instead, these concerns were deferred to be addressed later in the HMSP and the Socio-economic Monitoring Plan (SEMP).

Additionally, PHAC flagged traffic-related safety risks for Indigenous women and girls, arguing that the assessment failed to consider worker transportation patterns, non-work activities, and broader traffic safety risks over ECRP's life cycle. While Skeena acknowledged that cell phone access is improving in transportation corridors, it did not commit to formal safety mitigation measures. PHAC recommended a structured traffic management plan with Indigenous involvement, but this has not been confirmed as a project commitment, leaving the issue unresolved.

Another perceived flaw in the assessment was its failure to consider pre-existing safety risks in the traffic impact assessment. Skeena argued that because the baseline risk for Indigenous women in transportation corridors is already high, ECRP's impact would be negligible. However, stakeholders strongly contested this reasoning, emphasizing that even a small increase in risks could have serious consequences.

In consideration of the concerns raised by reviewers, as well as the information provided by Skeena, the EAO has proposed Condition 22: Health and Medical Services Plan, requiring Skeena to describe zero-tolerance policies on substance use, violence and harassment and programs to promote mental health and wellness, and Condition 23: Socioeconomic Monitoring Plan requiring Skeena to implement mitigation measures to reduce impacts to Indigenous community safety and risks to gender-based violence (see *Section 9.0* for a full description).

Additionally, IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.8.6.3 Water Quality, Subsistence Food Risks, and Exposure Pathways

Health Canada and IAAC raised concerns regarding contaminant levels in drinking water and subsistence foods, emphasizing the need for a more conservative approach to exposure risk assessments. Health Canada recommended using the highest allowable contaminant concentration for drinking water risk estimation, and while Skeena did not revise its approach, it committed to ensuring that the drinking water quality at the camps will meet, at a minimum, the lowest of the available B.C. or Health Canada drinking water quality standards or guidelines. This response was considered satisfactory to both Health Canada and IAAC.

Similarly, concerns about elevated cadmium and methylmercury concentrations in subsistence foods, particularly organ meats and fish, were raised. Further discussion and information showed that, market foods were the main source of elevated HQs for several of the tested metals, but Skeena expects that the high HQs from market foods is more likely reflective of the conservative nature of toxicity benchmark, rather than actual health risks. Literature still reports elevated cadmium levels in moose liver, and that other regions in Canada have issued consumption advisories recommending maximum monthly intake due to identified health risks.

IAAC also requested an evaluation of breastfeeding as an exposure pathway, given that infants could be affected through maternal consumption of contaminated subsistence foods. Skeena responded that breastfeeding is not considered a standard exposure pathway in federal and provincial risk assessments, effectively closing the issue.

In consideration of the concerns raised by reviewers, as well as the information provided by Skeena, the EAO has proposed Condition 21: Human Health Monitoring and Management Plan requiring Skeena to monitor contaminant concentrations and implement adaptive management mitigation measures for water, soils and subsidence foods (see *Section 9.0* for a full description).

Additionally, IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.8.6.4 Risk Assessment Methodology and Transparency

Several reviewers criticized inconsistencies in risk assessment methodologies, particularly regarding incremental change thresholds, carcinogenic risk classifications, and data transparency. Health Canada strongly opposed the use of a 20% incremental change threshold, arguing that it underestimates human health risks. However, Skeena maintained its approach, leaving this issue unresolved.

Another significant concern was the carcinogenic risk assessment for chromium ingestion, which Health Canada requested. Skeena included an assessment of chromium ingestion risk in the Revised Application, finding that for Full-time Residents and Traditional Land Users, the risk was not elevated.

In consideration of the concerns raised by reviewers, as well as the information provided by Skeena, the EAO has proposed Condition 21: Human Health Monitoring and Management Plan requiring Skeena to develop a plan to monitor environmental contaminants with the potential to impact human health (see *Section 9.0* for a full description).

Additionally, IAAC is considering the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.8.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, concerns raised by the TAC and TCG, and Skeena's responses to these comments, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on the human health valued component:

- Change in mental health and community well-being from in-migration;
- Change in mental health and community well-being from fly in/fly out work rotations;
- Change in Indigenous mental health and community well-being from landscape and environmental changes;
- Changes in incidence of infectious disease;
- Changes in incidence of chronic disease; and
- Changes in nutritional quality.

The EAO's characterization of the expected residual effects of ECRP 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 21: Summary of Residual Effects for Human Health

Residual Effect	Assessment Rating*	Significance and Rationale
Change in Mental Health and Community Well-being from in-migration	Context (resilience): Moderate Magnitude: Low to medium Extent: Local to regional Duration: Medium-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: Low Importance: Low	Not significant The assessment of the potential health effects related to in-migration of non-local workers during the Operations phase of ECRP is characterized as generally low in severity, based on several key factors. Context in the affected communities is considered moderate, given pre-existing challenges in accessing health care and police services, especially in remote areas like Smithers and Terrace. While these communities generally align with provincial averages on the Community Well-being Index, capacity issues for mental health services and law enforcement were noted, which may limit the ability to effectively respond to increased demands. There are also pre-existing issues with access to affordable housing, particularly for Indigenous women which could be exasperated by in-migration. The magnitude of potential effects—such as social tension, substance misuse, and stress—is predicted to be low, as any effects are expected to be reversible and manageable without significant intervention. However, isolated medium magnitude impacts could occur, particularly for vulnerable individuals. The extent of these effects is mostly localized to individual households, especially in Terrace, where the estimated in-migration (218 people) is small relative to the total population (15,685). In Smithers, a smaller community, the same level of in-migration could have a broader community-level impact. In terms of duration, the potential effects would likely be medium-term, aligning with the active Operations phase of ECRP. The frequency of stress-related impacts could be continuous, as even if incidents of tension or violence are sporadic, the underlying stress may persist throughout the Operations phase. Regarding disproportionate effects, some subsets of the population—such as those with pre-existing mental health challenges or those in more remote locations with limited access to services—may be more vulnerable to negative outcomes. Effects are expected to be partially reversible as likely not all who move to the area for work will leave with the closure of ECRP. The assessment also acknowledges uncertainty and risk, particularly around the actual number and distribution of in-migrants. If migration is uneven or higher than predicted, impacts could be more pronounced. However, because in-migration is expected to be voluntary and relatively small in scale, and because it has not emerged as a key

Residual Effect	Assessment Rating*	Significance and Rationale
		community concern, the overall risk is considered low. Assumptions about FIFO scheduling and the option for workers to reside in various B.C. communities help to further mitigate perceived risks.
Change in Mental Health and Community Well-being from FIFO work rotations	Context (resilience): Low to moderate Magnitude: Low to medium Extent: Local to regional Duration: Medium-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate to high Uncertainty: Moderate Importance: High	Not significant The use of FIFO work schedules for ECRP—two weeks on-site followed by two weeks off—presents a range of potential impacts on community cohesion and sense of safety, particularly in the Local AA and Regional AA. The context of communities is rated as low in the Local AA, largely due to the high proportion of Indigenous populations whose cultural practices and caregiving roles may be disrupted by the rotational schedule. In contrast, resiliency in the Regional AA is moderate, reflecting a more diverse population and broader access to coping mechanisms. The magnitude of impacts is expected to be low in the Regional AA, limited to manageable issues such as temporary stress. In the Local AA, however, the magnitude is rated medium due to greater potential for family strain, cultural disconnection, and socioeconomic stress linked to poorly managed income or substance misuse. The geographical extent of impacts is primarily at the regional level, assuming workforce distribution is not concentrated in one community. Should concentration occur, particularly in the Local AA, community-level effects could arise. The duration of these impacts is medium-term, aligned with the Construction and Operations phases of ECRP. Since the FIFO schedule is continuous, the social and health impacts will persist regularly throughout ECRP lifecycle. The effects are considered partially reversible as many of employment effects of FIFO will end with mine closure, however some effects such as marriage breakdown due to stress or a loss of intergenerational knowledge transfer cannot be reversed. Uncertainty remains moderate, as the precise distribution of hired workers by community is unknown, and individual variability in coping and support systems adds complexity. Indigenous communities are disproportionately affected by the effects to community well being due to a lower resilience from already challenged support structures. Women also may be disproportionately affected by the effects of decreasing mental health and substance misuse within the household. Finally, the risk of adverse impacts—such as mental health challenges and weakened family or community cohesion—is assessed as moderate to high (likely but not guaranteed with a high consequence), though strong social ties within Local AA communities may serve as protective factors that reduce overall harm.
Change in Indigenous Mental Health and Community Well-being from landscape and environmental changes.	Context (resilience): Low Magnitude: Medium Extent: Local to regional Duration: Long-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Disproportionate Risk (likelihood and consequences): High Uncertainty: Low Importance: High	Not significant Context (resilience) is rated low, due to limited access to culturally appropriate mental health services, although efforts such as Indigenous-led wellness programs are emerging. Effects are expected to be medium in magnitude. The geographic extent of the effect is rated as local to regional, indicating that it could potentially influence all members of the Tahltan Nation, not just individuals living near ECRP. The duration of the impact is long-term, persisting through the reclamation and closure phases and beyond, while the frequency is considered continuous, as both the environmental changes and their effects on mental health and cultural practices would be ongoing. Changes to Indigenous mental health and community well-being from landscape and environmental changes may be partially reversed once the mine closes, however some changes, such as mental health changes associated with landscape changes from the development of an open pit would likely be irreversible. The impact on mental health and quality of life is considered to have a high likelihood with significant consequences (high risk), largely due to concerns about potential contaminants (POCs) in traditional foods, which could discourage harvesting and undermine cultural practices closely tied to land use. Eating traditional foods has known mental and physical health benefits, and any decrease in such practices may negatively affect well-being.

Residual Effect	Assessment Rating*	Significance and Rationale
		. Finally, the importance of this issue is rated as high, reflecting the longstanding significance of land and traditional practices to Indigenous identity and well-being, as well as community calls for long-term monitoring and support systems.
Changes in Incidence of Infectious Disease	Context (resilience): Moderate Magnitude: Low to medium Extent: Local Duration: Medium-term Frequency: Irregular Reversibility: Fully reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: Low Importance: Low	Not significant The residual effects of potential infectious diseases (primarily respiratory and diarrheal illnesses) related to ECRP activities at the worker camp are considered low overall due to mitigation measures required by Northern Health and WorkSafe B.C. Context is considered moderate due to the pre-existing strains on medical services in the region. Magnitude is rated low for the general population because most affected individuals are expected to recover without medical intervention. However, for affected populations—including Elders, children, people with chronic conditions, and Indigenous or other minority populations—the magnitude increases to medium, reflecting their greater vulnerability and likelihood of requiring treatment. The extent of effects is local, as an outbreak is unlikely to spread widely due to containment protocols. The duration is medium-term, spanning the Construction and Operations phases, while frequency is irregular. Effects are considered fully reversible once the mine closes. The likelihood of an outbreak remains low, given the planned health and safety measures, though it is slightly higher during Construction due to the larger and more transient workforce. There is some uncertainty and residual risk, especially related to the emergence of new viruses and the limits of even effective mitigation strategies. The overall importance of this issue is considered low overall, but more significant for those in vulnerable subpopulations.
Changes in Incidence of Chronic Disease	Context (resilience): Moderate Magnitude: High Extent: Local Duration: Long-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: Moderate Importance: High	Not significant ECRP is predicted to have residual effects on changes in the incidence of chronic disease through three primary pathways: subsistence food consumption, water quality, and air quality. The magnitude of these effects is rated as high due to predicted HQs and incremental lifetime cancer risks (ILCRs) exceeding health benchmarks in some scenarios. However, the risk of adverse outcomes varies by pathway and is considered moderate due to a low likelihood with conservative assumptions and moderate uncertainty in the HHRA. Effects would primarily impact individual/households and the community of off-duty workers art camp, so extent is considered local. Subsistence foods pose the greatest potential source of human health effects. Elevated HQs and ILCRs for metals such as cadmium and lead, were primarily driven by modelled increases in these contaminants in traditional food sources—particularly large mammal meat and organs, fish, and berries. Water quality-related risks were also assessed, particularly concerning arsenic in drinking water. Although ILCRs exceeded benchmarks the incremental change due to ECRP was small. For most people, drinking water exposure occurs off-site for most of the year, limiting the duration and extent of exposure. Water exposure risk is considered low due to the remote location and the relatively small number of individuals potentially affected. Importance, however, remains high due to the reliance on high-quality water for both health and cultural reasons. Air quality effects were primarily associated with particulate matter (PM_{10}) and other criteria air contaminants (CACs), such as nitrogen dioxide and carbon monoxide, particularly at the Maximum Point of Impingement (MPOI) and near the Permanent Camp at the TMSF for Off-duty Workers. While predicted concentrations exceeded regulatory thresholds during Construction and Operations, access controls and the site's remoteness significantly limit public exposure. As such, magnitude is rated high, but the

Residual Effect	Assessment Rating*	Significance and Rationale
		probability of impact on Traditional Land Users and Full-time Residents is low, due to limited presence in impacted areas. In contrast, Off-duty Workers at the Permanent Camp at the TMSF may experience regular exposure, justifying the high frequency and high probability ratings for that group. Still, mitigation measures (e.g., HVAC filtration, adaptive dust control) at the Permanent Camp at the TMSF are expected to reduce exposure and manage health risks. Across all pathways, the uncertainty in predicted effects is moderate, due to inherent modelling uncertainties—especially in estimating dust-borne metal concentrations from geochemical sources with high detection limits. The importance of all three exposure routes is considered high, particularly given the cultural relevance of subsistence foods and clean air and water to Indigenous communities. To address these uncertainties and potential overestimations of risk, a Human Health Management and Monitoring Program (HHMMP) will be implemented to support adaptive management and validate predictions through ongoing environmental and health monitoring.
Changes in Nutritional Quality	Context (resilience): Low to moderate Magnitude: Moderate Extent: Local to regional Duration: Medium-term to long-term Frequency: Irregular to continuous Reversibility: Partially Reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Medium Uncertainty: Low Importance: Medium to high	Not significant The assessment of changes to nutrition as a residual health effect focuses on two interconnected pathways: contamination of subsistence foods and increased cost of market foods. Both have implications for food security and health, particularly among Indigenous communities and vulnerable populations. The magnitude of health effects from both pathways is rated moderate. For subsistence foods, while most people are unlikely to consume at levels that pose significant health risks, elevated hazard quotients (HQs) and incremental lifetime cancer risks (ILCRs) for certain metals (e.g., mercury, selenium, arsenic) do suggest potential concern at higher consumption levels. In terms of market food costs, the anticipated rise in cost of living due to ECRP is also considered minor. However, even small cost increases can disproportionately impact those already experiencing food insecurity or income challenges, especially if concerns about contaminants lead to decreased reliance on subsistence foods. The extent of effects varies: for subsistence food contamination, impacts are localized to households within the HHRA Study Area, while market food cost increases are regional, reflecting the broad impact on communities with limited food options due to remoteness. The duration of effects differs as well—long-term for subsistence foods (given long-term metal concentration changes), and medium-term for market food costs, aligned with Construction and Operations phases. The frequency is irregular for subsistence food-related impacts and continuous for cost-of-living increases, since economic pressures are expected to persist throughout key phases of ECRP. Context or resiliency is rated low to moderate, depending on the population. Indigenous and rural communities often face limited access to healthcare, nutritious market food options, and income security, making them more susceptible to both food quality and cost-related nutritional impacts. These groups also experience disproportionate effects, as they rely more heavily on subsistence foods and are more vulnerable to price fluctuations due to existing socio-economic disparities. The importance for subsistence food impacts is high, due to the deep cultural, health, and spiritual significance of traditional foods for Indigenous peoples. For market food costs, the importance is assessed as medium, as concerns about food insecurity were raised during the assessment. Finally, while mitigation and monitoring strategies, such as the HHMP, are proposed to manage uncertainty and risk, the perceptions of contamination alone may alter harvesting behaviors, leading to reduced nutritional quality. The likelihood of significant

Residual Effect	Assessment Rating*	Significance and Rationale
		health effects from both food contamination and cost increases is generally low to medium, however would have Major consequence, leading to a Moderate risk rating.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.8.8 Cumulative Effects Assessment

Skeena determined that there are nine existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP and add additional in-migration to Terrace, Smithers, or the District of Stewart. Skeena anticipated that seven of the nine future projects would be expected to hire locally and would require a FIFO schedule.

Cumulative effects consider how impacts from ECRP may combine with those from past, existing, and foreseeable future projects to influence human health, particularly within Indigenous and rural communities. These cumulative effects stem from multiple sources and pathways, including in-migration of non-local workers, FIFO scheduling, environmental changes, air and water quality impacts, and changes in food systems—both market-based and traditional.

A key area of concern is the potential for cumulative effects on mental health and community well-being primarily as a result of in-migration and FIFO schedules. The arrival of workers from outside the region, whether permanently or temporarily, can place strain on community cohesion, increase pressure on already limited housing and health care infrastructure, and lead to heightened social tensions. Multiple projects in the region, including mining and energy developments, are expected to use FIFO schedules and transit hubs in communities like Smithers, Terrace, and the District of Stewart. This pattern of work can contribute to family stress, substance misuse, and disruptions in social support systems, especially in smaller communities. The combined presence of several such projects increases the potential for these social and psychological stresses to accumulate over time.

ECRP may also contribute to cumulative pressures on health care services, which are already at or near capacity in the region. This is particularly important for mental health care and public health responses to infectious disease. Increased population density, crowding in temporary accommodations, and frequent travel associated with FIFO work can elevate the risk of communicable diseases such as respiratory or gastrointestinal illnesses. While individual risks may remain low, the combined impacts of several concurrent projects can stress the capacity of local health services and challenge community resilience.

Environmental changes resulting from ECRP and others in the region, particularly land disturbance and emissions to air and water, also present cumulative concerns. For Indigenous communities, these changes are deeply linked to mental, spiritual, and cultural well-being. As more projects disturb land used for traditional practices, the cumulative disruption can erode cultural continuity and sense of place, with associated effects on community health and quality of life.

The quality of subsistence foods may be affected by real or perceived contamination with project-related pollutants. Even if contaminant levels remain within acceptable thresholds, the presence of multiple industrial activities in traditional harvesting areas can lead to increased public concern about food safety. This, in turn, may cause individuals to reduce their reliance on traditional diets, leading to lower nutritional quality and cultural disconnection. While modelling indicates that ECRP's individual contribution to food contamination is limited, the perception of cumulative industrial activity across the region may influence harvesting behaviours and dietary choices.

At the same time, ECRP is anticipated to contribute to higher local spending and economic activity, which could drive up the cost of living, including food prices. For households already facing financial insecurity, this may exacerbate food insecurity and nutritional stress, particularly in remote communities with limited access to affordable alternatives. When combined with decreased access to traditional foods, the net impact on nutrition could be more severe.

In the context of air quality, cumulative emissions from ECRP and neighbouring developments, particularly at worker accommodation camps, may result in higher levels of dust (PM_{10}) and other airborne contaminants. While the exposure

areas are expected to be localized, the combined emissions from overlapping Construction and Operations phases of multiple projects could lead to short-term air quality issues, especially for workers with underlying health conditions.

Overall, ECRP contributes to a broader regional trend of environmental, social, and health-related changes driven by resource development. While each effect on its own may be managed or mitigated, their accumulation across multiple projects raises important concerns for community well-being, service capacity, and the long-term health of both the land and the people who depend on it. These concerns are especially acute for Indigenous populations, who are more likely to rely on subsistence resources, experience systemic barriers to health care, and have strong cultural ties to the land.

The EAO considered the existing conditions at the mine site, the predicted residual effects from ECRP, the mitigation measures proposed by Skeena and the regulatory tools to implement those mitigation measures, and the EAO's assessed residual effects and concludes that no significant cumulative effects to human health are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.8.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the human health valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions including, Condition 22 (Health and Medical Services Plan), Condition 23 (Human Health Management and Monitoring Plan), and Condition 24 (Socioeconomic Management Plan) (see *Section 9.0*); and recommended federal key mitigation measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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17.9 Infrastructure and Services

17.9.1 Summary

Infrastructure and services was selected as a valued component for the ECRP environmental assessment because well-functioning infrastructure and services enable communities to provide facilities and amenities that support their populations by delivering essential heath care, social services and other benefits.

Skeena assessed that ECRP has the potential to put pressure on health care services and facilities, utilities, education and daycare services, transportation infrastructure, availability and affordability of housing and accommodations, and p emergency and law enforcement services.

These pressures would be primarily caused by service use by employees and contractors, especially in cases where there is in-migration of contractors, employees and their families to the Local AA and Regional AA communities, though Skeena has committed to a variety of mitigation measures (including prioritizing local hiring) that would reduce these potential effects.

Issues raised by reviewers were related to the increase in demand on health care services, facilities and funding. Reviewers also indicated concern regarding gender-specific impacts in relation to health care access, mental health support and providing additional resources for groups that may be more vulnerable.

The EAO considered Skeena's assessment and proposed mitigation measures, the key issues raised by reviewers, proposed Certificate conditions requiring development of a Health and Medical Services Plan and a Socioeconomic Management Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA and concluded that there would be residual effects to infrastructure and services from ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted negative residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse or significant cumulative effects on the infrastructure and services valued component.

17.9.2 Assessment Boundaries

17.9.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to infrastructure and services (see *Figure 21.3-1* in *Chapter 21* of the Revised Application):

- Local Assessment Area: The area within which most direct and immediate, and indirect project effects are expected to occur. The Local AA overlaps with territories of the Tahltan Nation and Tsetsaut Skii km Lax Ha, parts of the RDKS and parts of the Stikine Region. It includes many incorporated and unincorporated communities, including Iskut, Dease Lake and Telegraph Creek.
- Regional Assessment Area: The broader area where indirect and induced effects of ECRP may occur. The Regional AA encompasses the Local AA and includes larger communities like Terrace, Smithers, District of Stewart, the Village of Hazelton, and the District of New Hazelton, as well as Nisga'a Villages and Gitanyow Nation communities.
- Transportation Corridor Assessment Area: The area that will be used to transport ECRP related concentrate, supplies, and personnel. The Transportation Corridor AA is located entirely within the Regional AA and includes the Eskay Creek Mine Access Road, Highway 37 from Łuwechōn (Iskut) to Meziadin Junction, and the portion of Highway 37 south of Meziadin Junction within the Nass Area and the Nass Wildlife Area. The Transportation Corridor AA also includes Highway 37A west of Meziadin Junction to the port facilities located in the District of Stewart.

17.9.2.2 Temporal Boundaries

The following temporal boundaries were including in the assessment of effects to infrastructure and services:

- Construction: 2 years;
- Operations: 13 years;
- Reclamation and Closure: 3 years; and
- Post-closure: 57 years (based on model forecast period).

17.9.3 Existing Conditions by Skeena

Existing conditions related to infrastructure and services was assessed by Skeena in Chapter 21 (*Section 21.4*) of the Revised Application and is summarized below.

17.9.3.1 Population Demographics and Trends

The Regional AA and Local AA are sparsely populated and are both experiencing lower population growth rates than the provincial average in B.C. Despite this overall trend, some communities within the Regional AA and Local AA have show growth rates that exceed the provincial average. Community sizes vary widely, with populations ranging from as few as 51 residents (Telegraph Creek 6 and 6A) to 13,926 residents (Terrace). The region also has a higher Indigenous population compared to B.C. overall. Based on historical trends, the primary population centers of Terrace, Smithers and the Village of Hazelton are expected to experience substantial growth of approximately 25 percent or more between 2023 to 2046. In contrast, other areas are projected to have slow or negative growth from 2023 and 2030, followed by modest positive growth through 2046. Additionally, men (including men, boys, and some non-binary persons) slightly outnumber women (including women, girls and some non-binary persons) in both the Local AA and Regional AA, which contrasts with the broader provincial trend of women slightly outnumbering men. The region's low population density and long distances between communities limit the overall availability and accessibility of infrastructure and services

17.9.3.2 Health Care Services

Major healthcare facilities in the Local AA and Regional AA facilities are located in larger communities such as Terrace and Smithers, with smaller clinics and health centres serving remote communities. Indigenous communities often rely on First Nations Health Authority services.

The main challenges related to health care services in the Local AA and Regional AA are related to long distances between health care facilities, limited capacity of the facilities, and difficulties in recruiting health care professionals to rural and remote areas. Capacity concerns for existing health care services and facilities across the Regional AA are prevalent, emphasizing the pressure and strain current conditions are putting on northern BC's health care system.

Social services include mental health support, women's services, early learning programs, housing assistance, training and employment services, adult learning programs, and multicultural programs. However, access to these services is often strained due to the remote nature of the region and limited resources. Most social services and facilities are operated by public and private organizations in Terrace and Smithers.

17.9.3.3 Utilities

Communities across the both the Local AA and Regional AA have varying levels of service and facilities for utilities (water, sewage, waste management, communications, electricity and natural gas), based on location.

Within the Local AA, water is supplied from community wells, is treated, and then stored in reservoirs for distribution. Across the Regional AA, water infrastructure is sufficient for existing populations and the District of Stewart can handle a population larger than its current level.

In the Local AA, homes have individual septic systems connected to leaching fields and these systems are periodically pumped out and disposed of at the Iskut landfill. Communities within the Regional AA have sewage systems or wastewater treatment facilities. During recent years, waste from industrial projects along the Highway 37 corridor has shortened the operational lifespan of the Meziadin landfill. In response, the RDKS requested that proponents of industrial projects use alternative waste management facilities.

Electricity is largely provided to communities in the Regional AA through the BC Hydro grid, although some remote areas, particularly in the northern area of the Regional AA, rely on diesel-generating stations. Much of the Regional AA is not serviced by natural gas and relies on supplementary sources (e.g., diesel, propane). Apart from Iskut, Dease Lake and Bob Quinn, communities in the Local AA depend on diesel-generated power and wood to heat their homes. In 2014, the BC Hydro power grid was extended to Iskut, with a new substation near Tatogga Lake. This extension has the capacity to supply power to additional mines or projects in the future.

Within the Local AA, communication services vary by location. Much of the Stikine Region depends on satellite internet service and some communities have no cellular services. High-speed fibre optic connectivity is planned for Dease Lake 9 and Iskut 9. Highway 37A and the northern parts of the Regional AA along Highway 37 do not have cellular coverage. Work is currently underway to provide continuous coverage along Highway 16, from Prince George to Prince Rupert. Improving communications connectivity is a priority for many communities and Indigenous Nations.

17.9.3.4 Education and Childcare

In the Regional AA, there are 46 daycare facilities, most of which are in Terrace or Smithers. The City of Terrace recognizes that there is a greater need for daycare, noting that labour conditions of shift work can increase the need for daycare beyond regular school hours. Tahltan community members commented that limited availability of daycare was one of several barriers to successful employment, particularly for women.

The Local AA overlaps with School District 87, which provides services for Telegraph Creek and Dease Lake. Schools are located in Telegraph Creek (Kindergarten to Grade 9), Dease Lake (Kindergarten to Grade 12) and Iskut (Kindergarten to Grade 9). Tahltan members reported that the primary reason that Tahltan members left Tahltan communities was to pursue high school and post-secondary education. In particular, students from Telegraph Creek or Iskut either travel or move to Dease Lake or larger population centers to attend school beyond Grade 9.

There are a range of post-secondary, advanced education and training options within both the Local AA and Regional AA, although offerings differ among institutions and communities.

17.9.3.5 Transportation

Highway 37 and 37A are the primary routes connecting the communities of the Local AA and Regional AA, with local roads providing access to smaller communities. Some communities, such as Telegraph Creek, are only accessible by a single road. The road network is also important for TCG and Tsetsaut Skii km Lax Ha members to access lands and waterbodies to undertake cultural activities and access cultural resources such as food harvesting.

A traffic volume study to assess the effects of traffic related to ECRP found that Highway 37 had the highest level of service rating, vehicles following another vehicle is low, drivers travel at “free flow” speeds, and that the operating speed is only constrained by the road alignment and surface conditions. The highest traffic volumes in the Local AA were on Highway 37 between Dease Lake and Dease Lake 9. Summer traffic volumes on average exceed winter traffic due to the additional recreation and tourism-related travel.

There are various private roads to mines and mineral tenure areas that do not allow public access. Some of these have security gates at access points.

Small regional airports provide limited air access in the Local AA and are mainly for emergency and commercial use. There are small airports based in Smithers and Terrace, in addition to an airport in the District of Stewart that has unpaved

runways. These provide services throughout the Regional AA and Local AA, as well as connecting the region to larger population centers across the province, such as Prince George and Vancouver.

The lack of transportation and mobility in the region is a barrier to employment, education, training and health and social services access, particularly for diverse sub-groups, such as rural populations, Indigenous people, or low-income or disabled individuals. These barriers and long distances mean that some individuals may have to stay overnight in larger communities to access services, placing a greater financial and time burden on them.

Safety is also a concern, specifically for Indigenous women and girls. The lack of public transportation means that people often hitchhike along roads, increasing their exposure to anti-social and criminal behaviour. A disproportionate number of Indigenous women and girls have disappeared in a stretch of Highway 16, unofficially known as the "Highway of Tears". Ongoing efforts to increase cellular coverage along this route is anticipated to increase safety in the region.

17.9.3.6 Housing and Accommodation

Housing availability is a key concern in both the Local AA and Regional AA. The current housing stock is limited, particularly in remote communities and for seniors and Elders, and affordability is an issue in areas where demand exceeds supply. This leads to overcrowding, which was reported in Tahltan communities. A lack of housing and lack of appropriate housing was the second most important reason (after education) that Tahltan community members left Tahltan communities.

Housing in the Regional AA is relatively affordable, compared to other regions in B.C., but affordability conditions are worsening as the population gets older, housing costs rise, competition for housing increases, and the existing stock ages. There is a need for affordable and accessible housing for those on a fixed income, as well as an increasing need for at-home care services.

17.9.4 Potential Project Effects by Skeena

Skeena identified the following potential effects on infrastructure and services due to ECRP in Chapter 21 (*Section 21.5*) of the Revised Application, which is summarized in the list below:

- Increased demand for health care services due to in-migration of workers and their families, has the potential to reduce access to already limited health care infrastructure and further increase barriers to accessing timely care for people with existing vulnerabilities, such as the elderly and Indigenous communities;
- Increased demand for housing from in-migration of workers in both the Local AA and Regional AA has the potential to contribute to the already limited housing availability, which would increase housing prices and rent, making it more difficult for existing residents, especially low-income and Indigenous community members, to find affordable housing;
- Increased need for waste management services, putting pressure on offsite waste disposal facilities that may already be limited in capacity;
- Increased traffic on major routes, particularly Highway 37 and 37A, is expected, especially during the Construction and Operations phases, and has the potential for, higher risks of road accidents and accelerated deterioration of road infrastructure;
- Increased pressure on education and daycare services as a result of population in-migration in communities in the Local AA and Regional AA, reducing access for local children; Overcrowding of local schools and daycare facilities due to the influx of workers' families, limiting access for local children and impacting the quality of education and childcare;
- Increased pressure on emergency services from: employees requiring offsite emergency transportation, increased traffic accidents and Project-related population increases. Potentially reducing the availability of emergency services for residents of communities in the Local AA and Regional AA;

- Pressure on law enforcement services in communities in the Local AA and Regional AA resulting from the potential for anti-social behaviours from Project employees during Construction and Operations, and from community impacts from loss of employment during Closure and Post-closure. Skeena also acknowledged that rural populations, Indigenous people, and women may be disproportionally affected by these pressures on law enforcement services; and
- A potential for cumulative increased demand for health care services and facilities from ECRP's effects combining with impacts from other projects and activities in the area with similar effects on local infrastructure and services.

17.9.5 Proposed Mitigation Measures by Skeena

Skeena has committed to implementing several mitigation measures to reduce the potential effects of ECRP on infrastructure and services in Chapter 21 (*Section 21.5*) of the Revised Application. Below is a selection of the most important of these mitigation measures.

- Recruitment and Selection Policy: Implement policy to employ Indigenous people from communities in the Local AA and Regional AA in as many roles as possible wherever feasible;
- Leverage Existing Recruitment Initiatives: Skeena will work to leverage the talent of the workforce in the Local AA and Regional AA communities where feasible to reduce in-migration, including by partnering with training and post-graduate programs so local students and/or recent graduates are connected to work without having to relocate;
- Procurement Policy: Implement policy to prioritize procurement and contracting from businesses within the Local AA and Regional AA, including involvement of Indigenous-owned businesses;
- General Occupational Health and Safety Policy: Implement policy to liaise and coordinate with community emergency services;
- Health and Medical Services Plan (HMSP): Develop plan to reduce pressure on health care services and facilities and coordinate health service delivery with Northern Health. The HMSP will also include a Communicable Disease Prevention Plan to address infectious diseases such as respiratory and norovirus infections;
- Incident and Reporting and Incident Investigation Procedure: Implement incident reporting and investigation procedures, including tracking traffic accidents/incidents and conducting post-event analyses to identify areas for improvement;
- Employee Assistance Program: Skeena will continue to implement their employee assistance program and encourage major contractors to have an employee assistance program, to promote occupational health, prevent injuries and support the mental wellness of employees;
- Drug and Alcohol Policy: Implement policy to reduce pressure on health care services and facilities;
- Community feedback process: Implement process for residents of Local AA and Regional AA communities and employees to share input about potential effects of ECRP; and,
- Integrated Waste Management Plan: Develop plan as required by the RDKS to reduce pressure on waste management facilities.

For a summary of Skeena's proposed management plans and mitigations related to infrastructure and services, see *Appendix A-1* of the Revised Application.

17.9.6 Key Issues Raised

The following key issues were raised by the Technical Advisory Committee and Tsetsaut Skii km Lax Ha.

17.9.6.1 Increased demand on health care services and funding

Northern Health and Tsetsaut Skii km Lax Ha raised concerns about how Skeena's additional workforce may impact the demand on health care services, particularly given the potential for Skeena needing to rely on out-of-region hiring. Funding for health care services is primarily based on the local population size, so in-migration of non-local workers has the potential to increase pressure on already limited health, mental health and social services. Northern Health also emphasized that pressures on local health services aren't necessarily related to occupational instances but rather non-occupational health care needs (e.g. regular illnesses, chronic conditions). Concerns about whether Skeena had considered any contingency plans were also raised.

Skeena acknowledged Northern Health and Tsetsaut Skii km Lax Ha's concerns, but highlighted that, based on their assessment, there will be limited, and likely only during the Operations phase, impacts from in-migration from out-of-region hiring which is being mitigated through a fly-in-fly-out work schedule and a focus on local hiring. Skeena clarified that most health cares, while may not be occupational related, the opportunity to use local health care would be limited to their travel to and from site, generally. Additionally, onsite medical services are anticipated to be able to manage most health needs which would reduce the reliance on any local health systems.

Skeena also highlighted that past mining project examples in the area have historically indicated that there has been minimal health services burdens due to workforce demographics and long work shifts. Additionally, Skeena noted that in the event of any unanticipated effects, management plans, such as the Socioeconomic Monitoring Plan, Health and Medical Services Plan, and the Mine Emergency Response Plan will include adaptive management measures.

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO has also proposed Condition 22: Health and Medical Services Plan to mitigate potential effects to the demand on health care services (see *Section 9.0* for a full description).

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to Indigenous peoples' health and current use of lands and resources for traditional purposes related to effects of ECRP on infrastructure and services (See *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of draft potential federal conditions.

17.9.6.2 Gender-specific impacts

Northern Health inquired if Skeena anticipated implementing any targeted mitigation measures to address identified gender-specific impacts in relation to healthcare access, mental health support or providing additional resources for groups that may be more vulnerable because of ECRP.

Skeena responded that further consideration of gender-specific mitigations would be identified through the Socioeconomic Monitoring Plan, particularly in regard to acknowledged potential disproportionate effects to rural populations, Indigenous people, and women from pressures on the availability of housing, healthcare services and law enforcement services. These effects will also be managed through broader mitigation measures specific to these socio-economic areas that are designed to reduce pressure overall in favour of local community members.

In consideration of concerns raised by reviewers, as well as the information provided by Skeena, the EAO proposed Condition 23: Socioeconomic Management Plan to mitigate gender-specific impacts including improving healthcare access, mental health support, and other resources for groups that may be more vulnerable

Additionally, IAAC has considered the EAO's recommendations for federal Key Mitigation Measures and Follow-up Programs referenced above in the development of draft potential federal conditions.

17.9.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, concerns raised by reviewers, and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained

in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on infrastructure and services during the 13-year Operations phase:

- Increased pressure on health care services and facilities; and
- Increased pressure on housing availability and affordability.

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

Table 22: Summary of Residual Effects for Infrastructure and Services

Residual Effect	Assessment Rating*	Significance and Rationale
Increased pressure on health care services and facilities during Operations Pressure on local health care services and facilities may increase due to the occasional acute care needs from onsite or transit-related accidents, as well as traffic-related injuries. Additionally, the in-migration of employees and their families could increase demand for medical services in the surrounding communities.	Context (resilience): Low Magnitude: Medium Extent: Regional Duration: Medium-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: Moderate Importance: Moderate	Not significant All potentially affected communities are already facing capacity challenges, and while urban centres like Terrace and Smithers may be better equipped to handle occasional surges in demand, the smaller facilities are likely unable to, leading to low resilience. Skeena's proposed mitigations are expected to largely lessen the impact on services and facilities, so magnitude is considered medium. Extent is regional and primarily felt in Terrace and Smithers. The duration is medium-term because it is expected to occur primarily within the Operations phase but will not likely be felt beyond closure. Frequency is considered continuous, there will be different but consistent pressures on health care facilities and services from families that move to the region. Effect is fully reversible due to the anticipation that most employees are expected to leave the region once ECRP enters Reclamation and Closure. There are disproportionate constraints to health care services and infrastructure in rural populations, people without reliable transportation, First Nations and individuals with mental health challenges and/or addictions. This led to a moderate risk rating for increased pressure on local health care services and facilities; there is a moderate level of uncertainty due to the inability to predict the extent that ECRP results in in-migration. This issue is considered important to local government, Northern Health, First Nations and local residents and was assessed as moderate.
Increased pressure on housing availability and affordability during Operations Increased demand from employees and their families relocating for work, as well as the potential need for short-term accommodations for contractors and drivers could impact housing availability and affordability	Context (resilience): Low Magnitude: Medium Extent: regional Duration: Medium-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: Moderate Importance: Moderate	Not significant All potentially affected communities already experience issues with affordability and availability and is expected to have low resilience due to existing housing market constraints. Skeena anticipates that their proposed mitigations will be successful in mitigating ECRP's potential to put pressure on housing and magnitude is assessed as medium. Extent is anticipated to occur primarily within Terrace and Smithers (Regional AA) so is assessed as regional. The duration is medium-term because it is expected to occur primarily within the Operations phase when in-migration is occurring but will not likely be felt beyond closure. Frequency is continuous, as pressure will be constant as families move into the region during Operations. The effect is considered fully reversible due to the anticipation most employees and their families are expected to leave the region once ECRP enters Reclamation and Closure. Rural populations, First Nations, low-income households and gender-diverse populations are disproportionately affected by increased pressure on housing availability and affordability. This led to a moderate risk rating for increased pressure on housing affordability and availability; there is a moderate level of uncertainty due to the inability to

Residual Effect	Assessment Rating*	Significance and Rationale
		predict the extent that ECRP results in in-migration. This issue is considered important to local government, First Nations and local residents and was assessed as moderate.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.9.8 Cumulative Effects Assessment

Skeena conducted a cumulative effects assessment on infrastructure and services in Chapter 21 (*Section 21.7*) of the Revised Application. Skeena identified 16 existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP: four existing projects (Brucejack Mine, Red Chris Mine, Premier Gold Mine and the LNG Canada Export Terminal) and 12 reasonably foreseeable future projects.

Skeena assessed the following pathways for cumulative effects for infrastructure and services:

- Pressure on health care services and facilities; and
- Pressure on housing affordability and availability.

Cumulative effects from these projects and activities are primarily due to service use by employees and contractors; especially in cases where there is in-migration of contractors, employees and their families to the Local AA and Regional AA communities. The potential for cumulative effects from these projects is considered moderate due to proximity of ECRP to the pre-existing projects and activities and due to the degree of in-migration being unable to be predicted with the greatest confidence levels.

The EAO considered the existing conditions at ECRP, the anticipated mitigation measures proposed by Skeena and the regulatory tools to implement those mitigation measures, and the EAO's assessed residual effects and concludes that no significant cumulative effects to infrastructure and services are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.9.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the infrastructure and services valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers and Skeena; the proposed mitigation measures identified in the provincial table of conditions including Condition 22 (Health and Medical Services Plan) and Condition 23 (Socioeconomic Management Plan); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

17.10 Non-Traditional Land and Resource Use

17.10.1 Summary

Land and resource use is important to understand as ECRP might affect private property, tenured land and resource use, public land and resource use, and parks and protected areas.

Skeena identified the potential effects of ECRP to be changes in tenured land and resource use and public land and resource use. Skeena also described mitigation measures that would reduce these potential effects to land and resource use.

Reviewers did not identify key issues for the non-traditional land and resource use (NTLRU) valued component.

The EAO considered Skeena's assessment and proposed management plans and mitigation measures, the key issues raised by reviewers, proposed Certification conditions requiring development of a Construction Environmental Management Plan, Socioeconomic Management Plan, and End Land Use Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA, and concluded that there would be residual effects to tenured and public land and resource use from ECRP. The EAO is satisfied that the proposed Certificate conditions would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse residual or significant cumulative effects on the NTLRU valued component.

17.10.2 Assessment Boundaries

17.10.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to NTLRU (see *Figure 22.3-1* and *Figure 22.3-2* in Chapter 22 of the Revised Application):

- NTLRU Assessment Area: This encompasses the broader regional environment where ECRP may have indirect effects including through interactions with wildlife, vegetation, and land use.
    - The NTLRU AA is defined by local geography and major infrastructure, such as highways.
    - The NTLRU AA overlaps with protected areas, including the western edges of Ningunsaw Provincial Park and Ningunsaw Park Ecological Reserve. These protected areas are located approximately 17.2 km and 36.2 km from the Assessment Footprint, respectively.
- Focused NTLRU Assessment Area: This area is where the direct effects of ECRP, such as changes in sound levels, landscape, and human activity, may be more noticeable.
    - The Focused NTLRU AA is defined by a buffer extending to the height of land or 1 to 1.5 km around the outer limits of the proposed infrastructure and linear developments, whichever is reached first.
    - It generally falls within the boundaries of the Tahltan AOIs, except for portions of the Upper Elevation AOI and Lower Elevation AOI.

17.10.2.2 Temporal Boundaries

The following temporal boundaries were used for the ECRP land and resource use assessment:

- Construction: 2 years;
- Operations: 13 years;
- Reclamation and Closure: 3 years; and
- Post-Closure phase: 57 years (based on model forecast period).

17.10.3 Existing Conditions by Skeena

Skeena described existing conditions for land and resource use in Chapter 22 (*Section 22.4*) of the Revised Application, which are summarized here. The NTLRU assessment considers a wide range of land and resource uses within the ECRP area and surrounding regions. The existing land uses in the NTLRU AA and Focused NTLRU AA reflect a combination of industrial, recreational, and traditional Indigenous activities.

Key Components of Existing Land Use:

- LRMPs and Policies:
  - The NTLRU AA overlaps with the CIS LRMP, the Nass south SRMP, and areas defined in the Nisga'a Treaty (1999).
  - The Focused NTLRU AA overlaps the CIS LRMP.
  - Land management within the Tahltan Territory is guided by the Klappan Land Management Plan and is located outside of the NTLRU AAs.
- Parks and Protected Areas:
  - The NTLRU AA overlaps with several protected areas, including Ningunsaw Provincial Park and Ningunsaw Park Ecological Reserve, which are important for preserving regional biodiversity and supporting recreational activities. Ningunsaw Provincial Park is mainly accessed via Highway 37 and there are no designated vehicle parking lots, trails, or infrastructure and facilities at the park.
- Private Property and Residential Areas:
  - There are no residential areas in the NRLRU AAs.
  - The NTLRU AA overlaps 47 (5 private) land parcels, and the Focused NTLRU AA overlaps with 30 (1 private) land parcel. The 5 private land parcels in the NTLRU AA are all current or planned industrial sites.
- Industrial Activities:
  - The ECRP area has a history of mining activities and related infrastructure, particularly the historical Eskay Creek Mine.
  - There are no oil and gas tenures within the Focused NTLRU AA and NTLRU AA.
  - A total of 9 and 16 tenures for industrial purposes overlap with the Focused NTLRU AA and NTLRU AA, respectively.
  - A total of four and five tenures for waterpower purposes overlap with the Focused NTLRU AA and NTLRU AA, respectively.
  - A total of three and four tenures for quarrying purposes overlap with the Focused NTLRU AA and NTLRU AA, respectively.
- Forestry:
  - There are 10 and 6 active forestry licenses in the NTLRU AA and Focused NTLRU AA, respectively.
  - There are no old growth management areas in the NTLRU AAs.
  - The Focused NTLRU AA overlaps with the Cassiar TSA, while NTLRU AA overlaps with both Cassiar and Nass TSAs. Additionally, NTLRU AAs intersect with several forestry tenures.
- Hunting, Guide Outfitting, and Trapping:

- The Focused NTLRU AA overlaps with one Wildlife Management Unit (WMU) (WMU 6-21). Two WMUs (WMU 6-21 and WMU 6-16) overlap the NTLRU AA.
- The primary species hunted in each WMU are black bear, mountain goat, moose, sheep, and wolf within WMU 6-21 and black bear, mountain goat, and wolf within WMU 6-16.
- Hunting for traditional purposes also takes place within these WMUs. Effects of ECRP on land use for traditional purposes is further discussed in Appendix 5 (*Section 16.0*) and *Appendix 13* of this Report.
- Four guide outfitting certificate areas overlap the NTLRU AAs, three of which are family-owned businesses.
- There are seven registered traplines in the NTLRU AAs.

- Fishing:
  - Fish can be found in the Unuk River and Iskut River within the NTLRU AA. TCG works to manage and protect fisheries and associated fishing opportunities; harvested salmon may be used and bartered by TCG members, but sales of harvested salmon are illegal.
- Vegetation Gathering:
  - Indigenous and non-Indigenous foragers in the area harvest locally available mushrooms, berries, and other botanicals for private use and sale.
- Outdoor Recreation and Tourism:
  - TCG has identified tourism as an important area for future economic development through the activities of its Tourism Department.
  - There are three commercial recreational licenses intersecting the Focused NTLRU AA and NTLRU AA.
  - One environment, conservation, and recreation tenure overlaps with the NTLRU AA.
  - One recreational trail and three recreational sites aligned with Highway 37 are along the edge of the NTLRU AA.
- Agriculture and Water:
  - The NTLRU AAs do not overlap with B.C.'s Agriculture Land Reserve.
  - Two active grazing licenses intersect the Focused NTLRU AA and NTLRU AA, with less than 1 percent of the license area of one license and less than 10 percent of the license area of the other overlapping.
  - The focused NTLRU AA overlaps three watersheds: Iskut River Watershed, Lower Iskut River Watershed and Unuk River Watershed, with the NTLRU AA also overlapping the Upper Bell-Irvine River Watershed and Lower Bell-Irvine River Watershed. The NTLRU AA overlaps 17 active surface water licences and 9 groundwater wells. The focused NTLRU AA overlaps nine active surface water licenses and 4 groundwater wells. Five wells are for commercial and industrial use, three for water supply, and one categorized as "other."
- Transportation and Utilities:
  - There are no public paved roads within the NTLRU AAs and roads within the Focused NTLRU AA are limited to the Eskay Creek Mine Access Road, a private industrial road. Highway 37 borders the northern edge of the NTLRU AA.
  - The Focused NTLRU AA overlaps with seven linear utility tenures, six allocated for powerlines and one allocated for a telecommunication line.

  - Four transportation tenures (roadway and airstrip) overlap with the Focused NTLRU AA. The nearest airstrip is at Bob Quinn Lake, located in the NTLRU AA, and the nearest airport is Dease Lake in the Local AA.

- Participation of Diverse Subgroups in Land and Resource Use:
  - Indigenous peoples may be more likely to participate in some types of outdoor activities than non-Indigenous populations when both traditional and non-traditional land uses are accounted for, particularly harvesting.
  - There is a gendered trend in land-based activities, with women typically being more engaged in foraging and men more engaged in hunting, trapping, fishing, and off-road vehicle use.

17.10.4 Potential Project Effects by Skeena

Skeena identified several potential effects on NTLRU as a result of ECRP in Chapter 22 (*Section 22.5*) of the Revised Application, which are summarized here. Interactions with parks and protected areas were evaluated, and Skeena's analysis concluded that the potential for ECRP to affect park users' access to parks and protected areas, or the experience of visiting them, is expected to be negligible. The Revised Application notes that traffic increases on Highway 37 are expected to be negligible, and no significant changes to environmental conditions affecting park users are foreseen. The Revised Application notes that traffic increases on Highway 37 are expected to be negligible, and no considerable changes in environmental conditions affecting park users are foreseen.

Potential impacts on private properties include possible inconvenience for users of five private land parcels along the Eskay Creek Mine Access Road due to increased activity, though no changes to access are expected. Additionally, air particulate concentrations and daytime noise levels at the Volcano Generating Station property are projected to rise, with 24-hour maximum values predicted to be 18 percent higher and 8 percent higher than the AQ Objective Value during Construction and Operations phases, respectively. Daytime noise increases are expected to be negligible at this site. AQ and noise levels are not expected to increase for the other land parcels in the area.

For tenured land and resource use, Skeena predicted no changes in access for commercial recreation license holders, mineral claim holders, trapline holders and guide outfitters, utility and industrial Crown land tenure holders, forest license holders, grazing tenure holders or water license holders. Increased noise, dust, and air quality changes may affect how these tenures are utilized; however, these impacts are expected to be negligible. Environmental disturbances may impact commercial recreation tenures, including heli-skiing and climbing, and traplines and guide outfitting areas, which could experience disruptions due to noise and dust. Wildlife habitat is another area of concern, with effective growing season habitat expected to be reduced for several key species in the Focused NTLRU AA, including mountain goat (4 percent), moose (3 percent), black bear (2 percent), fisher (1 percent), marten (4 percent), and wolverine (9 percent). Skeena predicted moderate impacts on the use of tenures by trappers and guide outfitters during the Construction and Operations phases.

Lastly, effects on public land and resource use are primarily related to fishing, hunting, and the gathering of cultural plants. Indigenous hunters and subsistence hunters may face moderate effects from changes in air quality and noise, but access is not expected to change. Changes in water quality and quantity in Ketchum Creek could have a low to moderate magnitude effect on fish and fish habitat, but these changes are not expected to affect fish populations; thus, ECRP is expected to have negligible impacts on fishing in the area. Cultural plants are expected to be affected by the loss of culturally valued plant habitat over a 660.3 ha area within the Local AA, specifically within the Assessment Footprint, though active use of this area for gathering is reportedly limited. The effect of ECRP on foraging is expected to be negligible to minor given the limited use of the area for vegetation gathering. However, it is noted that two important gathering sites identified by Tahltan members outside the Assessment Footprint are projected to experience noise and air quality disturbances, with notable exceedances in particulate matter concentrations during the Construction and

Operations phases. One sensitive receptor location identified by Tahltan members as important for vegetation gathering, between Iskut River and Unuk River Basins located at Eskay Creek Road KM54, will not be accessible because it is located within the Assessment Footprint.

Changes to land and resource use may affect Indigenous individuals disproportionately. Changes to parks, protected areas, and public land may result in displacement of land users, requiring further travel and increasing the cost of these activities; however, the potential for ECRP to affect park users' access to parks and protected areas is expected to be negligible. This may disproportionately impact sub-groups who are more likely to be low-income compared to the general population, such as youth, Indigenous people, and disabled individuals. Gendered differences in land use mean men and women may be disproportionately affected depending on which land use types are impacted; for example, men may be disproportionately affected by changes to hunting access. Indigenous tenure holders may be disproportionately affected by changes in tenured land and resource use in the context of trapping given the unique cultural significance of traplines to Indigenous land users and trapline tenures owned by Indigenous users in the area.

17.10.5 Proposed Mitigation Measures by Skeena

Skeena identified the following mitigation measures, designed to manage potential impacts on NTLRU, aimed to address environmental changes, stakeholder engagement, and ongoing community involvement to mitigate adverse effects throughout lifecycle of ECRP.

Ongoing Communication with Stakeholders: Skeena will maintain continuous engagement with stakeholders, including guide outfitters and trapline holders, throughout the Construction, Operations, and Reclamation and Closure phases. This will help mitigate concerns and ensure that stakeholders are informed of project developments. This mitigation measure is considered moderately effective because not all stakeholders may always be available for engagement or receive information promptly.

Mitigations for Environmental Changes:

- Air Quality (*Chapter 12*): Measures aim to mitigate effects from dust and emissions. The effectiveness of these measures ranges from moderate to high.
- Noise and Vibration (*Chapter 13*): Measures will address potential noise disturbances. The effectiveness of these measures ranges from low to high.
- Surface Water (*Chapter 15*) and Fish and Fish Habitat (*Chapter 16*): Measures will address water quality and habitat loss. The effectiveness of these measures ranges from low to high.
- Vegetation and Ecosystems (*Chapter 18*): Measures will focus on habitat restoration, with effectiveness varying from low to moderate/high.
- Wildlife and Wildlife Habitat (*Chapter 19*): Measures aim to address habitat and species disruptions. Effectiveness of these measures ranges from moderate to high.

Community Feedback Process: A formal process will be established to gather feedback from community members, particularly those in the Local AA and Regional AA, as well as employees. This feedback mechanism will allow for ongoing input regarding project effects and concerns. This mitigation measure is classified as having high effectiveness in fostering communication and addressing concerns as they arise.

For a summary of Skeena's proposed management plans and mitigations related to NTLRU, see *Appendix A-1* of the Revised Application.

17.10.6 Key Issues Raised

Reviewer feedback on the Application focused on concerns regarding the impacts of development on Indigenous rights to fish and engage in traditional harvesting. These concerns are further examined in Appendix 5 (*Section 16.0*) and *Appendix 13* of this Report. Much of the feedback was incorporated into the Revised Application, where possible, and no other key issues were raised.

In order to mitigate effects to NTLRU, the EAO has proposed the following Certificate conditions (see *Section 9.0* for full description):

- Condition 23: Skeena must develop a Socioeconomic Management Plan, detailing how to mitigate and monitor social and economic effects; and
- Condition 26: Skeena must develop an End Land Use Plan, detailing existing land capability and use, predicted land capability and use after Closure of ECRP, efforts to reconcile differences between pre- and post-ECRP conditions, forecast of overall changes in land capability due to ECRP, and incorporation of mitigation targets related to vegetation and ecosystems, wildlife and wildlife habitat, and human health.

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to health, social or economic conditions of the Indigenous peoples of Canada related to effects of ECRP on non-traditional land and resource use (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of draft potential federal conditions.

17.10.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, concerns raised by the TAC, TCG and Tsetsaut Skii km Lax Ha, and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on the NTLRU valued component:

- Change in tenured land and resource use; and
- Change in public land and resource use.

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

Table 23: Summary of Residual Effects for Non-Traditional Land and Resource Use

Residual Effect	Assessment Rating*	Significance and Rationale
Change in Tenured Land and Resource Use ECRP will result in a residual effect on guide outfitting and trapline holders due to land disturbance within the	Context (resilience): High Magnitude: Low Extent: Local Duration: Long-term Frequency: Continuous Reversibility: Irreversible Affected Populations: Disproportionate	Not significant Several guide outfitting, trapline, forestry, and mineral tenures overlap with the ECRP mine site, and Skeena has an established engagement process with affected tenure holders, including Indigenous land users. No specific concerns were raised about ECRP's effects from non-Indigenous tenure holders, but some concerns were expressed by Indigenous tenure holders regarding potential disruptions to their activities. The resilience of tenure holders to imposed stresses is considered high, as alternative locations and operational adjustments are possible. However, the resiliency for Indigenous people is assessed as medium, given the history of colonialism negatively impacting traditional land use. The magnitude of effects is low, as ECRP will result in a direct loss of only 1.4 percent of tenured area for one trapline, and less than 0.1 percent total tenure area lost for most

Residual Effect	Assessment Rating*	Significance and Rationale
Assessment Footprint. This includes a minor loss of tenure areas and potential disruptions to hunting and trapping activities, particularly for species like wolverine, marten, and mountain goats.	Risk (likelihood and consequences): Low Uncertainty: Low Importance: Moderate	tenures. Predicted noise effects will be <1 percent of tenure area in most cases, and areas with AQ effects will largely be constrained to less than 2.5 percent of a given tenure, although the change may affect up to 11.5 percent of one trapline. The extent of the effect is local, as changes are mainly anticipated within the Assessment Footprint, adjacent areas, and the Eskay Creek Mine Access Road, rather than across the broader Regional AA. . The duration of effects is long-term as changes to tenure areas will persist beyond Closure. Effects will occur continuously, particularly during Operations and Closure, as industrial activities will be ongoing through these phases. The effects are considered irreversible, as full pre-project conditions cannot be fully restored. While some land will be returned to a usable state, certain tenure areas will remain altered due to landscape modifications. The affected populations will be disproportionately indigenous land users, particularly those holding traplines and guide outfitting tenures, as their land use is more directly tied to cultural and economic activities relying on specific locations. The likelihood of predicted effects occurring is high, but consequences are minor based on the low magnitude and regional extent, resulting in an overall low risk. Uncertainty is also low as the locations of the affected tenured areas are well documented. The importance of these changes is high, because although a limited number of people are using the tenures, they are important for the income generated for the families and communities of the tenure holders.
Change in Public Land and Resource Use ECRP will cause minor changes to public land use, especially for activities like hunting, fishing, and outdoor recreation. The introduction of infrastructure and increased human presence may affect access to certain areas.	Context (resilience): High Magnitude: Low Extent: Local Duration: Long-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Even Risk (likelihood and consequences): Moderate Uncertainty: Low Importance: Moderate	Not Significant Public land use in the assessment area includes hunting, fishing, tourism, outdoor recreation, and vegetation gathering. Skeena has engaged with local recreational users and, while some concerns were raised about access restrictions and localized changes to land use, no major conflicts with public land users have been identified. The resilience of public land users is high, as alternative locations are available for most activities, reducing the overall impact of ECRP. The magnitude of effects is low, as potential residual effects will slightly alter land use and experience without significantly changing the function of public land use. The extent of the effects is local as minor disruptions are expected within the Local AA. The duration of effects is long-term, as some access restrictions and landscape changes will persist beyond Closure. The frequency of effects is continuous throughout Operations. The effects are partially reversible given some access points will be restored but some parts of the landscape will remain altered. Affected populations will experience effects evenly, as no specific subgroup is disproportionately impacted; public users involve Indigenous and non-indigenous groups. The likelihood of effects occurring is moderate with minor consequences, leading to an overall low risk. Uncertainty is low given public use is well documented. The importance of these changes is moderate, as public land is valued but no major public recreational sites or tourism hubs will be significantly affected.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.10.8 Cumulative Effects Assessment

There are six existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP, including: the historical Eskay Creek Mine, Forrest Kerr Hydroelectric, McLymont Creek Hydroelectric, Volcano Creek Hydroelectric, Eskay Creek Technical Sample Project, and the KSM Mine.

Skeena's cumulative effects assessment identified residual effects from ECRP that may overlap with other projects and activities, particularly in the NTLRU AA and Focused NTLRU AA. These residual effects include land disturbances and industrial activities affecting tenured land and resource use, such as guide outfitting and trapping. Potential cumulative effects related to NTLRU include the loss or alteration of wildlife habitat, increased noise levels, and the disruption of Indigenous land use activities, particularly hunting and gathering.

Skeena identified one residual cumulative effect related to change in tenured land and resource use for guide outfitters and trapline holders. Past, present, and reasonably foreseeable future projects in combination with ECRP will lead to loss of tenured land available for two guide outfitters and three traplines. Three tenures will lose <1 percent of their tenured land area, one is expected to lose 2.2 percent of their tenured land area, and another is expected to lose 7.8 percent of their tenured land area. Cumulative effects related to access are not expected, and cumulative effects of disturbance will be associated with traffic and are expected to have a minimal increase in a small area along the Eskay Creek Mine Access Road. Past projects, including the historical Eskay Creek Mine, hydroelectric and transmission projects, and the Bob Quinn Lake Aerodrome have resulted in the loss of wildlife habitat. The Technical Sample Project and the KSM Mine have the potential of resulting in additional loss of wildlife habitat in the NTLRU AAs. Overall, this disturbance is expected to have a moderate magnitude given the percentages of loss of tenured land area, but the guide outfitters and trapline holders are assessed to have a high resiliency to changes in the area.

The EAO's additional assessment considered Skeena's analysis, reviewers' comments, and the EAO's residual effects assessment. The EAO notes change in public land and resource use as an additional residual cumulative effect. The loss and fragmentation of wildlife habitat raises concerns about declining populations and the disruption of hunting and trapping practices. Increased noise and human activities from multiple projects may further impact wildlife behaviors essential for subsistence hunting. Water quality and fish habitat degradation from surrounding projects could also affect recreational and subsistence fishing. While these impacts to land use are anticipated to be long-term and irreversible, the land base lost is anticipated to be low and there are alternative locations for hunting, trapping, and fishing in the area. Thus, the magnitude of this cumulative effect is anticipated to be minor to moderate.

The potential for cumulative effects from these projects and activities is considered moderate due to proximity of ECRP to existing projects and activities and reasonably foreseeable future projects.

The EAO concludes that no significant cumulative effects to NTLRU are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.10.9 Consistency with Land Use Plans

Land use planning in B.C. sets the strategic direction for sustainable resource stewardship and management of provincial public land and waters that meets economic, environmental, social, and cultural objectives. Land use planning sets high-level direction and helps define 'what' can occur 'where' on the land base.

ECRP is located within the boundaries of the Cassiar Iskut-Stikine Land and Resource Management Plan (CIS LRMP) and the NTLRU AAs overlap with the CIS LRMP, the Nass South Sustainable Resource Management Plan (SRMP), and areas defined in the Nisga'a Treaty (1999).

It is located within the General Management zone of the CIS LRMP. The CIS LRMP spans 5.2 million hectares in northwestern B.C. The CIS LRMP supports sustainable resource development—including mineral and energy exploration—outside protected areas, subject to regulatory approvals. As such, ECRP aligns with the LRMP's goals and policies, with no identified incompatibilities.

A small portion of the NTLRU AA overlaps with the Nass South SRMP, which covers 382,751 hectares in the Nass watershed. ECRP's overlap does not intersect with either of the Nass South SRMP's two special management zones.

The Nisga'a Nation holds Treaty-protected interests within the Nass Area, including specific properties, commercial recreation tenure area at Kinskunk, guide outfitting, and specific angling guide licences. Nisga'a Lands, as defined in the Nisga'a Treaty, are located outside ECRP's direct footprint and do not overlap the NTLRU AAs. The Nisga'a Land Use Plan (2002), which provides guidance on land use priorities, stewardship, and public use within Nisga'a Lands, applies only to areas outside the NTLRU AAs but may still inform broader regional considerations relevant to ECRP. Consideration of the potential effects to Nisga'a Nation as required by the Nisga'a Treaty are found in *Chapter 5* of the Revised Application and Appendix 5 (*Section 16.2*) of this Report.

17.10.10 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the NTLRU valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions including, Condition 23 (Socioeconomic Management Plan) and Condition 26 (End Land Use Plan) (see *Section 9.0*); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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17.11 Visual Resources

17.11.1 Summary

Visual resources are important to understand as ECRP might affect lighting and viewscapes. Scenic areas are an important part of the provincial resource base and the absence of visual disruption is important for the broader contribution of intact landscapes to Tahltan's relationship to the land.

Skeena identified the potential effects of ECRP to be changes to the visual quality of the landscape, nighttime ambient light conditions and visual effects caused by particulates in the air. Skeena also described mitigation measures that would reduce these potential effects to visual resources.

Reviewers did not identify key issues for the visual resources valued component.

The EAO considered Skeena's assessment and proposed management plans and mitigation measures, the key issues raised by reviewers, proposed Certification conditions requiring development of a Construction Environmental Management Plan and Air Quality Effects Monitoring Plan and concluded that there would be residual effects to visual quality and visual nighttime ambient light from ECRP. The EAO is satisfied that the proposed Certificate conditions would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse residual or significant cumulative effects on the visual resources valued component.

17.11.2 Assessment Boundaries

17.11.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to visual resources (see *Figure 23.3-1* in Chapter 23 of the Revised Application):

- Visual Quality Local Assessment Area: This area encompasses a 35-km buffer surrounding the Project Footprint, a distance in which visual disturbances will appear small to the naked eye.
- Nighttime Ambient Light Local Assessment Area: This area encompasses a 5-km buffer around all potentially light-generating Project components.
- Cumulative Effects Assessment Area: The same assessment area as the Visual Quality Local
- AA.

17.11.2.2 Temporal Boundaries

The following temporal boundaries were used for the ECRP visual resources assessment:

- Construction: 2 years;
- Operations: 13 years;
- Reclamation and Closure: 3 years; and
- Post-closure: 57 years (based on model forecast period).

17.11.3 Existing Conditions by Skeena

Skeena described existing conditions for visual resources in Chapter 23 (*Section 23.4*) of the Revised Application and *Appendix 23-1*, Visual Quality Baseline Report. The results are summarized below.

The viewshed, or line-of-sight to ECRP, is 3.9% of the Local AA and is largely restricted to the Unuk River Valley. The viewshed does not include the Iskut River Valley, or most of the Unuk River. At a 10 km distance from the project site or further, views of ECRP are restricted to high-elevation slopes facing the project site.

Skeena used five viewpoints as basis for analysis of the visual character of the landscape as seen from locations people are likely to be. Skeena assessed these viewpoints based on an adapted version of the metrics laid out in the Visual Landscape Inventory Standards and Procedures Manual (MOF 1997) and the Visual Impact Assessment Handbook (MOF 2022) that accounted for the fact that the approaches in the guidance documents are aimed towards assessing the effects of timber harvest. The Landscape Existing Visual Condition assessed the current state of visual disturbance of the landscape and the Visual Sensitivity Class assessed how sensitive the landscape is to additional visual disturbance.

Skeena determined that three of the five viewpoints were at the "Retention" Visual Quality Class of the Landscape Existing Visual Condition in which existing alterations are difficult to see, small in scale, and natural in appearance. One of the remaining viewpoints was in the "Partial Retention" class, in which existing alterations are easy to see, small to medium in scale, and natural and not rectilinear or geometric in shape. The final remaining viewpoint was in the "Preservation" class because no alterations were visible from the location.

Of the five viewpoints, three were determined to have a low Visual Sensitivity Class, determining that the viewpoint is "somewhat important to viewers and there is some risk that viewers would be concerned about landscape alterations," with the remaining two viewpoints being a moderate Visual Sensitivity Class, in which "the viewpoint is important to viewers and there is a reasonable likelihood that viewers would be concerned about landscape alterations."

Skeena also considered nighttime ambient light of the area. Four existing developments in the Eskay Creek, Volcano Creek, and Iskut River valleys currently emit nighttime ambient light: the existing Eskay Creek Mine site, and three run-of-the-river hydroelectric generation stations as well as the associated electrical substation. Low-to-moderate-intensity lights are active at each location, with limited light spill to immediately adjacent areas.

There are no known permanent or semi-permanent viewpoints where humans would be viewing the nighttime sky within the Nighttime Ambient Light Local AA. People may be within the Nighttime Ambient Light Local AA for short periods of time in three of the viewpoints, one of which has no view of any artificial light at night (ALAN) source. The remaining two viewpoints are likely to be able to see lights from the existing Eskay Creek Mine site, though light spill or sky glow effects would not be identifiable given the distance of those viewpoints.

17.11.4 Potential Project Effects by Skeena

The potential effects to visual resources due to ECRP identified by Skeena are described in Chapter 23 (*Section 23.5*) of the Revised Application and are summarized here:

- Change to visual quality; and
- Change to nighttime ambient light.

Potential changes in the visual quality of the landscape due to the introduction of visual disturbances may cause concern among Indigenous peoples and the public. The most prominent sources of visual disturbance are the construction and operation of large project components, including open pits, the enlargement of the TMSF dams, and the MRSA, all of which could have adverse effects on the visual quality of the landscape. These changes may also affect how the landscape is experienced and the ability of people to navigate it as they have in the past. In the post-closure phase, the landscape will be permanently altered, with some visible remnants, such as the North Pit walls and the TMSF, remaining in place.

In addition, air traffic is another potential visual disturbance. However, Skeena concluded that the impact is expected to be minimal due to the infrequent nature of these flights, with only one or two charter aircraft anticipated every two weeks.

ECRP also has the potential to alter nighttime ambient light conditions by introducing artificial light sources into the environment. Construction, Operations, Reclamation and Closure phases are planned to occur 24 hours a day, resulting in the continuous presence of artificial light at the project site. The primary sources of light during these phases will be the

Process Plant and the permanent camp area, with additional light sources located at fixed work sites where workers are present. However, traffic-related light pollution is predicted to be minimal, with an 8% increase in traffic, or approximately one truck per hour, resulting in negligible effects related to ALAN. During the post-closure phase, only a small number of low-intensity lights will remain at necessary locations, such as entrances to monitoring buildings.

Another potential impact to visual resources comes from changes in air quality, which can affect visibility. Vehicle traffic on unpaved roads may generate dust plumes in dry conditions that could act as short-term visual disturbances. Blasting in the North Pit may also emit dust plumes that are expected to be viewable only in areas with direct views of the on-site roads or the North Pit. Smoke plumes from the burn pit may be visible at times; however, given the location of the burn pit smoke plumes will not be visible at many surrounding locations due to the effects of local topographical relief. Increases in suspended particulate matter, as well as atmospheric sulphur dioxide and nitrogen dioxide, may reduce overall visibility through the absorption and scattering of light. This can lead to less visual clarity, muted colors, and a reduced maximum visibility distance. The extent to which suspended particles affect visibility can vary daily, as larger particles are less efficient at absorbing and scattering light. However, these larger particles tend to settle out of the atmosphere more quickly, resulting in shorter periods of reduced visibility and it is unlikely the haze will noticeably affect visibility at locations more than 1 km outside of the Assessment Footprint. Emissions of sulphur dioxide and nitrogen dioxide from ECRP are expected to be low, with no significant visual effects anticipated from these emissions.

Changes to the visual landscape caused by ECRP may disproportionately impact Indigenous people. Indigenous people may be more likely to participate in outdoor activities and may rely on visual resources to guide land use in ways non-Indigenous populations do not. Landscape features and conditions and dark skies may also hold distinct cultural importance among Indigenous people, with Indigenous Elders potentially experiencing more acute effects of changes in visual quality and nighttime ambient light due to their longer history of being out on the land. It is also possible that Indigenous women and girls will be disproportionately affected because the visibility of mine activities may cause discomfort and safety concerns regarding women and girls' engagement in land-based activities; however, this concern has not been documented through engagement on ECRP.

17.11.5 Proposed Mitigation Measures by Skeena

In addition to following best management practices, management plans and mitigation policies, Skeena identified the following key mitigation measures and committed to their implementation through project design, procedures, and management plans:

- Progressive reclamation and revegetation of disturbed areas;
- Design project components to avoid unnatural shapes, colours, and patterns;
- Decommissioning and removal of infrastructure in the Reclamation and Closure phase;
- Targeted vegetation screening for small, high contrast features that cannot be otherwise camouflaged;
- A Trigger Action Response Plan to monitor dust plumes and take action if plumes reach the height of at least 2 m, with additional actions triggered by plumes rising higher than 4 m;
- Final reclamation and revegetation of disturbed areas in the Reclamation and Closure phase;
- Appropriate facility illumination levels as regulated by the Occupational Health and Safety Regulation (BC Reg 296/97) and Section 2.81 of the Health, Safety and Reclamation Code for Mines in British Columbia (Ministry of Energy, Mines, and Low Carbon Innovation 2024);
- Light fixture design, including the use of LEDs and full cut-off shields for outdoor light fixtures where possible;
- Targeted lighting designed to illuminate the intended area only; and

- Spectral control weighting lights towards the yellow and red portions of the light spectrum.

For a summary of Skeena's proposed management plans and mitigations related to visual resources, see *Appendix A-1* of the Revised Application.

17.11.6 Key Issues Raised

Reviewer feedback on the Application focused on concerns regarding visual air quality from blasting, road dust, and smoke, and the ability to meet the Tahltan priorities on maintaining intact landscapes, visual viewscapes, and reclaiming/restoring the land. Much of the feedback was incorporated into the Revised Application, where possible, and no other key issues were raised.

In order to mitigate effects to visual resources, the EAO has proposed Certificate Condition 20, requiring Skeena to develop an Air Quality Effects Monitoring Plan that details how effects to air quality will be mitigated, including commitments to updating of air quality monitoring and high wind and drought mitigations to manage dust impacts to air quality (see *Section 9.0* for full description).

The EAO does not have any recommendations for federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects of ECRP on visual resources.

17.11.7 The EAO's Characterization of Residual Effects

After considering the proposed mitigation measures and conditions proposed, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on visual quality:

- Change to visual quality; and
- Change to visual nighttime ambient light.

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

Table 24: Summary of Residual Effects for Visual Quality

Residual Effect	Assessment Rating*	Significance and Rationale
Change to visual quality ECRP will result in a residual effect on the visual landscape from physical components, with effects most prevalent during the Construction and Operations phases.	Context (resilience): Moderate Magnitude: Medium Extent: Local Duration: Long-term Frequency: Continuous Reversibility: Partially reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Medium Uncertainty: Low Importance: Moderate	Not Significant ECRP is situated within a highly valued natural landscape, with visual aesthetics being a priority for Indigenous and non-Indigenous land users. The Project Footprint does not overlap with designated Visual Landscape Inventory areas, but it would introduce features such as open pits, waste rock storage areas, and roads, which would be viewable from select viewpoints within a 35 km buffer area. The context of the area is moderate given the environment has some resilience to visual stress, but Indigenous and non-Indigenous land users highly value the natural landscape. The magnitude of change is medium given the introduction of industrial elements would permanently alter the landscape. The extent is local, with primary effects limited to the Local AA. The duration is long-term, persisting through operations and past closure with permanent changes. Although there are permanent landscape alterations, the effect would be partially reversible with progressive reclamation gradually reducing the visual impacts post-closure. Indigenous land users, particularly those engaged in hunting, wayfinding, and other cultural practices, may experience a disproportionate effect due to changes in landscape character. The likelihood of residual effects is high, and the consequences is moderate, resulting in an overall medium risk rating. Uncertainty is low, as the project components are well-defined,

Residual Effect	Assessment Rating*	Significance and Rationale
		and visual impact mitigation measures are established. The importance of visual quality is moderate for Indigenous land users and local communities, making this a key concern in the assessment.
Change to nighttime ambient light ECRP will introduce ALAN during the Construction, Operations, and Reclamation and Closure, during which nighttime operations will require artificial light.	Context (resilience): Moderate Magnitude: Medium Extent: Local Duration: Medium-term Frequency: Continuous Reversibility: Fully reversible Affected Populations: Disproportionate Risk (likelihood and consequences): Medium Uncertainty: Low Importance: Moderate	Not Significant ECRP would introduce ALAN into a region with limited existing nighttime illumination. The context of this region is moderate given sensitivities to nighttime light pollution given the lack of existing artificial light. The magnitude of change is medium, as lighting would be necessary for 24-hour operations but could be mitigated through practices such as directional lighting and shielding to minimize sky glow and light spill. The extent is local, confined to a 5 km buffer around the mine site. The duration is medium-term, with continuous lighting during construction and operations, but the reversibility would be fully reversible post-closure as all artificial lighting would be removed. Indigenous land users, particularly those engaged in nighttime cultural practices, may experience a disproportionate effect. The likelihood of residual effects is high, but the consequence is moderate given the controlled extent of nighttime illumination. The resulting risk is medium. Uncertainty is low, as ALAN mitigation techniques are well-documented and have been successfully implemented in similar projects. The importance of nighttime darkness is moderate as it was identified by First Nations as a matter of importance but not stated as a top interest.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.11.8 Cumulative Effects Assessment

Skeena identified three existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP through spatial and temporal boundary overlap within the Visual Quality Local AA and Nighttime Ambient Light Local AA: the historical Eskay Creek Mine site, the KSM Mine, and the Eskay Creek Technical Sample Project.

Given that the historical Eskay Creek Mine site and the Technical Sample Project occupy the same location in the landscape as ECRP, which would use or include the infrastructure of both projects, visual effects attributable to those projects have already been assessed as part of ECRP. Given that no residual effects from the KSM Mine are expected to act cumulatively with ECRP, Skeena did not predict any cumulative residual effects to the visual resources valued component.

The EAO conducted an independent review of these findings, considering concerns raised by Tahltan, land users, and other interested parties regarding the preservation of visual quality and dark sky conditions, along with proposed projects in the area to consider future cumulative effects. While Skeena's cumulative effects assessment determined that no direct cumulative effects are expected from the historical Eskay Creek Mine, the Technical Sample Project, or the KSM Mine, a broader consideration of existing and future developments suggests that there would be cumulative visual impacts of industrial activities in the region in general. ECRP would introduce large-scale anthropogenic features to a landscape that, while already impacted by past development, retains elements of visual remoteness and natural character. While progressive reclamation measures would mitigate some of these impacts, certain visual changes would persist indefinitely. The presence of multiple proposed industrial projects in proximity would increase the contrast of these changes to those familiar with the landscape of the area. However, given the fact that these projects would not be viewable from the viewpoints assessed for ECRP, these effects are considered to be not significant.

For nighttime ambient light, the EAO concludes that there would not be cumulative effects, as the temporary nature of artificial lighting and the effectiveness of mitigation measures would limit long-term impacts on dark sky conditions.

The EAO concludes that no significant cumulative effects to visual quality are expected as a result of the effects of Eskay Creek interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.11.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the visual resources valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; and the proposed mitigation measures identified in the provincial table of conditions, including Condition 20 (Air Quality Effects Monitoring Plan) (see *Section 9.0*). The EAO does not have any recommendations for federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects of ECRP on visual resources.

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17.12 Employment and Economy

17.12.1 Summary

Employment and economy was selected as a valued component for the ECRP environmental assessment because it could generate direct and indirect job opportunities, support income and training, influence labour availability and costs, and contribute to local and provincial economic activity—factors recognized as important by the EAO, IAAC, and the Tahltan Nation, and relevant to assessing potential impacts on Indigenous economic conditions under federal jurisdiction.

Skeena assessed that ECRP has the potential to generate positive economic effects, including increased employment opportunities, business growth, and higher government tax revenues. However, ECRP could also contribute to the rising cost of living, particularly in housing and services, and lead to job losses during the reclamation and closure phase of ECRP relative to the operations phase. Skeena proposed enhancement measures to maximize economic benefits, including strategies to increase Indigenous and local employment, skills training programs, and local procurement policies. Mitigation measures were also identified to reduce potential adverse effects, such as workforce transition planning and monitoring cost of living impacts.

Issues raised by reviewers included concerns about the equitable distribution of employment benefits, local and Indigenous employment opportunities, and potential wage inflation affecting other industries.

The EAO considered Skeena's assessment and proposed mitigation measures, the key issues raised by reviewers, proposed Certificate conditions requiring development of a Socioeconomic Management Plan, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA and concluded that there would be both positive and negative residual effects to employment and economy from ECRP. The EAO is satisfied that the proposed Certificate conditions and federal Key Mitigation Measures would allow the predicted negative residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significate adverse or significant cumulative effects on the employment and economy valued component.

17.12.2 Assessment Boundaries

17.12.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to employment and economy (see *Figure 24.3-1* in Chapter 24 of the Revised Application):

- Project Footprint: The approximately 731 hectares (ha) area, of which approximately 521 ha will be new disturbance, where physical works and activities will occur during mine construction and production, including those associated with mining, ore processing, waste rock disposal, and tailings storage.
- Local Assessment Area: The area within which most direct and immediate, and indirect project effects are expected to occur. The Local AA overlaps with the territories of the Tahltan Nation and Tsetsaut Skii km Lax Ha, parts of the Regional District of Kitimat-Stikine (RDKS) and parts of the Stikine Region. It includes many incorporated and unincorporated communities, including Iskut, Dease Lake and Telegraph Creek.
- Regional Assessment Area: The broader area where indirect and induced effects of ECRP may occur. The Regional AA excludes the areas or communities within the Local AA boundaries and includes larger communities like Terrace, Smithers, the District of Stewart, the Village of Hazelton, and the District of New Hazelton, as well as Nisga'a Villages and Gitanyow Nation communities
- Transportation Corridor Assessment Area: The area that will be used to transport ECRP related concentrate, supplies, and personnel. The Transportation Corridor AA is located entirely within the Regional AA and includes the Eskay Creek Mine Access Road, Highway 37 from Łuwechōn (Iskut) to Meziadin Junction, and the portion of Highway 37 south of Meziadin Junction within the Nass Area and the Nass Wildlife Area. The Transportation

Corridor AA also includes Highway 37A west of Meziadin Junction to the port facilities located in the District of Stewart.

17.12.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of effects to employment and economy:

- Construction: 2 years;
- Operations: 13 years;
- Reclamation and Closure: 3 years; and
- Post-Closure phase: 57 years (based on model forecast period).

17.12.3 Existing Conditions by Skeena

Existing conditions related to employment and economy was assessed by Skeena in Chapter 24 (*Section 24.4*) of the Revised Application, which is summarized below.

17.12.3.1 Population Demographics and Trends

The Regional AA and Local AA are sparsely populated and are both experiencing lower population growth rates than the provincial average in B.C. Despite this overall trend, some communities within the Regional AA and Local AA have shown growth rates that exceed the provincial average. Community sizes vary widely, with populations ranging from as few as 51 residents (Telegraph Creek 6 and 6A) to 13,926 residents (Terrace). The region also has a significantly higher Indigenous population compared to B.C. overall. Based on historical trends, the primary population centers of Terrace, Smithers and the Village of Hazelton are expected to experience substantial growth of approximately 25 percent or more between 2023 to 2046. In contrast, other areas are projected to see slow or negative growth from 2023 to 2030, followed by modest positive growth through 2046. Additionally, men (including men, boys, and some non-binary persons) slightly outnumber women (including women, girls, and some non-binary persons) in both the Regional AA and the Local AA, which contrasts with the broader provincial trend of women slightly outnumbering men.

17.12.3.2 Education and Employment

Education levels in the Local AA and Regional AA are generally lower than the provincial average in B.C., with access to challenges include to schooling and training limited by geographic isolation, financial constraints, and the availability of accessible programs. These barriers are particularly high for Indigenous and rural populations. For example, Tahltan community members have noted that limited daycare availability—especially outside regular school hours due to shift work—can hinder employment, particularly for women. While there are 46 daycare facilities in the Regional AA, most are concentrated in Terrace and Smithers. Unemployment rates in both the Local AA and Regional AA are higher than the provincial average Employment patterns reflect broader provincial trends that men are more likely to work in natural resource and trades roles, often in mobile or remote positions, while women are more prevalent in healthcare, education, and public administration, typically working closer to home. Women tend to earn less than men due to a combination of factors, including educational attainment, income lost due to childcare, household responsibilities, occupational preferences (based on psychological, social or economic factors), and systemic economic structures. In several communities, men's income exceeds the provincial median, while women's incomes are more likely to fall at or below it.

Gender disparities in education, employment and income level persist due to socio-cultural barriers, lack of training, and household responsibilities (e.g. childcare). These challenges are especially acute for single parents, Indigenous populations, and rural residents without reliable transportation. Women and seniors are disproportionately represented in low-income groups, which further limits access to education, training, and employment opportunities.

Major employment sections in the Local AA are public administration, mining, construction, and retail. In the Regional AA, healthcare, retail, construction, and education sectors dominate, with mining contributing to a smaller percentage. The

Tahltan Territory within both the Regional AA and Local AA supports industries such as mining and forestry, which are integral to the local economy but present environmental and sustainability concerns for communities.

17.12.3.3 Cost of Living

Housing costs are generally lower than in urban B.C. areas due to the remoteness and smaller population base. However, residents within the Local AA face higher costs for essentials, like food and fuel, influenced by transportation expenses. Housing and food insecurity are particular concerns for low-income groups, including women, seniors and Indigenous populations, making them vulnerable to rising costs associated with regional economic changes.

17.12.4 Potential Project Effects by Skeena

Skeena identified the following potential effects on employment and economy due to ECRP in Chapter 24 (*Section 24.5*) of the Revised Application, which are summarized below.

ECRP includes the construction of new infrastructure as well as the modification and use of existing infrastructure. It would create employment opportunities across all phases of ECRP. Construction is anticipated to last 2 years and would create up to 949 direct person-years of employment during peak years. Operations would last 13 years and create up to 771 direct person-years of employment during peak years. In the peak construction year, most jobs (57%) require post-secondary programs or apprenticeships (TEER 2), with 23% needing shorter training (TEER 3), 12% in management or university-level roles, and 7% requiring only secondary school or no formal education. In the peak operations year, nearly half of jobs (50%) require shorter training (TEER 3) and 42% need post-secondary or trades training (TEER 2), with a small percentage in management (0.3%), 5% at the university level, and just 3% needing secondary school or no formal education. The full breakdown of jobs expected per TEER level can be found in *Section 24.5.2.1* of the Revised Application. The economic and employment benefits would begin to decline during Reclamation and Closure, which would last 3 years and create up to 79 direct person-years of employment. Post-closure, 8 direct jobs would be expected. Employment levels would essentially return to pre-project conditions, which could contribute to an increase in unemployment levels in some communities relative to the Operations phase.

Skeena plans to prioritize local hiring and skills training; for example, by implementing diverse and inclusive hiring practices that reflect community demographics and focusing on employing members from Indigenous Nations and supporting gender and diversity equity. This would include a range of employment types, which could accommodate varying educational and training backgrounds. Additionally, Skeena proposes on-the-job training, a Tahltan-focused mentorship program and an internship program focused on young adults that would contribute to building a skilled workforce in the Regional AA and Local AA.

Data from Statistics Canada indicates that there is sufficient workforce in the Local AA and Regional AA based on sourcing of direct workers, but Skeena may hire employees from throughout B.C., Canada, or internationally if needed to meet the skilled labour needs and reduce emerging pressures on the Local AA and Regional AA labour markets.

The in-migration of workers during ECRP's Operations phase is conservatively predicted to raise the cost of living locally and impact the affordability of essential goods and services due to increased demand. Skeena conservatively predicts that ECRP could place inflationary pressures on local wages due to the higher wages and salaries offered by the project, which could disproportionately affect single-income households, low-income residents, and marginalized groups.

Single-income households, which include a higher percentage of female-led households, are more vulnerable to price hikes in housing and essential goods. Rural residents, including Indigenous people living on reserve, can find it more challenging to access training and employment opportunities, especially without reliable transportation, making them more susceptible to any project-driven cost-of-living increases.

ECRP's contribution to local and provincial GDP would be positive during Construction and Operations due to direct employment and business opportunities in the Local AA and Regional AA. Skeena anticipates engaging local suppliers,

which would result in indirect and induced economic benefits, as the wages earned would be spent within the community. Skeena is also working directly with Tahltan on an impact benefit agreement, which would include provisions for Tahltan businesses.

Feedback received during Skeena's engagement raised concerns that large industrial projects in the region sometimes bypass local and regional suppliers in favour of larger companies from outside the area. This can limit how much economic benefit stays within nearby communities. Skeena has acknowledged these concerns and has committed to working with Tahltan businesses and other local suppliers through its procurement strategies and Impact Benefit Agreement to help ensure local companies are positioned to participate and benefit.

The total spend on labour and goods and services during the Construction phase are anticipated to be $697.6 million. Of that, it is expected that 8 percent would be realized within Tahltan communities and 8.8 percent within the rest of the RDKS. During Operations, it is estimated that $2764.7 million would be spent on labour and goods and services, of which 13.4 percent would be realized within Tahltan and 11.9 percent within the remainder of the RDKS. Spending in the Reclamation and Closure phase would decrease to $76.0 million. This transition from Operations to Reclamation and Closure could potentially cause adverse effects and would require active management and monitoring.

Both Indigenous and non-Indigenous people participate in hunting, trapping, fishing and plant gathering activities. ECRP could have potential adverse effects through restricted or limited access to certain areas. As a result, land users and harvesters may have to travel farther to participate in these activities. This could have adverse economic impacts on households, particularly Tahltan members, who use those activities to supplement household income, meet dietary needs or sustain cultural practices. However, Skeena's overall assessment is that the potential for this effect is limited and confined to the Assessment Footprint and nearby areas. Furthermore, a change in the economic significance of hunting, trapping, fishing, and plant gathering as a result of the Construction, Operations, and Reclamation and Closure phases of ECRP is anticipated to be negligible to minor for the residents of the Local AA and Regional AA. As such, this effect is not carried forward in the assessment.

17.12.5 Proposed Mitigation Measures by Skeena

Skeena has proposed several mitigation measures to minimize the potential effects of ECRP that are focused on enhancing employment opportunities, supporting local economic growth, and addressing specific socioeconomic and cultural needs, particularly for vulnerable and underrepresented groups.

17.12.5.1 Employment and Income Measures

- Recruitment and Selection Policy: Emphasizes inclusive hiring practices to reflect local demographics and encourages the employment of Indigenous people and other underrepresented groups. Provides training programs to enhance the skills and qualifications of the local workforce, including reimbursement for course tuition fees, paid study days, and funding for professional development activities.
- Professional Development Policy: Offers on-the-job training to help local and Indigenous populations qualify for employment opportunities.
- Hours of Work and Overtime Policy: An existing policy that includes provisions for rotational employees at remote sites.
- Annual Work Performance Evaluation Policy: An existing policy implementing annual performance evaluations tied to salary reviews to ensure fair compensation.
- Crew Rotational Travel Policy: A measure that will regulate travel expenses associated with rotations, including charter air flights and compensating travel to a designated pickup point. The inclusion that rotational employees who move from their original point of hire will be required to pay for additional travel costs associated with their new residence will disincentivize moving to other communities.

- Workplace Safety and Anti-Harassment Policies: Implement policies that include provisions for a safe working environment with specific anti-harassment, bullying, and drug and alcohol policies.
- Indigenous Cultural Sensitivity Training: Improves intercultural understanding to promote an inclusive and respectful workplace.
- Specialized Courses and Certification: Partnering with educational institutions and TCG to create specialized courses and certification programs tailored to the specific needs of ECRP to improve workforce capacity and readiness and support recruitment and retention.
- Mentorship and Internship Programs: Initiatives like the Tahltan Mentorship Program aim to equip Tahltan individuals with the skills needed for leadership and technical roles, while the internship program targets youth entry into the workforce.
- Social Closure Plan: To help manage the socioeconomic impact of ECRP's transition to closure, this plan considers and identifies opportunities to support employees in their employment transition, including employment searches and broader skill transition needs, reducing negative impacts from the eventual reduction in project-related jobs.

17.12.5.2 Measures Regarding Project Expenditures, Business Opportunities, and GDP Benefits

- Procurement Plan: Supports local economic growth by increasing contracts awarded to businesses within the Local AA and Regional AA, including Indigenous-owned businesses. Skeena plans to hold virtual sessions to help local vendors understand and participate in procurement processes.

17.12.5.3 Tax Revenue and Cost of Living

- Tax Revenue: While there are no direct mitigation measures for tax revenue, Skeena anticipates that increased local employment and business opportunities during Construction and Operations will raise local and provincial tax revenues. This will indirectly support public services and infrastructure.
- Cost of Living: No direct mitigation measures are identified for potential increases in the cost of living, as the cost of living is influenced by many factors, including other projects and external factors. Skeena acknowledges the challenge for low-income and single-income households. ECRP intends to house employees on site and offer transportation to and from the workplace to minimize increased demand on local housing stock.

For a summary of Skeena's proposed management plans and mitigations related to employment and economy, see *Appendix A-1* of the Revised Application.

17.12.6 Key Issues Raised

Overall, reviewers commented primarily on the need for updated and localized data, more inclusive language, consideration of cultural impacts, and addressing social inequities within Skeena's environmental assessment. Much of the feedback received from reviewers was incorporated into the Revised Application, where possible.

Some concerns remain, including the possibility that Tahltan workers may miss out on long-term employment opportunities due to the relatively short duration of resumed operations at ECRP. Additionally, the proponent's estimate that local workers (including Tahltan members) will make up 25 percent of the total worker force —is lower than what has been achieved in comparable projects in the region.

In consideration of the concerns raised by reviewers, the EAO has proposed Certificate Condition 23: Socioeconomic Management Plan, which would require Skeena to implement practices to mitigate effects to employment and economy as identified above and in the Revised Application (see *Section 9.0* for full description).

Additionally, in consideration of Skeena's predicted effects on regional employment and the economy as well as Skeena's commitment to negotiating agreements with First Nations, the EAO is of the view that there would be positive residual effects from ECRP on employment and economy.

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to the health, social or economic conditions of the Indigenous peoples of Canada and federal sustainability requirements related to the effects of ECRP on employment and economy (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of proposed federal conditions.

17.12.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, the concerns raised by the TAC and TCG, and Skeena's responses to these comments as set out in the Issues Tracking Table, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following adverse residual effects on the employment and economy valued component:

- Increase of cost of living.

The EAO further concludes that ECRP would result in the following positive residual effects on the employment and economy valued component:

- Changes to employment; and
- Changes to economic benefits.

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

Table 25: Summary of Residual Effects for Employment and Economy

Residual Effect	Assessment Rating*	Significance and Rationale
Increase of cost of living This effect would occur during Construction and Operations and may continue past Closure.	Context (resilience): Moderate Magnitude: Low Extent: Regional Duration: Medium-term Reversibility: Partially reversible Frequency: Continuous Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: Moderate Importance: High	Not Significant The region has an overall moderate economic resilience, but local communities, particularly small and remote communities, may be less equipped to handle rapid cost of living increases. Previous resource projects in B.C. have demonstrated localized inflationary effects on housing and services, which can disproportionately impact low-income and single-income households. The increase in cost of living is expected to be noticeable but within previously reported changes, leading to a low magnitude rating. The extent is regional, with effects primarily felt within the Local AA and Regional AA. The duration of cost-of-living increases can be expected through the Construction and Operations phase, though some effects may persist beyond Operations if housing prices do not return to pre-project levels after closure. The frequency of cost-of-living pressures will be continuous through the Construction and Operations phases. Reversibility is partially reversible given some hikes in goods and services may stabilize post-project and ECRP's closure will reduce demand, but housing prices and wage inflation may not fully return to pre-project levels. Single-income households, which include a higher percentage of female-led households, and low-income individuals, such as youth and disabled individuals, may struggle with the rising costs. Indigenous and rural residents, who already face higher transportation costs and limited housing availability, are particularly vulnerable to price increases. Existing local businesses may struggle to retain employees as they compete with the wages offered by ECRP, affecting the local service economy.

Residual Effect	Assessment Rating*	Significance and Rationale
		The likelihood of these cost increases is high given historical trends, and the consequences will be moderate given the low magnitude of effects but the disproportionate impacts to certain populations, leading to a moderate risk. The uncertainty of this increase is moderate, with historical data suggesting cost of living increases but the exact magnitude and persistence of these effects remaining uncertain. The importance of these impacts is high, as the affordability of housing and basic goods is a key determinant of community well-being.
Changes to employment ECRP would continue current jobs and add new jobs, which would end at Closure. Positive Residual Effect	Context (resilience): Moderate Magnitude: Medium Extent: Regional Duration: Medium-term Reversibility: Partially reversible Frequency: Irregular Affected Populations: Disproportionate Risk (likelihood and consequences): Moderate Uncertainty: Low Importance: High	Not Significant This effect would occur across the Construction, Operations, and Reclamation and Closure phases of ECRP. The regional labor market is familiar with cyclical resource development and has demonstrated the capacity to adapt to fluctuations in employment, resulting in a moderate resilience rating. The magnitude of the overall employment effect is medium. While job creation is a key economic benefit and will be continuous throughout the life of ECRP, the anticipated job losses at closure—though expected and planned for—will partially offset the earlier gains. The extent of this effect is regional, as employment opportunities will affect workers across a broad geographic area. The effect is considered medium-term, spanning the duration of ECRP through to its conclusion. Reversibility is partial: mitigation measures such as the Social Closure Plan and Workforce Transition Plan are in place to support affected workers, though not all jobs will be replaced or transitioned to other opportunities. Frequency is rated as irregular, given the different timing of job creation. Employment benefits will be experienced most strongly by Indigenous workers and local communities, who are the focus of targeted hiring and training strategies. However, job losses may have greater impacts on low-income families and sole-income providers. The likelihood of these employment changes occurring is high, and the overall consequences are moderate, resulting in a moderate risk rating. Given the availability of project data and regional labor trends, uncertainty is low. Employment remains a top priority for affected communities, making this a highly important and beneficial aspect of ECRP.
Changes to economic benefits ECRP would generate additional economic benefits for governments and First Nations, which would end at Closure. Positive Residual Effect	Context (resilience): Moderate Magnitude: Medium Extent: Beyond regional Duration: Medium-term Reversibility: Fully reversible Frequency: Continuous Affected Populations: Even Risk (likelihood and consequences): Moderate Uncertainty: Low Importance: High	Not Significant This effect would occur throughout the Construction and Operations phases, with benefits tapering off during Reclamation and Closure. ECRP would generate additional economic benefits through business spending, wages, procurement, and tax revenues, which would extend to local, regional, and provincial levels. The local economy has experience with resource projects and has demonstrated an ability to absorb increased expenditures without significant disruption, resulting in a moderate resilience rating. While the financial benefits are meaningful, they are not unprecedented for the region, leading to a medium magnitude assessment. Economic benefits are expected to be continuous throughout the life of ECRP due to ongoing expenditures on labor, materials, and services. These effects are medium-term, persisting throughout Construction and Operations, and will diminish at Closure. After Closure, the economy is expected to gradually return to its pre-project state, making the effect fully reversible. Although the decline in economic activity at closure will be gradual and anticipated, some businesses and sectors may be more sensitive than others, leading to sporadic effects in the post-closure period. The extent of this residual effect is beyond regional, with economic activity reaching provincial supply chains and broader governmental revenues. Affected populations are expected to experience the benefits and subsequent downturns relatively evenly, as financial inflows and outflows are spread across communities and sectors. The likelihood of both the benefits and the eventual economic contraction is high, and while the contraction could be challenging for some, the overall consequences are moderate,

Residual Effect	Assessment Rating*	Significance and Rationale
		resulting in a moderate risk rating. Uncertainty is low, as economic benefits and transitions can be reliably modeled and are consistent with past resource project trends. The importance of this effect is high, as resource projects are central to the regional economic landscape, even if the scale of benefits and losses are within the range of expected outcomes.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.12.8 Cumulative Effects Assessment

There are fifteen existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP, including: Brucejack Mine, LNG Canda Export Terminal, Pacific Trail Pipeline, Premier Gold Mine, Red Chris Mine, Eskay Creek Technical Sample Project, Galore Creek Mine, Kitsault Mine, Ksi Lisims LNG, KSM Mine, Red Chris Underground Mine, Red Mountain Project, Silvertip Silver/Lead/Zinc Mine, Snip Mine, and Tenas.

Skeena's cumulative effects assessment predicts that while Construction and Operations phases of multiple overlapping projects will generate increased employment, income, business opportunities, GDP contributions, and government tax revenues, these benefits may be offset by challenges during closure periods, when simultaneous or closely timed project shutdowns could lead to significant declines in employment, reduced economic activity, and lower tax revenues. Local businesses may experience increased demand for goods and services, but concerns have been raised about large projects bypassing regional suppliers, limiting the distribution of benefits. Additionally, increased spending and population inflow driven by project activities may elevate the cost of living in the region, creating affordability pressures, even though current levels remain near provincial averages.

The potential for socio-economic cumulative effects is considered moderate by the EAO given the negative effects of resource development on employment and economy arising from the boom-and-bust cycles that historically are known to occur in regions with substantial resource development. However, given the potential positive effects anticipated for the duration of ECRP, the proposed conditions by the EAO and mitigation measures by Skeena, the EAO assesses that there would not be significant cumulative effects on employment and economy in the region.

The EAO concludes that not significant cumulative effects to employment and economy are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.12.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the employment and economy valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions, including Condition 23 (Socioeconomic Management Plan); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

17.13 Heritage Resources

17.13.1 Summary

Heritage resources was selected as a valued component for the ECRP environmental assessment due to its cultural, historical, educational and spiritual value to First Nations, local communities, and the broader public. Heritage resources includes archaeological, historic and cultural heritage sites which contain physical remnants of past human life and paleontological sites containing fossils remains that show the development of other forms of life on Earth. Heritage resources provide clues about changes in the land and its occupants over time. Skeena identified that ECRP has the potential to disturb archaeological sites or areas with archaeological potential, historic and traditional use sites, and palaeontological sites or areas with palaeontological potential.

Heritage resource sites are finite in number and are highly sensitive to any amount of disturbance. In B.C., the *Heritage Conservation Act* automatically protects pre-1846 archaeological sites but does not provide protection to heritage sites that post-date 1846. In alignment with the *Heritage Conservation Act*, Skeena used the term "archaeological" for protected pre-1846 sites, and "historical/traditional use" to distinguish post-1846 sites, which are not protected under the *Heritage Conservation Act*. Heritage sites that represent First Nations burials or pictographs and petroglyphs are protected regardless of age.

Skeena proposed mitigation measures including avoidance and minimization measures. Avoidance measures include Archaeological Impact Assessment, Fossil Impact Assessment and avoidance of known heritage resources sites through establishment of restricted and no work zones. Minimization measures include systematic data recovery of sites that cannot be avoided in coordination with First Nations and government agencies. There were no key issues identified by reviewers.

The EAO considered Skeena's assessment and proposed mitigation measures, comments received from reviewers, as well as the recommended federal Key Mitigation Measures and Follow-up Programs under the IAA and concluded that there would be residual effects to heritage resources from ECRP. The EAO is satisfied that the federal Key Mitigation Measures would allow the predicted residual effects to be appropriately mitigated and managed and concludes that ECRP would not have significant adverse or significant cumulative effects on the heritage resources valued component.

17.13.2 Assessment Boundaries

17.13.2.1 Spatial Boundaries

The following spatial boundaries were used in the assessment of effects to heritage resources (see *Figure 25.3-1* in Chapter 25 of the Revised Application):

- Project Footprint: The approximately 731 ha area, of which approximately 521 ha will be new disturbance, where physical works and activities will occur during mine construction and production, including those associated with mining, ore processing, waste rock disposal, and tailings storage.
- Assessment Footprint: The approximately 2,276 ha area around the Project Footprint, that is delineated in the proposed Certificate (i.e., Skeena's "Requested Project for Certification"), which is to allow for minor adjustments to the Project Footprint when physical activities are being conducted. This is the area that Skeena assumes will be lost or altered, and which is delineated in the *Mines Act* permit for the existing Eskay Creek Mine.
- Local Assessment Area: Follows a buffer of 1 km around the boundary of the Project Footprint and the Eskay Creek Mine Access Road to Highway 37 to comprise the area where physical disturbance may occur and interact with heritage resources.
- Regional Assessment Area: The Regional AA captures all project components in a 30 km x 30 km square around the Project Footprint, with a 10 km-wide buffer around the Eskay Creek Mine Access Road. The Regional AA was

designed to provide regional context for any heritage resources located within the Local AA. The Cumulative Effects AA uses the same spatial boundaries.

17.13.2.2 Temporal Boundaries

The following temporal boundaries were used in the assessment of effects to heritage resources:

- Construction phase: 2 years;
- Operations phase: 13 years;
- Reclamation and Closure phase: 3 years; and
- Post-closure phase: 57 years (based on model forecast period).

17.13.3 Existing Conditions by Skeena

The existing conditions related to heritage resources were assessed by Skeena in Chapter 25 (*Section 25.4*) of the Revised Application and are summarized here.

17.13.3.1 Archaeological Sites

To establish the existing conditions for archaeological sites in the ECRP area, Skeena conducted Archaeological Impact Assessments (AIAs) between 2018 and 2023 under Heritage Inspection Permits and completed tabletop studies of ethnographic, historical and archaeological literature and referred to Indigenous Knowledge and other information provided by First Nations. Tahltan Knowledge and the Tahltan Archaeological Standards were considered and incorporated into the AIAs where possible. Indigenous Knowledge and assessment parameters related to Nisga'a Nation and Gitanyow Nation are described in detail in *Appendix 5*, *Section 16.2* and *Section 16.4* of this Report, respectively.

The AIAs and tabletop studies conducted by Skeena identified approximately 15 known archaeological sites in the ECRP area, ten of which are in the Regional AA, four in the Local AA, and one in the Assessment Footprint. The majority of these sites are characterised as lithic scatter, which is a collection of stone flakes and debris associated with stone tool manufacture and use. Sites of this type are common in B.C.; however, the region is associated with a unique and innovative stone tool industry that is linked to volcanic activity in the area.

The ECRP Regional AA is located 40 km south of the Mount Edziza Volcanic Complex, which consists of four major volcanic centres. Historic Lava flows from this complex produced Dudāt (obsidian), a volcanic glass that can be fractured into pieces with exceptionally fine, sharp edges, making it an excellent raw material for stone tool manufacture. It was a highly valuable resource in an extensive trade economy among First Nations throughout B.C. and beyond which dates back thousands of years. Radiocarbon dating conducted on materials from an archaeological site in Tahltan Territory suggested that use of obsidian quarries at the Mount Edziza complex may date back as far as 10,500 calibrated BP, and obsidian from this complex was traded across the province and has been found in Alaska, the Yukon, the Northwest Territories, and Alberta. There is extensive evidence in ethnographic reports and resource surveys, as well as Indigenous Knowledge that details extensive trail networks connecting Mount Edziza to the Iskut and Stikine River valleys, which enabled First Nations peoples to travel between communities and distribute obsidian and other trade resources. These trails were subsequently used by fur traders and miners who travelled the area.

The potential effects of ECRP to Tahltan Values and barriers to the Tahltan Way of Life in relation to heritage resources within Tahltan Areas of Interest (AOIs) was assessed in *Chapter 4* and *Chapter 25* of the Revised Application, which is summarised throughout this Report. Heritage resources were identified as a Tahltan Value for the purposes of the Tahltan Risk Assessment and reflect long-term and continuing relationships with the land. TCG shared in the Revised Application that there are 100 known archaeological sites in Tahltan Regional AOI, which is described in *Chapter 4* of the Revised Application. Within the Tahltan Consent Area AOI, which was and is an important area for trade, travel, trapping and plant harvesting, there are 13 known archaeological sites.

Table 26: Known Archaeological Sites within the ECRP Regional AA

Borden Number	Antiquity	Type	HCA Permit Reference	Location
HdTn-1	Pre-contact	Lithic Scatter	2008-0128	Regional AA
HdTn-2	Pre-contact	Lithic Scatter	2008-0128	Regional AA
HdTo-6	Pre-contact	Lithic Scatter	2008-0128	Assessment Footprint
HdTp-1	Pre-contact	Lithic Scatter	2017-0130	Regional AA
HdTp-2	Pre-contact	Lithic Scatter	2017-0130	Regional AA
HdTp-3	Pre-contact	Lithic Scatter	2017-0130	Regional AA
HdTp-4	Pre-contact	Lithic Isolated Find	1990-0081	Local AA
HeTp-1	Pre-contact	Cultural Depression	2009-0363	Regional AA
HfTn-1	Pre-contact	Lithic Scatter/Food Harvest	1973-028 / 2007-258 / 2010-301	Regional AA
HfTn-2	Pre-contact	Trail	2009-363	Local AA
HfTn-3	Pre-contact	Lithic Scatter	2010-301	Regional AA
HfTn-4	Pre-contact	Lithic Scatter	2010-301	Regional AA
HfTn-5	Pre-contact	Lithic Scatter	2010-301	Local AA
HtTn-6	Pre-contact	Lithic Scatter	2010-301	Local AA
HtTn-7	Pre-contact/Traditional Use	CMT	2022-0346	Regional AA

17.13.3.2 Historic/Traditional Use Sites

This section only discusses historical and traditional use sites reported through archaeological sources and studies, current traditional use sites identified by First Nations are described in *Chapter 26* of the Revised Application and *Appendix 13* Requirements of the Impact Assessment Act) of this Report.

Historical and traditional use sites in the area are primarily associated with 20th century mining, mineral exploration and surveying. Skeena identified 26 historical/traditional use sites in the Assessment Footprint, which includes cairns, claim/survey posts, abandoned cabins and exploration camps. Within the Local AA there are 11 culturally modified trees, four of which are within the Assessment Footprint. One culturally modified tree in the local assessment area shows evidence of traditional cambium bark harvesting by First Nations, while the remaining ten are associated with mineral exploration. The Revised Application also noted a potential trail linking the Iskut and Unuk Rivers which may pass through the Assessment Footprint.

17.13.3.3 Palaeontological and Fossil Resources

In accordance with B.C. Fossil Management Office regulations, a Fossil Impact Assessment (FIA), was conducted in the ECRP Local AA in 2022.

The Local AA has sedimentary and volcanic deposits with palaeontological potential and large numbers of fossils have previously been documented within the Local AA. Skeena focused the assessment on the Assessment Footprint, where three in-situ palaeontological sites associated with the Bowser Lake Group that were identified during the FIA. 20 fossils were collected from one of these sites, Eskay Palaeo 2022-02, while the other two sites did not yield any well-preserved specimens. In addition to these three sites identified during the FIA, several fossils were found not in-situ, and approximately 285 drill core samples collected from the Assessment Footprint contained fossil materials occurring at depths between 1.2 to 1380 metres below the surface.

B.C. Fossil Management Office data, the FIA, and drill core samples show evidence of vertebrate, invertebrate, plant and/or trace fossils, including large deposits containing macrofossils (ammonoids, bivalves, corals and belemnites). The Fossil Impact Assessment Field Investigation Report completed for ECRP concluded that the individual ammonoid and belemnite fossils found in the Assessment Footprint are of medium to low palaeontological significance, however, where fossils occurred in dense *in situ* assemblages comprising of tens to hundreds of specimens, such as at Eskay Palaeo Site 2022-02, the potential for the site to yield significant fossil resources is considered high.

In the Revised Application, Skeena determined that the presence of in-situ macrofossil deposits within the Assessment Footprint indicated that the potential for significant ammonoid fossil assemblages to be affected during development activities is high.

17.13.4 Potential Project Effects by Skeena

Skeena identified the following potential negative and positive effects to heritage resources due to ECRP in Chapter 25 (*Section 25.5*) of the Revised Application, which is summarized below. All the anticipated direct effects on the heritage resources are related to activities that require disturbance of soil or the underlying bedrock, including grubbing and clearing of vegetation.

17.13.4.1 Archaeological and Historic/Traditional Use Sites

Negative effects from ECRP could result in the complete or partial loss of known and unknown archaeological and historic/traditional use sites, which could result in the loss of scientific and cultural knowledge that can be gained from the identification, documentation and systematic data recovery of archaeological and historic sites.

In the Revised Application, Skeena noted that a partial or complete loss of archaeological and historic/traditional use sites could result in intangible effects to First Nations as archaeological materials have cultural significance beyond scientific value and tangible effects as traditional use sites are often used by First Nations for cultural or harvesting purposes today.

TCG and Tsetsaut Skii km Lax Ha emphasized the importance of archaeological and historic/traditional use sites, while TCG shared additional concerns regarding the impact of previous projects in the area on heritage resources. TCG and Tsetsaut Skii km Lax Ha both expressed the need for proper identification and management of heritage resources and for management and information-sharing to meet the needs of both groups, respectively.

Skeena also anticipated positive effects to archaeological and historic/traditional use sites following the application of mitigation measures as project activities may lead to the identification of previously unrecorded sites and the documentation and systematic data recovery of sites that may not have occurred otherwise.

17.13.4.2 Palaeontological Sites

Skeena anticipates that disturbance to paleontological sites in the Assessment Footprint is likely to occur due to excavations and ground disturbance activities during Construction and Operations phases when these activities take place in strata with medium-to-high palaeontological potential. These effects may also occur during land recontouring activities during closure. Negative effects could occur when fossil sites are disturbed or destroyed, however, following mitigation measures, positive effects could result from data collection and recovery of fossil sites and material which may not have been recovered otherwise due to the significant depth at which many fossil sites are found.

17.13.5 Proposed Mitigation Measures by Skeena

To mitigate adverse effects on heritage resources, Skeena would apply a mitigation hierarchy of avoidance and minimization. Skeena would use AIAs and FIAs to identify potential heritage resource sites prior to impacts occurring and to determine site-specific mitigations. Known sites would be avoided, where possible, through the establishment of no-work zones and monitoring. For sites that cannot be avoided, mitigation measures to minimize effects would consist of additional investigations and systematic data recovery under appropriate permits. The level of data recovery required would be determined with input from TCG, engaged First Nations as appropriate, Qualified Professionals and the B.C. Fossil Management Office or Archaeology Branch, as appropriate. Skeena also would develop a Chance Find Procedure for heritage resources in consultation with TCG and Tsetsaut Skii km Lax Ha, which would be followed by workers if any previously unknown archaeological, heritage, or fossil material is identified during project activities.

In cases where the Tahltan Archaeological Standards requirements exceed provincial requirements for mitigation measures, Skeena would follow the Tahltan Archaeological Standards in consultation with TCG and the Archaeology Branch. Skeena would also consider investigation of unaffected archaeological sites as part of systematic data recovery in consultation with TCG and the Archaeology branch, if feasible, in alignment with the Tahltan Archaeological Standards.

For a summary of Skeena's proposed management plans and mitigations related to heritage resources, see *Appendix A-1* of the Revised Application.

17.13.6 Key Issues Raised

No key issues were raised by reviewers during Application Review. TCG and Tsetsaut Skii km Lax Ha provided comments that were resolved during Application Review through responses from Skeena or through revisions that were incorporated into the Revised Application. The B.C. Fossil Management Office reviewed the Revised Application and concluded that the assessment was adequate.

The EAO has recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to mitigate potential effects to Indigenous peoples' health and current use of lands and resources for traditional purposes related to effects of ECRP on heritage resources (see *Appendix 2* and *Appendix 13*). These federal Key Mitigation Measures and Follow-up Programs were considered by IAAC in the development of proposed federal conditions.

17.13.7 The EAO's Characterization of Residual Effects

After considering Skeena's assessment, the proposed mitigation measures and conditions proposed, comment received from reviewers and Skeena's response to these comments, the information contained in the Joint Permitting/Regulatory Coordination Plan and the Regulatory Coordination Tracking Table, the EAO concludes that ECRP would result in the following residual adverse effects on the heritage resources valued component:

- Disturbance of archaeological sites or to areas with archaeological potential;
- Disturbance of historic and traditional use sites; and
- Disturbance to palaeontological sites.

The EAO's characterization of the expected residual effects of ECRP on heritage resources 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 Heritage Resources

Residual Effect	Assessment Rating*	Significance and Rationale
Disturbance of archaeological sites or to areas with	Context (resilience): Moderate Magnitude: Moderate	Not significant Only one archaeological site has been identified in the Assessment Footprint that may interact with project activities, while there are four in the local assessment area that may

Residual Effect	Assessment Rating*	Significance and Rationale
archaeological potential This effect would include disturbance to known sites that cannot be avoided and undergo systematic data recovery and unknown sites that are identified during ground disturbing activities.	Extent: Local Duration: Long-term Frequency: Once Reversibility: Irreversible Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: Low Importance: High	experience indirect effects. If sites cannot be avoided, systematic data recovery will minimize the effect, however any recovered sites will be unavailable for future study. The known site that may be disturbed within the Assessment Footprint is a lithic scatter site that is similar to others in the Regional AA, however, each site contains unique artefacts and has the potential to represent the role of the region in producing widely valued and traded obsidian. Altogether, the context and magnitude of effects is expected to be moderate. Impacts to individual archaeological sites would occur once and be limited to that specific site, meaning the impact is local and frequency is once. Any effects to a site would be irreversible and long-term due to the loss of knowledge. The Chance Find Procedure would support the management of any site that may be identified during project activities; however, its effectiveness is highly dependent on the training provided to workers and workplace culture. Most archaeological data in the Assessment Footprint would be documented and if unavoidable, recovered and preserved prior to site disturbance through comprehensive surveys and systematic data recovery. However, chance find sites may suffer disturbance during discovery, before systematic data recovery can occur. These sites are expected to be minimal. The residual effects of ECRP on archaeological sites is expected to have a disproportionate effect on First Nations as these sites reflect First Nations land use and occupation. Disturbance to archaeological sites may occur (moderate likelihood) and the consequence would be minor (moderate magnitude and local extent), resulting in a low risk rating for the effect to archaeological sites. There is low uncertainty regarding residual effects due to AIAs conducted by Skeena and the location of sites and effects to them are well-understood. Archaeological resources are of high importance as they have been identified as a key interest by First Nations.
Disturbance of historic and traditional use sites This effect would include disturbance to known sites that cannot be avoided and undergo systematic data recovery and unknown sites that are identified during ground disturbing activities.	Context (resilience): Moderate Magnitude: Moderate Extent: Local Duration: Long-term Frequency: Once Reversibility: Irreversible Affected Populations: Disproportionate Risk (likelihood and consequences): Low Uncertainty: Moderate Importance: High	Not significant There are historic/traditional use sites, including culturally modified trees that may interact with project activities. If sites cannot be avoided, the effect can be minimized with data recovery, however, the site cannot be revisited for future data collection. Historic/traditional use sites in the Assessment Footprint are similar to others in the Regional AA, however, these post-1846 sites are not protected under the *Heritage Conservation Act*, therefore there are less stringent requirements for data collection and preservation. Altogether, the context and magnitude of effects is expected to be moderate. Impacts to individual sites would occur once and be limited to that specific site, meaning the impact would be local. Any effects to a site would be irreversible and long-term. The Chance Find Procedure would support the management of any site that may be identified during project activities; however, its effectiveness is highly dependent on the training provided to workers and workplace culture. Historic/traditional use sites in the Assessment Footprint would be documented and if unavoidable, Skeena would work with First Nations to determine an appropriate level of data collection to recover information from the site. Chance find sites are likely to be disturbed during discovery, however, these sites are expected to be minimal. The residual effects of ECRP on historic/traditional use sites is expected to have a disproportionate effect on First Nations as traditional use sites reflect First Nations land use and occupation. Disturbance to historic/traditional use sites may occur (moderate likelihood) and the consequence would be minor (moderate magnitude and local extent), resulting in a low risk rating for the effect to historic/traditional use sites. There is moderate uncertainty regarding residual effects as the location of sites and effects to them are well-understood, however they are not automatically protected under the *Heritage Conservation Act* and the level of data recovery would be determined for each site.

Residual Effect	Assessment Rating*	Significance and Rationale
		Historical/traditional use sites are of high importance as they have been identified as a key interest by First Nations.
Disturbance to palaeontological sites This includes loss of known and unknown paleontological sites.	Context (resilience): High Magnitude: Low Extent: Local Duration: Long-term Frequency: Once Reversibility: Irreversible Affected Populations: Even Risk (likelihood and consequences): Minor Uncertainty: Moderate Importance: Low	Not significant Fossil sites are located underground and not generally disturbed other than by deep excavation, such as through mining. Fossils recovered from sites in the Assessment Footprint are consistent with sites found elsewhere in the regional assessment area and represent common fossil types, however, some palaeontological sites will be lost and the potential loss of knowledge that may result would have long-term duration. The location of some fossil sites in the Assessment Footprint are known, and a chance find protocol would be implemented for any sites that are uncovered during project activities. While sites will be documented and salvaged, and data recovery will occur at sites that may not have been exposed otherwise, some loss of sites is also likely to occur. Fossils would only be lost in the area directly disturbed during the excavation at the mine site, and the effect would only occur once. Any individual fossils lost through excavation are irreplaceable. No population would be more affected by any other by the predicted effects to fossil sites, and the risk of this effect is considered low with moderate uncertainty related to a lack of precise understanding of where fossils are located. No group raised concerns related to effects to palaeontological sites during the environmental assessment.
* Note: Criteria and assessment ratings are defined in *Appendix 3* - Residual Effects Characterization Definitions		

17.13.8 Cumulative Effects Assessment

There are six existing and reasonably foreseeable projects and activities that have the potential to act cumulatively with ECRP, including: the Eskay Creek Technical Sample Project, Brucejack Mine, Forest Kerr Hydroelectric, Northwest Transmission Line, Volcano Creek Hydroelectric and KSM Mine. Skeena also considered other activities that may interact cumulatively with ECRP, including forestry, mineral exploration, transportation, recreational use and Indigenous harvesting of traditional foods.

17.13.8.1 Archaeology and Historic/Traditional Use Sites

Skeena does not anticipate impacts to any of the known archaeological and traditional use sites in the cumulative effects assessment area as the majority are expected to be avoidable. Existing or proposed projects with impact areas that overlap with the ECRP Assessment Footprint have been, or would be, subjected to AIAs and similar mitigations as those proposed for ECRP, reducing the risk of encountering or disturbing unknown heritage resources. If previously unknown heritage resource sites are not identified through an AIA and are uncovered by a chance find, disturbance or loss of heritage resources may occur, however effects would be spatially isolated to that individual site and negative effects could be reduced by initiating a chance find protocol and performing systematic data recovery at the site.

17.13.8.2 Palaeontological Sites

Due to the effectiveness of the proposed mitigation measures Skeena did not predict any residual effects for palaeontological sites due to the effectiveness of mitigation measures and the positive impacts that would result from excavating and recovering fossil materials that would not be exposed otherwise. The EAO notes that some palaeontological materials will be lost during project development, which has the potential to have cumulative effects, however, the fossil material at the site is commonly found and is representative of other fossil locations in the region. Therefore, the potential for cumulative effects to paleontological materials is expected to be negligible.

The EAO considered the existing conditions at ECRP, the anticipated mitigation measures proposed by Skeena and the regulatory tools to implement those measures, and the EAO's assessed residual effects and concludes that no significant

cumulative effects to heritage resources are expected as a result of the effects of ECRP interacting with the effects of other past, present and reasonably foreseeable future projects and activities.

17.13.9 Conclusion

The EAO is satisfied that ECRP would not have significant adverse residual or significant cumulative effects on the heritage resources valued component. This conclusion considers the information and analysis presented in this section; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures; and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*). The extent of significance for federal effects are found in *Appendix 13*.

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18.0 Appendix 7 Risks Of Malfunctions and Accidents

18.1 Background

During construction, operations and decommissioning of ECRP, unplanned events associated with project activities or processes could arise resulting in potential effects to environmental, economic, social, heritage or health values as well as First Nations and their interests.

This chapter considers potential malfunctions and accidents, identifies the mechanisms that would be implemented during design and operation to mitigate the impacts of these potential events, and assesses the potential effects of these events throughout the life of the project.

Malfunctions are defined as unplanned events resulting from equipment or infrastructure failure. Accidents are defined as unplanned events that result from human error. These are both distinct from effects caused by ECRP arising from planned physical works and activities that are predictable and are assessed in the valued component chapters. They are also distinct from unplanned events resulting from external stressors in the environment such as weather, seismic and tsunami events that may impact ECRP (see *Appendix 12*: Potential Changes to the Project Caused by the Environment).

Section 25(2)(c) of the Act requires that the risks of malfunctions or accidents be considered in every assessment. Subparagraph 22(1)(a)(i) of the IAA specifies that the assessment of a designated project must take into account the effects of malfunctions and accidents (see *Appendix 13*: Requirements of the Impact Assessment Act).

The malfunction or accident scenarios considered in the ECRP risk assessment included (see *Chapter 29* of the Revised Application):

- Spill or accidental release of hazardous materials onsite;
- Leakage or spill during transportation;
- Motor vehicle and trucking accidents;
- Accidental release of contaminants from ore/waste rock stockpiles;
- Breach or failure of tailings storage facility and other containment structures;
- Fires or explosions;
- Prolonged power failure (transmission lines or transformer);
- Unauthorized use of the mine site;
- Fly rock or excessive noise from blasting; and
- Failure of underground mine stability and ground instability or failure.

18.2 Assessment Methods

18.2.1 Assessment Boundaries

ECRP would involve the redevelopment of the existing Eskay Creek Mine and would not involve the construction of new access roads or a new transmission line, or other linear features. ECRP would extend the duration of existing mine infrastructure, where that infrastructure would have otherwise been decommissioned.

The spatial extent considered for potential malfunctions and accidents included the Project Footprint and the Transportation Corridor as well as the beyond the spatial boundaries assessed for valued components, such as downstream of the mine site.

The required scope of Skeena's assessment excluded the transport of materials or goods to the Assessment Footprint (i.e., prior to the point of entry at the mine site where Skeena establishes care and control of the material), as well as marine vessels at the point when concentrate is transferred to the vessel at one of the ports in the District of Stewart.

The temporal boundaries for assessing the risk of malfunctions or accidents included the following.

- Construction phase: 2 years;
- Operations phase: 13 years (the period when ore will be processed/milled);
- Reclamation and Closure phase: 3 years (excluding water treatment facilities and operations); and
- Post-closure phase: 57 years (based on model forecast period).

The above timelines are representative of a best-case scenario which may be affected by various factors outside of the control of Skeena.

18.2.2 Risk Analysis Approach

Skeena presented a risk-based approach to the assessment of malfunctions and accidents. This approach categorized risk as low, moderate, or high based on both the likelihood (i.e., probability) of an accident or malfunction occurring and its consequence (i.e., severity of impact) on a given valued component or Indigenous interest. The matrix used considers prescribed likelihood on the vertical axis and consequence on the horizontal axis to assign a final risk score. The rankings consider the risk of the event with mitigation measures in place and demonstrate how the likelihood and consequence ratings combine to provide an overall risk score to indicate priority for risk management options. Risk scores include low, moderate, high, and very high.

Skeena defined major consequences as those involving major events requiring corrective actions and/or engineering review with high impacts and potentially long-term and regional effects on valued components, severe permanent impacts to more than ten people, major impacts to provincial or federal tax revenue, one to three months of production delays, widespread medium to long-term environmental impact affecting a local to international area, and serious long-term and widespread effects on Indigenous interests.

Skeena defined critical consequences as those involving major uncontrolled events with unknown or expensive corrective actions and/or engineering design with high impacts and expected long-term effects that may be regional and irreversible, single or more fatalities, extreme impacts to provincial or federal tax revenue, more than three months of production delays, irreparable damage and very serious long-term impairment of a whole ecosystem, and extreme long-term and widespread effects on Indigenous interests.

Table 28: Skeena's Overall Risk Matrix

Likelihood	Consequence				
	Negligible	Minor	Moderate	Major	Critical
Almost Certain	Moderate	High	High	Very High	Very High
Likely	Moderate	Moderate	High	High	Very High
Possible	Low	Moderate	Moderate	High	High
Unlikely	Low	Low	Moderate	Moderate	High
Rare	Low	Low	Low	Moderate	Moderate

18.3 Potential Accidents and Malfunctions

18.3.1 Spill or Accidental Release of Hazardous Materials Onsite

This scenario considered the spill or accidental release of hazardous materials such as fuels, reagents, or contained liquid waste stored on the mine site. This could occur from the release of such substances due to container failure, mishandling, or accidents during storage or transfer.

Specific mitigations proposed by Skeena included storage design that meets the best practice for storage tanks, the implementation of comprehensive plans like the Fuel Management and Spill Control Plan, and alignment with Workplace Hazardous Materials Information System regulations. Wildlife deterrents, secondary containment, and emergency protocols would also be incorporated into existing plans.

Potential effects of spills would include potential contamination of soil, surface water, and groundwater. If uncontrolled, such a release could degrade aquatic ecosystems and result in persistent environmental damage. There would be a risk of exposure to harmful substances for workers and responders. The potential effects on water quality and ecological integrity relied upon for traditional activities could impact First Nations.

Skeena rated the likelihood of spills to be unlikely, with a moderate consequence, and an overall risk rating of moderate.

18.3.2 Leakage or Spill During Transportation

This scenario considered the possibility of a spill of concentrate or hazardous materials such as petroleum products, chemicals, or wastewater during transportation along the Eskay Creek Mine Access Road, Highways 37 and 37A, and in the District of Stewart. A spill could occur due to a vehicle accident, loading/unloading errors, or containment failure in transit, and it could include a major truck collision or off-road accident resulting in a spill into sensitive habitats, particularly near rivers or First Nation territories.

Skeena proposed several mitigations including licensed and approved transporters, compliance with the Fuel Management and Spill Control Plan, regulated handling procedures, real-time spill response protocols, spill containment equipment, and mandatory reporting and cleanup protocols. Emergency response measures would include coordination with local authorities, activation of the Mine Emergency Response Plan, and external medical and environmental aid where needed.

The potential effects of a transportation spill could include contamination of land, watercourses, or sensitive ecosystems along the transportation corridor. These could result in adverse effects on aquatic life, disruption to wildlife, or degradation of habitats, and could impact public and commercial highway users, supply chains, and public perception. For First Nations, this presents a high risk, as the transportation route overlaps with traditional territories and culturally significant areas. All four First Nations were identified as potentially impacted, particularly in relation to water quality and access to land and resources.

Skeena rated the likelihood of this scenario as unlikely, with a major consequence, and an overall risk rating of moderate.

18.3.3 Motor Vehicle and Trucking Accidents

This scenario could involve a serious motor vehicle accident occurring on project roads or regional highways, potentially involving heavy equipment, passenger vehicles, or concentrate transport trucks. Accidents may occur on the Eskay Creek Mine Access Road or Highways 37 and 37A, affecting workers, contractors, or the public. The reasonable worst-case scenario includes a fatal accident resulting in injuries and/or environmental contamination from spilled fuel or concentrate.

Mitigations proposed by Skeena include road design that conforms to provincial safety standards, reduced speed limits, wildlife protection measures, signage, training for drivers, road condition monitoring and traffic separation at the mine

site. Skeena proposed these mitigations to be included in the Mine Site Traffic Control Plan and a Wildlife Management Plan.

Skeena also noted that non-project related improvements are to be made to Highways 37, 37A, and 51, by widening shoulders, creating pullouts for slow-moving vehicles, adding chain up/chain off areas and increasing internet access along 800 kms of roadway, and once completed these are expected to reduce the risk rating for this scenario.

The potential effects include fatalities or serious injuries to workers or members of the public, damage to property or infrastructure, and possible secondary effects from fuel or other chemical spills. Accidents along public roads within traditional territories may also disrupt access to land and impact community safety perceptions. All four First Nations were considered potentially highly affected due to the route's overlap with their territories and harvest areas and the potential for accidents to impact environmental and cultural values.

Skeena rated the likelihood of this scenario as possible, with a critical consequence, and an overall risk rating of high.

18.3.4 Accidental Release of Contaminants from Ore/Waste Rock Stockpiles

This scenario considered the accidental release of contaminants such as metal leachate or sediment from ore, waste rock, or overburden stockpiles on the mine site. The release could result from insufficient drainage infrastructure, heavy rainfall, or slope failure leading to runoff into surrounding soils and watercourses.

Mitigation measures proposed by Skeena included stockpile grading, collection ditches, passive water management systems, and engineered platforms to redirect flow and reduce leachate generation.

The effects of such a release could include sedimentation and contamination of aquatic ecosystems, particularly in nearby creeks and streams, and exceedances of water quality standards. Contaminated runoff could impair fish habitat or drinking water sources relied on by wildlife or communities. Impacts on First Nations could include impacts on water and fish harvest areas.

Skeena rated the likelihood of this scenario as unlikely, with a moderate consequence, and an overall risk rating of moderate.

18.3.5 Breach or Failure of Tailings Storage Facility and Other Containment Structures

This scenario considered the failure of the Tom MacKay Storage Facility or other containment structures due to events such as overtopping during extreme rainfall, seismic events, internal erosion, or structural instability. The result would be the sudden, uncontrolled release of tailings or contaminated water into downstream environments.

Skeena proposed mitigations measures such as high-design standards exceeding regulatory requirements, multiple emergency spillways, seismic stability advanced geotechnical assessments, and third-party independent review of dam performance.

The potential effects include long-term damage to downstream aquatic ecosystems such as the Unuk River, fish mortality, loss of wetland functions, and aquatic contamination. Such a failure could directly impact First Nation’s cultural practices dependent on clean water and healthy ecosystems. It could also pose safety hazards downstream of the facility for the public and workers.

Skeena rated the likelihood of this scenario as rare, with a critical consequence, and an overall risk rating of moderate.

18.3.6 Fires or Explosions

This scenario considered the possibility of an explosion or fire originating from fuel storage areas or explosives handling zones. The reasonable worst-case scenario could involve an explosion at the bulk explosives storage pad or a large fire at the fuel depot, leading to structural damage, worker injuries, and vegetation loss.

Skeena proposed mitigation measures including the adherence to fire and building codes, designated safe distances, controlled access, and comprehensive emergency procedures.

Potential effects include serious harm or death to site personnel, damage to equipment or infrastructure, and the release of pollutants or smoke into the air or surrounding environment. Vegetation and wildlife habitat could be lost, and there is a moderate risk to First Nation's territories if fires affected nearby culturally important landscapes.

Skeena rated the likelihood of this scenario as unlikely, with a major to critical consequence, and an overall risk rating of high.

18.3.7 Prolonged Power Failure

This scenario could include a prolonged power outage affecting the mine site due to the failure of transmission lines, transformers, or extreme weather events such as avalanches. The worst-case consequence involves a shutdown of key systems, including the water treatment plant or pumps managing mine water, potentially leading to uncontrolled discharges or economic losses.

Skeena's proposed mitigations included backup power generators, alternate power agreements, and vegetation management to reduce transmission line hazards.

Potential effects include the release of untreated or partially treated water, interruption of production, and temporary layoffs or economic losses. Water-related releases could affect aquatic life and local streams. Indigenous interests could be affected given the potential for impacts on water quality and employment related to the mine.

Skeena rated the likelihood of this scenario as unlikely, with a moderate consequence, and an overall risk rating of moderate.

18.3.8 Unauthorized Use of the Mine Site

This scenario involves unauthorized individuals accessing the mine site, whether intentionally (e.g., trespassing or curiosity) or unintentionally (e.g., recreational users unaware of restrictions). The worst-case outcome includes severe injury or death due to hazards such as chemical hazards, machinery, explosives, or unstable ground.

Skeena has proposed mitigations such as signage, cameras, on-site security staff, and coordination with the RCMP for enforcement.

Effects could include public injuries or fatalities and legal liability for Skeena. There is also potential for Indigenous interests to be affected if unauthorized access involves First Nation land users or leads to perceptions of site insecurity.

Skeena rated the likelihood of this scenario as rare, with a critical consequence, and an overall risk rating of moderate.

18.3.9 Fly Rock or Excessive Noise from Blasting

This scenario includes rocks flying off blasting sites or excessive noise from improper blasting activities, potentially harming nearby workers or equipment. The worst-case situation involves a fatality or injury from misfire or inadequate setback.

Skeena's proposed mitigations included certified blasting procedures, setback zones, and required safety briefings.

Potential effects could include injury or death of works, structural damage, and disruption of mining operations. The potential impact to Indigenous interests was rated low due to the localized and controlled nature of blasting.

Skeena rated the likelihood of this scenario as rare, with a critical consequence, and an overall risk rating of moderate.

18.3.10 Failure of Underground Mine Stability and Ground Instability

This scenario considered the failure of underground mine stability or surface ground failure, such as pit wall collapse or ground collapse due to unstable underground workings. The worst-case outcome would include worker entrapment, equipment loss, or sudden release of materials.

Mitigation measures proposed by Skeena included geotechnical modeling, slope monitoring, adaptive mine planning, and staged mining practices to limit risk.

Potential effects include fatal injuries, environmental disruption, or interference with surface water pathways. Instability near Tom MacKay Creek could also affect fish habitat or downstream conditions. Indigenous interests may be affected if damage affects watercourses or landforms with cultural significance.

Skeena rated the likelihood of this scenario as rare, with a critical consequence, and an overall risk rating of moderate.

18.4 Key Issues Raised

The key issues relating to the risks of ECRP malfunctions and accidents raised by TCG, the Technical Advisory Committee, Tsetsaut Skii km Lax Ha, Nisga'a Lisims Government, and the public included:

- Risks to valued components and Indigenous interests outside/downstream of the area delineated in a *Mines Act* permit from water treatment system failure or accidental discharge of off-specification effluent from treatment plants, and breach or failure of tailings dam or other containment structures;
- Failure of water treatment technology to function effectively whereby the effluent discharged into the receiving environment does not meet the conditions of an Effluent Discharge Permit under the *Environmental Management Act*, and predicted water quality objectives are not met and ongoing water treatment operations which may be required in perpetuity leading to increased long-term risk to the Province and Tahltan Nation, and as a result the mine site is not fully reclaimed and the transmission line to the mine site is not decommissioned;
- Failure of hydrostatic plugs in underground mine workings, which could cause a large uncontrolled release of mining influence water;
- Risks to public health and safety associated with project-related motor vehicle and trucking accidents on roads and highways; and
- Consequences on provincial emergency and health services if injuries to workers or members of the public occurs.

18.5 The EAO's Assessment and Conclusions

As identified by Skeena, the reasonable worst-case scenarios involving breach or failure of tailings dam or other containment structures and failure of underground mine stability and ground instability or failure, would have a consequence rating of critical, which would include irreparable damage and very serious long-term ecosystem impairment outside of the mine site area. The hypothetical downstream extent of the reasonable worst-case breach or failure of tailings dam or other containment structures is provided in *Appendix C* of Appendix 29-1 of the Revised Application and would extend to include the Unuk River catchment area, including potentially out to the river's delta and mouth areas at the fjord.

In the case of a dam breach, tailings contamination of watercourses and terrestrial habitat and values downstream could result in potential transboundary effects such as damage to heritage sites, water quality, and fish and wildlife health. This would have extreme and widespread concerns locally, nationally, and internationally as well as potential production delays, leading to a result of a high risk locally due to the major consequence of such an event. Downstream of the mine site, the risk of potential contamination from a dam breach would be lower due to distance from the event.

The likelihood of the occurrence of such potential events would be rare (i.e., the event is not expected to occur in most circumstances). The EAO notes that ECRP mine facilities and structures such as tailings storage facilities, water treatment plant, and underground hydrostatic plugs, would not be decommissioned and therefore must remain stable and function effectively in perpetuity. Skeena would also be required to post *reclamation security* with the Province through MCM which would cover the cost of reclaiming a site if a mining company defaults on their obligation.

Members of First Nations and the public present downstream of the mine site who are within the geographic extent of uncontrollable events with major or critical consequences could be at risk. The Mine Emergency Response Plan would include a 24/7 notification system to be updated and tested regularly by which government agencies, First Nations, and other organizations would be alerted in the event of an emergency. The mitigation measures identified would prevent or reduce risks to the health and safety of members of First Nations and the public present in affected areas who are unaware of unfolding events.

The EAO concludes that with ongoing monitoring and oversight and care and maintenance of the mine site in perpetuity, negative effects to valued components outside of the mine site from a potential dam breach would be rare but of critical consequence, leading to a risk rating of moderate.

Skeena and the Technical Advisory Committee members identified that there are uncertainties regarding the treatment of mine effluent before it is discharged into the receiving environment. Water treatment system failure or accidental discharge of off-specification effluent from treatment plants might stem from, for example, technical or environmental factors. Taking into consideration the uncertainties regarding the treatment of mine effluent, the long time period over which water treatment may be required, the potential for the occurrence of both unplanned/unauthorized and planned/authorized discharge of off-specification effluent, and the need for an Effluent Discharge Permit under the *Environmental Management Act*, the EAO concludes that the reasonable worst-case scenario of an uncontrolled release of untreated or treated water affecting environmental valued components would be unlikely (i.e., an event may occur in exceptional circumstances), have moderate consequence to environmental valued components are likely downstream of the mine site, and so an overall moderate risk.

The potential consequences of several of the malfunction and accident scenarios considered would also include injury or fatality. In most cases, the greatest risk is not permanent in nature and would occur during construction and operation (mine production). The EAO notes that, regardless of the likelihood of occurrence and risk rating, any malfunction or accident that results in serious injury to one or more individuals has the potential to have moderate risk to provincial emergency health services or cause road closures. While the Mine Emergency Response Plan that Skeena would be required to develop and implement under a *Mines Act* permit would be used to respond to threats to human health and safety, impacts to these provincial services would not necessarily be mitigated under this plan. Skeena has committed to providing the relevant information to health authorities regarding the Mine Emergency Response Plan, and the EAO proposes a Certificate condition to require a Health and Medical Services Plan to inform health authorities about any potential impacts to provincial emergency health services.

Risks to mine worker health and safety from malfunctions and accidents while they are on-shift (i.e., they are working) would be mitigated through the implementation of various management plans, with regulatory oversight through the *Health, Safety and Reclamation Code for Mines* in British Columbia, under the *Mines Act*. Although not specifically required under the *Mines Act*, risks to mine workers while on site generally (including off duty but staying at the camp) are included in health and safety plans developed by the proponent.

Motor vehicle and trucking accidents have the potential to effect valued components and Indigenous interests, as well as pose a risk to human fatality or significant injuries. Motor vehicle accidents are most likely to occur during operations while concentrate is being trucked along Highway 37 to the District of Stewart. With mitigation proposed, the likelihood of motor vehicle accidents would be reduced, however, would remain high due to the likelihood being high and consequence being high.

The EAO notes that:

- The risks from ECRP malfunctions and accidents are closely tied to the length of time during which risks would persist and the geographic extent of the scenario considered;
- Proposed mitigation measures are primarily aimed at reducing the potential of malfunction and accident scenarios occurring, and it is unlikely they can be completely avoided;
- Human health and safety and the consequences identified (relating to injury, permanent disability or impairment, severe permanent impacts, and fatalities due to short or long-term health effects or irreversible impacts) would apply to mine workers as well as members of the public;
- In worst-case scenarios, it may not be possible to remedy the consequences of malfunctions and accidents, and to remediate or compensate for negative effects to valued components. Remediation of negative effects to environmental valued components may be dependent upon natural processes over time; and
- Oversight of risks would primarily occur through MCM and its administration of the *Mines Act* permit for ECRP, and the requirements and plans associated with that permit, ENV and its administration of authorizations under the *Environmental Management Act*, and other regulatory mechanisms such as relating to spill reporting and project-related vehicle traffic on resource roads and public highways.

The EAO has proposed the following Certificate conditions related to managing risk of malfunctions and accidents:

- Condition 12: Construction Environmental Management Plan, which would require Skeena to develop and implement a plan to manage environmental effects during construction;
- Condition 13: Care and Maintenance Plan, which would set out the requirements for the plans and conditions that would apply during a period of care and maintenance or temporary closure;
- Condition 14: Public Information, which would require Skeena to maintain a website to ensure the public has access to monitoring and safety data reports associated with ECRP and other public information such as contact information; and
- Condition 22: Health and Medical Services Plan, which would require Skeena to develop and implement a plan to inform health authorities of potential impacts to emergency medical services as well as the connections to the Mine Emergency Response Plan required under the *Mines Act.*

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs to reduce potential effects from malfunctions and accidents (see *Appendix 2* and *Appendix 13* for full description). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of proposed federal conditions.

The EAO's detailed characterization of the expected risks of ECRP malfunctions and accidents to the valued components assessed is provided below, after considering where ECRP is situated, proposed mitigation measures, and proposed Certificate conditions.

Table 29: Summary of Potential Risks to Valued Components

Malfunction or Accident	Potentially Affected Valued Components	Risk Rating
Spill or accidental release of hazardous materials onsite	Soil, air quality, surface water, groundwater, fish and fish habitat, wildlife, vegetation, traditional land and water use	Likelihood: Unlikely Consequence: Moderate Risk: Moderate

Malfunction or Accident	Potentially Affected Valued Components	Risk Rating
Leakage or spill during transportation	Surface water, fish and fish habitat, wildlife, vegetation, traditional land and water use	Likelihood: Unlikely Consequence: Major Risk: Moderate
Motor vehicle and trucking accidents	Human health, wildlife, vegetation, traditional land access and use	Likelihood: Likely Consequence: Major Risk: High
Accidental release of contaminants from ore/waste rock stockpiles	Surface water, fish and fish habitat, soil, wildlife, vegetation, traditional land and water use	Likelihood: Unlikely Consequence: Moderate Risk: Moderate
Breach or failure of tailings storage facility and other containment structures	Fish and fish habitat, surface water, downstream traditional land and water use	Likelihood: Rare Consequence: Critical Risk: Moderate
Fires or explosions	Worker health and safety, acoustic, air quality, wildlife, vegetation, traditional land use	Likelihood: Unlikely Consequence: Major to critical Risk: High
Prolonged power failure (transmission lines or transformer)	Surface water, fish and fish habitat; economy and employment, traditional water use	Likelihood: Unlikely Consequence: Moderate Risk: Moderate
Unauthorized use of the mine site	Worker and public health and safety, traditional land use and access	Likelihood: Rare Consequence: Critical Risk: Moderate
Fly rock or excessive noise from blasting	Worker and public health and safety; sensory disturbance to wildlife	Likelihood: Rare Consequence: Critical Risk: Moderate
Failure of underground mine stability and ground instability or failure	Worker health and safety, fish and fish habitat, wildlife, vegetation, traditional land and water use	Likelihood: Rare Consequence: Critical Risk: Moderate

The EAO understands that public safety risk from activities at ECRP would be discussed further during the permitting processes under the *Mines Act* and *Environmental Management Act*. The EAO appreciates that there is a high level of public, local government and Indigenous concern regarding risks associated with mining activities, particularly regarding dam breaches, and how this may affect local and downstream communities and Indigenous interests. While the consequences for a tailings dam breach could be major, the EAO notes that the likelihood of such an event is rare. The EAO also notes that there is a well-established provincial regulatory regime that covers management of tailings through MCM.

The EAO has also proposed additional measures to address regulatory gaps and concerns heard from Indigenous nations and Technical Advisory Committee members. These relate to response planning, engagement with Indigenous nations, health authorities, and local government and follow-up studies and reporting.

The EAO is satisfied that the potential accidents and malfunctions associated with ECRP have been adequately identified, assessed, and mitigated.

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19.0 Appendix 8 Summary of Effects on Biophysical Factors that Support Ecosystem Function

19.1 Background

This section summarizes the potential effects that ECRP would have on biophysical factors that support ecosystem function. The result of this analysis provides decision makers with greater insight into the sustainability of ECRP, particularly how it may protect the environment and foster a sound economy and promote the well-being of British Columbians and their communities.

Section 25(2)(e) of the Act requires that effects on biophysical factors that support ecosystem function be considered in every assessment.

Ecosystem function relates to the different physical, chemical, and biological components of an ecosystem (for example, vegetation, water, soil, atmosphere, and biota) and how they operate and interact with each other within ecosystems and across ecosystems. The function of an ecosystem depends upon the long-term integrity of its physical, chemical, and biological elements.

Biophysical factors that support ecosystem function were assessed through the valued component framework and then summarized in *Chapter 34* of the Revised Application that collectively describes how these factors were assessed in the environmental assessment.

What are the biophysical factors that support ecosystem function?

Biophysical factors that support ecosystem function can be grouped into the following ten categories: habitats supporting ecosystem function, habitat patches, natural disturbance regime, structural complexity, hydrologic or oceanographic patterns, nutrient cycling, purification services, biotic interactions, population dynamics and genetic diversity.

These biophysical factors can vary in their contribution to ecosystem function and may be affected by potential project impacts at a landscape or watershed level, ecosystem level or ecological community level. Biophysical factors are assessed at the level that coincides with the potential effect.

19.2 Potential Project Effects by Skeena

Pathway of Effects

ECRP has the potential to affect biophysical factors that support ecosystem function through the following pathways:

- Habitats supporting ecosystem function including wetlands, old-growth forests and rivers;
- Natural disturbance regimes that occur naturally to maintain ecosystems, support biodiversity, and promote ecosystem regeneration (e.g., wildfires, flood events and natural pests);
- Structural complexity which can affect ecosystem function through alteration of natural and anthropogenic disturbances including effects on hydrologic patterns, nutrient cycling, and purification services;
- Hydrologic patterns which influence the transfer of sediments and living materials and habitat formation;
- Nutrient cycling in which nutrients (e.g. nitrogen, calcium, phosphorus, and carbon) move from soils to plants and animals, back to soils;
- Purification services from wetlands and riparian buffer zones that filter chemical and physical runoff; and
- Biotic interactions, including pollination, predation and nitrogen fixing, that interact to create ecosystem balances.

ECRP is not expected to interact with the following pathways:

- Habitat patches;
- Population dynamics; and
- Genetic diversity.

Habitats Supporting Ecosystem Function

Skeena identified potential for interactions between negative residual effects on the Vegetation and Ecosystems, Wildlife and Wildlife Habitat, Fish and Fish Habitat, and Terrain and Soils and habitat supporting ecosystem functions.

ECRP would result in loss of 20.1 ha of wetland (2% of the Local AA) and 107.7 ha of old-growth forests within the Assessment Footprint (3% of the old growth within the Local AA). The ECRP Project Footprint is located primarily in alpine and parkland areas with a predicted loss of 1,719.9 ha (25% of this site group within the Local AA). There are no red-listed ecological communities in the Local AA and no *Species at Risk Act* defined critical habitat within the Local AA or Regional AA; therefore, Skeena expects minimal direct or indirect loss or alteration of wildlife habitat within the Regional AA. Additionally, it is estimated that 40.7 km of watercourses and 3.26 ha of waterbodies would be lost, which would result in changes to water quality and quantity. Skeena anticipates residual effects relating to change in copper, nickel and zinc concentrations in Tom MacKay Creek, and that these effects will be limited to periphyton and benthic invertebrate communities. These effects are not anticipated to extend to the Unuk River or harm fish populations. Effects on soil volume would be limited to the Assessment Footprint, and no changes to habitat function are expected.

Natural Disturbance Regimes

Skeena expects clearing and grubbing activities related to ECRP to have residual effects on riparian, old-growth, and wetland ecosystems until ecosystems are reclaimed and established, and stream flows are expected to change over the life-of-mine within the Ketchum Creek, Eskay Creek, Coulter Creek and Tom MacKay Creek watersheds. There are no predicted residual effects for fire suppression or flood control; however, some effects may be associated with land clearing. No residual effects were identified that could change terrain; therefore, there is no anticipated change to the natural disturbance regime. There could be future changes to effects of ECRP due to natural disturbance regimes changing as a result of climate change, including increased temperatures and glacier melt, which may influence water conditions downstream of the glaciers.

Structural Complexity

Skeena identified potential interactions between residual negative effects on valued components (i.e., Fish and Fish Habitat, Terrain and Soils, Vegetation and Ecosystems, and Wildlife and Wildlife Habitat) and structural complexity. Residual effects from ECRP on stream segments and waterbodies (including the loss of 40.7 km of watercourses and 3.26 ha of waterbodies) combined with anticipated changes to streamflow could result in effects on habitat supporting benthic invertebrates. Skeena does not expect there to be any unique or endangered periphyton or benthic macroinvertebrates within the area of stream segment loss, meaning less influence of cumulative loss within the watershed. ECRP would have adverse residual effects on specific features within an ecosystem and would result in 2,123.7 ha of wildlife habitat loss; however, there are no red-listed communities or *Species at Risk Act* defined critical habitats within the area.

Hydrologic Patterns

Monthly average flows for each project phase were calculated by Skeena. Flows in Tom MacKay, Little Tom MacKay and Ketchum Creek are expected to permanently decrease due to mining and dewatering in the North and South pit, while flows in Eskay Creek and Coulter Creek are expected to increase. There are no expected changes to flow in Harrymel Creek and Unuk River relative to baseline conditions. Additionally, during the maximum effect period, the cumulative effects of ECRP, Brucejack Mine, and the KSM Mine would reduce the mean monthly winter surface water flows in the Unuk River, with minimal improvement in the post-closure period.

Nutrient Cycling

There is potential for interactions between negative residual effects on valued components (i.e., Air Quality, Groundwater, Surface Water, Terrain and Soils, and Vegetation and Ecosystems) on nutrient cycling associated with ECRP's potential to deposit emissions, wastes, and discharges into the environment during Construction.

Construction of ECRP would result in the direct and indirect alteration or loss of 2,123.7 ha of ecosystems in the Wildlife and Wildlife Habitat Regional AA, and this land clearing can influence nutrient cycling. ECRP is expected to have a less than two percent cumulative reduction of wildlife habitat within the Regional AA. There is a low magnitude of effects to soil volume and a less than one percent net effect in the Assessment Footprint and Local AA; therefore, changes to the land are not expected to influence nutrient cycling at the landscape and watershed level. Approximately 20 ha of wetlands with carbon storage, water quality treatment, and nutrient and organic export functions in the Assessment Footprint would be lost, with the overall effectiveness of wetland function distributed unequally (i.e., from low to high function) throughout those 20 ha. Additionally, the nutrient status of soils may be influenced by the effects of soil acidification, meaning less nutrients would be available for growth.

Skeena assessed residual effects for Surface Water quality and identified that for total phosphorus the potential for ECRP to result in a trophic shift in Tom MacKay Creek is characterized as high magnitude, and the potential for a trophic shift in Coulter Creek is characterized as moderate magnitude. However, in the area extending to the Unuk River, Skeena predicts no change.

Purification Services

Skeena identified the potential for an interaction between residual negative effects to Air Quality and Vegetation and Ecosystems and purification services. The overall effect on purification services is expected to be moderate, with some water quality parameters already exceeding water quality guidelines; further loading from ECRP could decrease aquatic habitat purification service resilience. Furthermore, air quality changes (including dust and metal deposition) can result in waste or chemical accumulation in ecosystems.

Skeena expects ECRP would have negligible impact on the *Climate Change Accountability Act* 2040 target, with the completion of the Reclamation and Closure phase in 2041.

Biotic Interactions

Potential interactions between residual negative effects on Fish and Fish Habitat and Wildlife and Wildlife Habitat and biotic interactions are considered by Skeena.

Skeena expects selenium bioaccumulation in parts of the aquatic food chain near ECRP, including in Tom MacKay Creek and upper Ketchum Creek, where selenium levels are already high in invertebrate populations due to natural conditions. However, Skeena expects a low risk to downstream biota. Additionally, direct loss and alteration of aquatic habitats in non-fish-bearing streams, and changes to water quantity and quality would have effects to the productivity of benthic macroinvertebrates and contribution of periphyton in downstream environments.

Skeena predicts low magnitude effect on wildlife species; ECRP is not expected to result in changes to keystone or foundation species that have the potential to alter ecosystems, change keystone or foundation species, or to alter indirect mortality risk due to change to predator prey dynamics. Mitigation measures to control the spread of invasive species that could change ecosystem function are proposed.

19.3 Proposed Mitigation Measures by Skeena

Skeena's proposed mitigation measures for air quality include existing and planned dust control measures, and additional contingency measures for when the dust control measures are ineffective, as well as measures to address the change in

ambient criteria air contaminants' concentrations. These mitigation measures are summarized in Section 17.1.5 of this Report.

As summarized in Section 17.3.5 of this Report, Skeena's existing groundwater mitigation measures include, but are not limited to, diversion of non-contact water, managing contact water, implementing treatment, seepage mitigation measures, erosion and sediment control, ML/ARD management practices and progressive reclamation efforts. Skeena also proposes new mitigation measures including, but not limited to, erosion and sediment control, liners and measures to reduce seepage, diversion channels, contact water collection ponds, storage facilities and water treatment plants.

To address concerns related to surface water quantity, Skeena proposes to develop an Erosion and Sediment Control Plan, Mine Site Water Management Plan, and a Reclamation and Closure Plan as part of the *Mines Act* permitting process. To address concerns regarding surface water quality, ECRP has several existing measures in place including water cover, water management of the underground existing workings, operation of the water treatment facility and existing sewage treatment plan. Additionally, further mitigation strategies to address water quality are integrated in the mine plan and water management strategy for ECRP and Skeena proposes active treatment of contact water and sewage prior to discharge. A summary of surface water mitigation measures can be found in Section 17.4.5 of this Report.

Mitigation measures for fish and fish habitat include existing measures listed under groundwater mitigation (e.g. diversion of non-contact water, managing contact water, implementing treatment, seepage mitigation measures, ML/ARD management practices and progressive reclamation efforts). Other mitigation measures are summarized in Section 17.5.5 of this Report.

Skeena identified mitigation measures for terrain and soils based on B.C.'s Environmental Mitigation Policy, including ML/ARD Management and mine reclamation. Furthermore, Skeena would follow best management practices including management of landslide and debris slide risk, topsoil salvaging and dust suppression as summarized in Section 17.6.5 of this Report.

Skeena plans to implement new mitigation measures to minimize adverse effects on vegetation and ecosystems in addition to existing mitigation measures in ECRP's *Mines Act* Permit (M-197). New mitigation measures include revegetation treatments, planting native plant species, annual vegetation surveys, and water management and erosion control. These mitigation measures are summarized in Section 17.7.5 of this Report.

To minimize disturbance to wildlife, Skeena plans to utilize existing mitigation measures and to implement additional mitigation measures, including infrastructure design that excludes wildlife, installation of artificial structures for impacted species, and minimization of disturbance during land clearing and construction. Additionally, Skeena identified new and existing management practices for dust, noise, road and traffic, water, waste, and human-wildlife interactions, which are summarized in Section 17.7.5 of this Report.

19.4 Key Issues Raised

During review of the Revised Application, no issues were raised with Skeena's assessment of potential effects specifically related to the effects on biophysical factors that support ecosystem function.

19.5 The EAO's Assessment and Conclusions

This section presents the EAO's conclusions on the potential positive and negative effects from ECRP on biophysical factors that support ecosystem function.

Proposed Provincial Conditions and Federal Mitigation Measures

The EAO has proposed Certificate conditions related to the following valued components:

- Air Quality (see *Section 17.1.6*);

- Groundwater (see Section 17.3.6);
- Surface Water (see Section 17.4.6);
- Fish and Fish Habitat (see Section 17.5.6);
- Terrain and Soils (see Section 17.6.6); and
- Vegetation, Ecosystems, Wildlife and Wildlife Habitat (see Section 17.7.6)

The EAO has also recommended to IAAC federal Key Mitigation Measures and Follow-up Programs that may also mitigate potential effects to biophysical factors that support ecosystem function (see Appendix 2 and Appendix 13 for full description). These federal Key Mitigation Measures and Follow-up Programs were considered by IAAC in the development of proposed federal conditions.

Residual Effects

The EAO's characterization of the expected residual effects of ECRP on biophysical factors that support ecosystem function is summarized in the table below.

Table 30: Summary of Effects on Ecosystem Function

Ecosystem Function	Assessment Rating	Rationale
Habitats Supporting Ecosystem Function	Low magnitude, localized and permanent	Minimal direct or indirect loss or alteration of wildlife habitat is predicted in the Regional AA. Non-fish bearing aquatic habitat loss due to direct loss and disturbance and changes in water quality and quantity, is predicted to be limited to the Project Footprint. Changes to water quality extending to Unuk River are expected, but predicted to be low, as there are no locations downstream of the site that would be a long-term sediment sink.
Natural Disturbance Regimes	Low magnitude, localized and permanent	ECRP is not expected to alter the natural disturbance regime. However, there could be a change in project effects as a result of climate change. This potential residual effect has been considered in the valued component effects assessment as part of future conditions.
Structural Complexity	Low magnitude, regional and permanent	Habitat loss, including the residual effects of ECRP on stream segments and waterbodies may have an effect on the structural complexity of the ecosystem.
Hydrologic Patterns	Medium magnitude, regional and permanent	Hydrologic patterns are expected to permanently change as far as the Unuk River as a result of ECRP. Additionally, ECRP would contribute to the reduction of mean monthly winter surface water flows in the Unuk River with minimal predicted improvement post closure.
Nutrient Cycling	Low magnitude, localized and permanent	Construction of ECRP would have a local influence on nutrient cycling through land clearing. The overall effectiveness of wetlands will be reduced with this clearing, and there may be an influence of soil acidification on soil nutrient status.
Purification Services	Medium magnitude, regional and permanent	Water quality guidelines are already being exceeded in some areas due to other project influences, and ECRP could decrease aquatic purification service resilience. Air quality changes that would impact ecosystems is expected in a small portion of the Local AA close to the Assessment Footprint.
Biotic Interactions	Low magnitude, localized and permanent	Productivity of benthic macroinvertebrates would be impacted by habitat loss and changes to water quantity and quality. Selenium bioaccumulation in aquatic food chains is expected; however, this is expected to be localized with low risk to downstream biota.

Conclusion

After considering the information provided by Skeena in the Revised Application; the views of reviewers of the Revised Application and Skeena; the proposed mitigation measures identified in the provincial table of conditions (see *Section 9.0*); and recommended federal Key Mitigation Measures and Follow-up Programs under the IAA (see *Appendix 2*), the EAO concludes that there would be low to medium magnitude effects on biophysical factors that support ecosystem function. The EAO is satisfied that effects on these factors would be appropriately mitigated and minimized to the extent possible for ECRP.

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20.0 Appendix 9 Effects on Current and Future Generations

20.1 Background

Section 25(2)(f) of the Act requires that effects on current and future generations be considered in every assessment. This means that both positive and negative project effects on current and future generations must be considered for environmental, economic, social, cultural and health values and in relation to the Indigenous Interests that may interact with ECRP.

Subparagraph 22(1)(a)(iii) of the IAA specifies that the assessment of a designated project must take into account the result of any interaction between changes to the environment or to health, social or economic conditions. The extent to which ECRP contributes to sustainability, defined as "the ability to protect the environment, contribute to the social and economic well-being of the people of Canada and preserve their health in a manner that benefits present and future generations," is a federal requirement as per paragraph 22(1)(h) of the IAA and is discussed in more detail in *Appendix 13* of this Report.

What is considered a current and future generation?

25 years is generally considered representative of a single generation however the Act does not assign a specific numerical value to the term. Generally, effects on current generations would be felt within the next 25 years, while effects on future generations would be felt 25 years and beyond.

Relevant Initiatives and Strategies

The following federal, provincial, regional and First Nation initiatives and strategies are relevant to sustainable development and ECRP:

- Tahltan Sustainability Requirements: Allows the land and water to be returned to the level of environmental health to support Tahltan's Title and Rights as well as land uses across the Tahltan Continuum. This requirement considers whether a project does not require mitigation, treatments, or monitoring beyond closures, and finally contributes supports, or assists in creating social cultural environmental and economic legacies for Tahltan (Declaration Act Agreement 2022);
- StrongerBC Economic Plan: Outlines the various goals and tasks aimed at creating sustainable, inclusive and prosperous economic growth (Government of B.C. 2018);
- Emerging Economy Task Force: Provides advice on methods that the government can utilize to support B.C.'s evolving economy (Government of B.C. 2020);
- Declaration Act Action Plan: Provides actions which will be taken by the Province in consultation with Indigenous Peoples in the areas of Indigenous self-determination and self-government, rights and title, racism, and enhancing social, cultural and economic well-being (Government of B.C. 2022); and
- 2023-2026 Strategic Plan: Outlines the actions taken to make life more affordable, deliver better municipal services, and invest in a sustainable economy that supports a high quality of life within communities throughout their lifetime (RDKS 2023).

20.2 Potential Project Effects and Proposed Mitigations

This section provides an overview of positive and negative effects identified by Skeena and Skeena's proposed mitigation and enhancement measures to both reduce negative effects and distribute positive effects across generations. Skeena's assessment (see *Chapter 36* of the Revised Application) considered the following questions:

- How are existing conditions being protected, maintained, enhanced and/or degraded as a result of ECRP?

- How are the positive and negative project effects distributed temporally? Are there differences in distribution within the population?
- What types of economic growth does ECRP create and how is this growth distributed?
- How is ECRP aligned with relevant regional or provincial growth strategies, including strategic direction from the Province regarding sustainable development, and the Tahltan Sustainability Requirements?

Skeena has proposed to restart mining at a previously developed site with a focus on sustainability, inclusion of First Nations, and minimization of long-term harm. Existing environmental, cultural, and socio-economic conditions would be protected or enhanced through project design and proposed mitigation strategies. Skeena noted that key areas of focus included minimizing habitat disturbance, managing water and air quality, and avoiding irreversible land use conflicts.

Skeena identified that ECRP would result in long-term effects on certain components, specifically noting changes in groundwater, aquatic ecosystems, and culturally valued plant species. To mitigate and manage these impacts, Skeena would be required to develop extensive reclamation and closure plans through the *Mines Act* permitting process, with the goal of eventually returning the site to a self-sustaining, natural state, consistent with Tahltan Sustainability Requirements.

The effects of ECRP would be distributed unevenly over time. Skeena assessed positive effects such as employment, income, business opportunities, and local economic activity that would be concentrated in the Construction and Operations phases (benefiting the current generation with indirect benefits to future generations), while negative environmental effects may extend into the far future, particularly around water quality, environmental restoration, income, and employment stability (impacting future generations). Skeena anticipates ECRP to generate regional economic growth through employment, procurement, and tax revenue. It would contribute an estimated $2.4 billion in tax revenue over its lifespan and create substantial direct and indirect jobs.

Skeena's local hiring and training policies aim to support First Nation communities, women, and underrepresented groups. Skeena proposed a Recruitment and Selection Policy with diverse and inclusive hiring practices and training, a Health and Medical Services Plan for workers and communicating with local health providers, a Social Closure Plan when mine production ends for employment transition and socio-economic impacts, and a Community Effects Monitoring and Management Plan.

Skeena has aimed to align ECRP with major provincial and regional strategies for sustainable economic development, such as the StrongerBC Economic Plan, the Emerging Economy Task Force, and the Declaration Act Action Plan by promoting clean growth, inclusive employment, and consent-based decision-making with Tahltan. Skeena has also aimed to align ECRP with the Tahltan Sustainability Requirements, committing to long-term environmental recovery, cultural respect, and avoiding perpetual monitoring. Reclamation plans and future closure planning processes would ensure that land use after mining would support ongoing Tahltan connection to the territory and contribute to intergenerational equity.

In Skeena's assessment, social impacts such as increased housing pressure and changes in health services access were identified in the short to medium term (affecting the current generation). First Nations, low-income residents, rural populations, and elders may disproportionately experience both the harms and benefits, depending on factors like employment access or reliance on the land for traditional practices.

20.3 Key Issues Raised

The key issues raised during the environmental assessment related to effects on current and future generations included anticipated economic and employment benefits during mine construction and operations, balanced against concerns about potential declines in employment and economic activity following mine closure. There were concerns raised about the uncertainty of how long the treatment and management of mine effluent could be required, whether Tahltan Sustainability Principles expectations can be met.

In relation to traditional use activities such as hunting, trapping, fishing, and gathering, ECRP is expected to result in localized effects to country foods and access. However, major changes in the regional availability or access to country foods are not anticipated. Employment at ECRP may provide financial resources that may support the pursuit of engagement in traditional land use activities, and this may extend to underrepresented groups and other minorities in this regard.

Concerns regarding the economic and employment benefits from ECRP raised by reviewers included concerns regarding the equitable distribution of employment benefits, local and indigenous employment opportunities and potential wage inflation affecting other industries.

20.4 The EAO's Assessment and Conclusions

The Province responsibly manages Crown land with the aim of supporting a range of beneficial purposes, including both commercial and non-commercial activities, often supporting overlapping uses. However, metal mine tenures typically limit or prevent other overlapping and future land uses in the immediate area due to their operational requirements. While the physical footprint of metal mines is often smaller than other land uses such as forestry, they can generate significant economic and employment benefits over varying timeframes, depending on resource availability, mine planning, and market conditions.

Generations that are present from mine construction onwards could be directly or indirectly affected by increases in the cost of living, employment fluctuations, and environmental impacts. These in turn may have associated social, health, and cultural implications.

From the start of construction, mine related activities at the ECRP site are expected to span approximately 57 years (based on model forecast period), with some activities potentially continuing beyond that. As 25 years is generally considered representative of a single generation, this means that individuals from multiple current generations may directly or indirectly experience effects – both positive and negative – from ECRP.

ECRP would be anticipated to have broad net positive economic effects that occur primarily over the short to medium term and localized negative environmental effects over the long-term. Related social, health, and cultural outcomes will likely include a mix of both benefits and adverse effects.

Traditional and non-traditional land use in and around ECRP has already negatively affected by historical and ongoing mining activities. The negative residual effects from ECRP have been predicted to mostly be confined to the mine site and the current generation, resulting in potentially limited opportunity for concurrent and future traditional and non-traditional uses, both commercial and non-commercial within the mine site.

The distribution of effects across generations is expected to vary. In general, older members of the current generation may experience more of the benefits, while younger individuals and future generations may be more likely to experience indirect, delayed, long-term, or residual effects – both positive and negative. The EAO has proposed the following Certificate conditions to ensure that ECRP contributes to sustainability by protecting the environment, contributing to social and economic well-being, and preserving health in a manner that benefits current and future generations:

- Condition 14: Skeena must establish and maintain a dedicated Public Information website to ensure the public has access to monitoring and safety data reports associated with ECRP and other public information such as contact information;
- Condition 21: Skeena must develop a Human Health Management and Monitoring Program, detailing a plan to monitor environmental contaminants with the potential to impact human health (including for workers and local land users) and implement adaptive management measures;
- Condition 23: Skeena must develop a Socioeconomic Management Plan, detailing how to mitigate and monitor social and economic effects; and

- Condition 27: Skeena must participate in Regional Cumulative Effects Initiatives, including any health or traffic management related cumulative effects assessment or management activities that include project area, carried out by TCG and/or the Province.

After considering proposed mitigation measures and Certificate conditions, the EAO concludes that ECRP would have overall positive effects on local employment and the economy associated with the development of ECRP for current and future generations. With the mitigation proposed, the EAO concludes that there are unlikely to be significant adverse effects on current and future populations.

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21.0 Appendix 10 Climate Change & Greenhouse Gas Emissions

21.1 Background

This section provides information and an analysis of the direct effects of the greenhouse gas (GHG) emissions from ECRP. Conclusions on the extent to which ECRP hinders or contributes to the Government of Canada's ability to meet its environmental obligations and its commitments in respect of climate change are provided in *Appendix 13* of this Report (Requirements of the IAA). As required for designated projects under the IAA, Skeena prepared its Application to provide the information required by ECCC's Strategic Assessment of Climate Change (SACC). Further, Section 25(2)(c) of the Act requires that the contributions of a project GHG emissions to the provincial GHG reduction targets are considered.

The section also includes details on ECRP's main GHG sources and estimated emissions by type over its lifetime, impacts on carbon sinks and land use, implications for provincial, federal, and global emissions reduction efforts, and mitigation measures, including the use of offset credits. This assessment supports compliance with British Columbia's *Climate Change Accountability Act*, which establishes legislated targets for reducing provincial GHG emissions.

Regulatory Context

GHG emissions are subject to provincial and federal requirements and guidelines. The provincial requirements include:

- *Climate Change Accountability Act* (previously titled the *Greenhouse Gas Reduction Targets Act*) requires the province to reduce GHG emissions 40 percent below 2007 by 2030, 60 percent by 2040, and 80 percent by 2050.
- All new, large industrial facilities with estimated annual emissions greater than 10,000 tonnes carbon dioxide equivalent must develop a credible plan to achieve net-zero emissions by 2050 and demonstrate alignment with world-leading emission intensity performance.
- The Greenhouse Gas Industrial Reporting and Control Act which establishes a comprehensive framework for regulating industrial GHGs including emission reporting, offsets, tracking, and compliance.
- The CleanBC Roadmap to 2030 establishes a comprehensive plan for B.C. to achieve its climate targets and transition to a clean economy.

The federal GHG emission requirements applicable to ECRP include:

- Canada's 2030 Emissions Reduction Plan (requiring 40-45 percent emissions reductions below 2005 levels by 2030);
- *Canadian Net Zero Emissions Accountability Act* (requires national five-year emissions targets to reach net-zero by 2050);
- Strategic Assessment of Climate Change (outlines the GHG emissions and climate change information requirements that proponents must provide); and
- Greenhouse Gas Reporting Program (facilities that emit more than 10 kilotonnes (kt) CO2e annually must report their emissions to ECCC).

21.2 Potential Project Effects and Proposed Mitigations

ECRP is expected to produce GHG emissions primarily through the Construction and Operations phases. These emissions result from the combustion of fuels in vehicles, equipment, and generators, as well as electricity use, explosives use and land use change. The key GHGs associated with ECRP are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), which are reported as carbon dioxide equivalents (CO_2e) to reflect their relative impacts on climate change.

Emissions are categorized into three types:

- Scope 1 includes direct emissions from explosives and fuel use on-site;

- Scope 2 includes indirect emissions from electricity purchased from BC Hydro; and
- Scope 3 includes some indirect emissions not under direct control of ECRP, such as transportation of personnel, supplies, and materials. Select Scope 3 emissions are included in ECRP's assessment.

Total GHG emissions are calculated by combining direct and indirect emissions, with adjustments for any emissions offsets or avoided emissions. At this time, ECRP does not include carbon capture, avoidance measures, or offset credits, although Skeena has suggested these options may be considered in the future. Land use changes, particularly vegetation removal for Construction, are recognized as a source of emissions due to the loss of natural carbon sinks. While land reclamation may provide some carbon sequestration over time, these potential benefits are not currently reflected in the emissions totals.

ECRP has been developed in the context of both provincial and federal climate policies. In British Columbia, facilities emitting more than 10,000 tonnes of CO_2e annually are required to report under the *Greenhouse Gas Industrial Reporting and Control Act*. The Province has also introduced the Net-Zero New Industry Policy, which requires new industrial developments to prepare credible plans for achieving net-zero emissions by 2050 and reduce emissions as far as reasonably practicable. Skeena complied with these requirements by submitting a Net-Zero Plan. These measures are intended to align with BC's broader climate goals, as outlined in the *Climate Change Accountability Act* and the CleanBC Roadmap to 2030.

Federally, ECRP is subject to the *Canadian Net-Zero Emissions Accountability Act* and follows guidance from the SACC. Emission calculations follow national reporting standards, and an assessment of Best Available Technologies and Best Environmental Practices has been conducted to identify options for minimizing emissions.

Proposed mitigation measures include the use of low-carbon grid electricity, energy-efficient equipment, and energy management systems and the utilization of existing infrastructure and existing areas of disturbance on site. Additional studies are underway to evaluate the feasibility of electric vehicle use, renewable fuels, and electrified alternatives to propane heating and drying systems. However, full electrification of heavy equipment is currently limited by the availability of commercial technologies and sufficient electrical capacity. As a result, diesel will remain a primary energy source during Operations, contributing significantly to emissions.

After the planned closure in 2042, emissions are expected to decline substantially as site activity is reduced. During the Post-closure phase, annual emissions are projected to be under 829 tonnes CO_2e. ECRP indicates that any remaining emissions during this period would be addressed through the purchase of carbon offsets, in line with net-zero expectations for 2050.

While ECRP has incorporated several measures to reduce its GHG footprint and plans for further reductions over time, challenges remain. These include power availability, evolving technologies, and the absence of a finalized offset strategy. Continued assessment and refinement of emissions mitigation will be necessary to align with climate policies and public expectations for industrial development in British Columbia and Canada.

ECRP will affect carbon sinks primarily through land use changes during the Construction, Operations, and Reclamation and Closure phases. Emissions from land use change—primarily due to vegetation removal—are estimated at 690 tonnes of CO_2 equivalent (tonnes CO_2e) per year and are expected to continue at this rate for up to 100 years, in accordance with federal technical guidance. While some revegetation is planned during later phases, the restored areas will include Mountain Hemlock or Alpine Fir species. As a result, no net increase in carbon sequestration is assumed during the Post-closure phase, providing a conservative estimate of long-term impacts on carbon sinks.

ECRP's GHG emissions have been assessed in relation to both national and provincial climate targets. Canada has committed under the Paris Agreement to reduce emissions by 40% to 45% below 2005 levels by 2030 and to achieve net-zero emissions by 2050. Federally, ECRP falls under the GHG reporting requirements of the Canadian Environmental Protection Act, which mandates annual reporting for facilities emitting over 10,000 tonnes CO_2e per year. Provincially,

ECRP is subject to Greenhouse Gas Industrial Reporting and Control Act, which establishes provincial GHG emissions reporting requirements. B.C. has also established emission reduction targets under the *Climate Change Accountability Act* to reduce province-wide emissions by 40 percent, 60 percent and 80 percent below 2007 levels by 2030, 2040 and 2050 respectively.

In 2030, ECRP's direct emissions are estimated at 89,256 tonnes CO_2e, and total emissions at 91,773 tonnes CO_2e—representing approximately 0.23% of the Province's 2030 GHG target. By 2040, total emissions are projected to decline to 7,083 tonnes CO_2e, or 0.03% of BC's 2040 target. These levels of emissions are not expected to significantly affect the Province's ability to meet its legislated climate goals, 2024 Climate Change Accountability Report forecasts that to meet the 2030 target, an additional 13.0 MtCO2e of reductions would be required. This project would increase the forecast emissions gap by a further 0.71%. At the global level, ECRP's maximum annual net emissions in 2030 represent approximately 0.0002% of global emissions, based on 2020 estimates.

The potential for accidental or unplanned events to cause additional emissions has also been considered. Malfunctions such as a tailings dam failure, on-site fires or explosions, and prolonged power outages could result in increased GHG emissions. These events would likely require extensive diesel-powered equipment for emergency response and remediation, leading to additional short-term emissions. The scale of these emissions would depend on the nature and duration of the event. These scenarios are further addressed in Appendix 7 (*Section 18.0*) of this Report (Risks of Malfunctions and Accidents).

21.3 Key Issues Raised

During the ECRP environmental assessment, several key themes emerged from comments submitted by federal agencies, provincial ministries, First Nations, and technical reviewers regarding GHG emissions and climate change mitigation. These comments primarily focused on emissions transparency, the credibility of the net-zero strategy, use of carbon offsets, the adequacy of mitigation measures, and alignment with regulatory guidance.

Emissions Reporting

An area of concern was the clarity and completeness of emissions reporting. Reviewers requested more detailed breakdowns of GHG emissions by source and project phase, particularly for categories such as offsite transport, explosives, and land use change. In response, Skeena updated emissions tables and added clarifying language to demonstrate source attribution across Construction, Operations, and Closure. However, reviewers emphasized the need for continued improvements in how emissions from activities like transportation and land clearing are calculated and disclosed.

Net Zero Targeting

Another key issue was ECRP's reliance on carbon credits to achieve its net-zero target by 2050. Reviewers acknowledged the importance of offsets but stressed that they should only be used as a last resort, as offsets do not address immediate, on-the-ground impacts to lands and ecosystems used by Indigenous communities. They called for earlier and more tangible offset measures, such as direct restoration of carbon sinks and habitats impacted by ECRP.

Best Available Technologies

The adequacy and transparency of the Best Available Technologies / Best Environmental Practices determination process was another key concern. Multiple reviewers found that Skeena's Best Available Technologies / Best Environmental Practices analysis lacked sufficient detail on the technical and economic feasibility of various mitigation options and failed to quantify GHG reduction potential in standardized units. Although Skeena responded with updated technical memos, concerns persisted regarding ECRP's minimal plans for electrification, especially given its reliance on diesel-powered haul trucks. Reviewers recommended more robust assessments of alternative technologies such as hybrid trucks, renewable

diesel, and trolley-assist systems. Reviewers also stressed the importance of ensuring infrastructure is designed to accommodate future transitions to lower-emission technologies.

Related to this was the issue of carbon sink disturbance. Reviewers noted that the Reclamation and Closure Plan did not sufficiently explain how disturbed carbon sinks—such as forests and wetlands—would be restored. While Skeena pointed to revegetation prescriptions in its closure planning, reviewers requested clearer links between these actions and their expected contributions to GHG mitigation. Furthermore, Northern Health raised concerns about lowering emissions congruent with CleanBC and the BC Climate Preparedness and Adaptation Strategy. Climate change is increasingly challenging the resilience of B.C.'s health system and communities through compounding impacts on health and well-being, as well as pressures on health services and infrastructure.

Provincial / Federal Climate Target

Finally, several comments addressed the alignment with provincial and federal climate targets. Reviewers questioned how the ECRP's emissions profile contributes to or hinders achievement of Canada's and British Columbia's climate goals. While Skeena emphasized that ECRP's emissions intensity is among the lowest for gold mines globally, reviewers felt the Application lacked detail on how it actively supports emissions reductions beyond compliance. Reviewers also expressed concern that ECRP's mitigation strategy does not fully align with the intent of the Hybrid AIR, which requires proactive planning to achieve net-zero emissions across all project phases, including Post-closure. Skeena responded by noting that they are strongly motivated to further reduce emissions during Operations by securing additional power and have applied for an additional 10MW of capacity from BC Hydro.

Although many of the above concerns were formally closed through updates to the Revised Application or commitments to future reporting, some issues—particularly those related to land-based offsets, carbon sink restoration, and Post-closure emissions, and updates on plans for further electrification and the use of renewable fuels in operations—have been carried forward to the permitting stage. Continued engagement with First Nations will be critical to ensuring that future planning aligns with community expectations, regulatory requirements, and Canada's broader climate commitments.

21.4 The EAO's Assessment and Conclusions

ECRP presents a combination of environmental benefits and challenges, particularly in the areas of GHG emissions, long-term climate impact, and community engagement.

ECRP is positioned as a relatively low-emissions when compared to similar open-pit gold mines. Skeena showed that the GHG intensity of ECRP is significantly below the global average for both open-pit and underground gold mines. This places ECRP among the more efficient gold producers in terms of emissions per unit of output. In addition, Skeena has committed to achieving net-zero emissions by 2050, primarily through the purchase of carbon credits, and has incorporated several best available technologies (BATs) and environmental practices (BEPs), including an energy management system and electrification of some infrastructure such as the process plant. These initiatives are intended to leverage BC's clean electricity grid to reduce emissions. Skeena also noted that while electrification of the process plant and/or any other further electrification would increase Scope 2 emissions due to greater electricity use, it would result in less net emissions due to substantially reducing Scope 1 emissions. ECRP also includes a Reclamation and Closure Plan that outlines revegetation and land stabilization, aimed at restoring some ecosystem functions after Operations end.

However, ECRP also has several challenges. A primary concern is the long-term reliance on diesel fuel, particularly for the haul truck fleet, which is expected to account for over 85% of the project's total emissions. However, increasing standards under the Low Carbon Fuel Standard will help to reduce diesel emissions over time. Despite acknowledging the potential of renewable fuels, they have not provided a robust plan to procure and incorporate their use throughout operations. With regards to electrification commitments, Skeena did clarify in the Revised Application that the diesel haul truck fleet will be leased, providing flexibility to incorporate EV haul trucks should they become available and if sufficient power is

available from BC Hydro. This has led to concerns from reviewers and First Nations that ECRP lacks a credible path to reduce emissions beyond simply offsetting them.

Another key issue identified by reviewers is the reliance on carbon credits to achieve net-zero status. According to federal guidance, offsets should be considered only as a last resort, but in this case, they appear to be the primary mitigation strategy for residual emissions. Furthermore, although Post-closure land use emissions (approximately 690 tCO_2e/year) are expected to persist for up to 100 years, there is no detailed plan for their mitigation beyond 2050. The Revised Application did not clarify how disturbed carbon sinks—such as forests, wetlands, and soils—would be restored, which is especially concerning for Indigenous communities who depend on the land for traditional use and cultural connection. Skeena noted that detailed revegetation prescriptions are not a requirement of the Hybrid AIR for ECRP but have been submitted in the Reclamation and Closure Plan as part of the ECRP permitting process. Skeena also clarified that ECRP will be closed and largely remediated by 2040, with only minor emissions expected from any electricity used for long-term water treatment. Additionally, because the B.C. grid is not expected to further decarbonize, the only available mitigation for these emissions is through offsets.

Reviewers also expressed concerns that the offset measures do not provide tangible restoration of the land or support timely return to traditional land use. They argue that Skeena's current approach delays meaningful remediation for decades, undermining community needs and ecological priorities. Calls have been made for Skeena to engage directly with Indigenous communities to co-develop offset and restoration measures that reflect local values and timelines.

The Climate Action Secretariat has advised the EAO that it considers ECRP's Net-Zero Plan, as required under the Net-Zero New Industry policy, to be credible. ECRP's projected operational emission intensity is approximately 0.20 tCO2e per ounce of gold equivalent, which is in line with top performing mines globally. Key measures contributing to this performance include electrification of the mill and office buildings, implementation of energy efficient equipment and practices, and use of renewable diesel for mobile equipment. While further details are required to fully understand the sourcing and planned integration of renewable diesel into operations, this will be addressed through a proposed Certificate condition. Skeena has also committed to using leased diesel haul trucks, allowing flexibility to transition to electric vehicles as technology and power availability evolve. These efforts support the credibility of the Net-Zero Plan. As ECRP is not anticipated to be operating beyond 2050, it is not required to achieve net-zero emissions unless extended beyond that timeframe.

The EAO has proposed the following Certificate condition related to managing risk of climate change and GHG emissions from ECRP:

- Condition 15: Skeena must implement the Net-Zero Plan submitted in Chapter 28 (*Section 28.4*) of the Revised Application and update the plan at least every five years during Construction and Operations, including updates on usage of low-carbon energy and a procurement plan for renewable diesel use in Operations, and provide an update on efforts to procure additional electricity supply to ECRP.

The EAO has also recommended federal Key Mitigation Measures and Follow-up Programs that may also mitigate potential effects to greenhouse gases (see *Appendix 2* and *Appendix 13* for full descriptions). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of proposed federal conditions.

The EAO is satisfied that the potential effects of climate change and GHG emissions associated with ECRP have been adequately identified, assessed, and mitigated for this environmental assessment.

22.0 Appendix 11 Alternative Means of Carrying out ECRP

The technical and economical alternative means to carry out a project must be assessed in every environmental assessment, in accordance with Section 25(2)(i) of the Act and consistent with paragraph 22(1)(e) of the IAA. This includes assessing the best available technologies and the potential effects, risks, and uncertainties of each alternative. Chapter 1 (*Section 1.7.5*) of the Revised Application summarized the alternatives and options assessed by Skeena.

Skeena first identified the technically and economically feasible alternative means. Alternatives were considered uneconomic where implementation posed a significant risk to a return on investment. The alternatives were then evaluated using the categories and sub-categories[19] listed in *Table 23* below before the preferred alternatives were selected and brought forward into the ECRP's design.

Table 31: Summary of Skeena's Alternative Means Assessment Categories

Categories	Sub-categories
Tahltan Requirements[20]	• Health of land and water • Tahltan relationship and connections • Tahltan way of life • Reclamation or restoration to support Tahltan way of life
Environmental	• Air quality • Greenhouse gas emissions • Water usage • Footprint/surface area disturbance
Technical	• Construction risk and complexity • Operational risk and complexity • Closure risk and complexity • Operational flexibility
Economic	• Capital cost • Operating cost • Closure cost
Social	• Employment • Worker safety • Change in land use • Potential interaction with worker health

The alternative means of undertaking the ECRP for primary project components, as evaluated by Skeena, are described in Table 32 below.

[19] While each subcategory was considered, Skeena specifies in their Revised Application that subcategories were not used in an assessment if considered non-differentiating for the alternatives being evaluated, meaning that if a selected subcategory was equal across alternative considered, that subcategory was not included in the assessment. For more information on Skeena's Assessment Criteria see Chapter 1 (*Section 1.7.4.2*) of the Revised Application.

[20] Tahltan Requirements considered by Skeena were based on the Tahltan Risk Assessment Factors and Tahltan Sustainability Requirements as laid out in Schedules C and D, respectively, of the *Declaration Act* Agreement (2022).

Table 32: Summary of Skeena's Alternative Means of Undertaking the ECRP

Project Components and Activities	Alternatives Evaluated	Selected Alternative and Rationale
Mining method	• Open Pit • Underground	**Open Pit** Open pit was assessed as producing more gold equivalent at less cost than underground (which would be more expensive due to additional geotechnical and safety considerations), which makes open pit the more economically viable choice. Open pit was also evaluated as having greater flexibility, more suitable lower ore grade at shallow deposit depths, greater employment and contract opportunities, and reduced safety risks; as compared to underground which, due to historical mining activities having extracted ore close to the surface, would need to go to depths with significant associated risks and costs
Ore processing methods	• Flotation • Flotation plus cyanide leaching • Flotation plus pressure oxidation plus cyanide leaching	**Flotation** This method was assessed as resulting in the least complex system, smallest overall footprint of the Process Plant, and the lowest capital and operating costs. In addition, no cyanide management would be required, reducing exposure and risk to workers. Flotation alone was also assessed as having the lowest impact to Tahltan Requirements, lowest air quality emissions, and lowest volume of water required.
Ore stockpile location	• Ore stockpile near Primary Crushing Station • In-pit ore stockpile • Ore stockpile west of MRSA • No ore stockpile onsite	**Ore stockpile near Primary Crushing Station** This location was assessed as limiting the amount of material rehandling and hauling required and reducing the potential for additional contact water that would require management and treatment, lower greenhouse gas emissions, and limited wildlife interactions. This option was also assessed as the lowest in operating costs.
Concentrate transportation method	• Railway • Truck to Prince Rupert • Truck to District of Stewart	**Truck to the District of Stewart** This option was assessed as having the shortest haul distance and lowest risk of wildlife interactions, with no increase in Project Footprint. This option was also assessed as the lowest overall concentrate transport cost with no added complexity (as compared to rail which would require infrastructure construction).

Project Components and Activities	Alternatives Evaluated	Selected Alternative and Rationale
Mine waste management	• **Option A** Filtered tailings and PAG waste rock co-disposal in the southwest of the pit and disposal of NPAG waste rock east of Little Tom MacKay Lake • **Option B** Slurry tailings and PAG waste rock co-disposal in the TMSF and disposal of NPAG waste rock southwest of the pit • **Option C** Slurry tailings and PAG waste rock co-disposal in the TMSF and disposal of NPAG waste rock east of Little Tom MacKay Lake • **Option D** Slurry tailings disposal in the TMSF, separate PAG waste rock disposal east of Little Tom MacKay Lake, and disposal of NPAG waster rock southwest of the pit • **Option E** Filtered tailings and PAG waste rock co-disposal east of Little Tom MacKay Lake and disposal of NPAG waste rock in the southwest of the pit	**Option B - Slurry Tailings and PAG waste rock -disposal in the TMSF and disposal of NPAG waste rock southwest of the Pit** This option was assessed to have the most reduced waste disposal footprint, effects to watercourses, and waste rock hauling distances. Skeena also stated a preference for this mine waste disposal technology as one with precedence in the mining industry and relatively low-complexity construction methods.
PAG waste rock transportation	• Belt conveyor system • Rail conveyor system • Hybrid haul truck with trolley assist • Conventional diesel haul truck	**Conventional diesel haul truck** This option was assessed as requiring no additional infrastructure and does not require electricity from the Project's power infrastructure. This option and the hybrid option were also assessed as lowest for surface disturbance, as well as having lower associated costs, simplest operation in colder temperatures, no topographic limitations, requiring no rehandling at the TMSF, high worker safety and higher employment outcomes. Skeena will continue to explore the potential of the **hybrid haul truck with trolley assist** option utilizing all infrastructure and haul trucks of the conventional diesel haul truck option, which would be viable if the electrical requirements of the hybrid haul truck with trolley assist option could be reduced.

Project Components and Activities	Alternatives Evaluated	Selected Alternative and Rationale
Water treatment technology	• Low-Density Sludge • High-Density Sludge • Enhanced High-Density Sludge • Geotube® treatment • In-situ Neutralization • Moving Bed Bioreactor • In-situ Denitrification • Breakpoint Chlorination • Selen-IX™ • Single-Use Sorbents • Lime Neutralization • Membrane Desaturation • Barium Process	**Geotube® treatment and Enhanced High-Density Sludge** **Geotube® treatment** was assessed as the preferred option for the first stages of the Project as the technology provides for solid-liquid separation early in the Construction process; subsequently as onset of acid rock drainage occurs and levels of metal and acidity in contact water increases, the Mine Water Treatment Plant will be modified during early Operations to use **Enhanced High-Density Sludge** clarification and filtration for solid-liquid separation to improve treated effluent quality. This combination of options was assessed as providing the highest reliability, lowest complexity and being the most cost-effective alternative with the lowest long-term operational, management and monitoring costs.
Snow management	• Cease work during heavy snowfall • Store snow along haul roads • Haul snow to TMSF • Push snow into creek headwaters • Use inactive areas • Combination of options	**Combination of options (haul snow to TMSF, push snow into creek headwaters, and use inactive areas)** This option was assessed as providing the most flexibility for snow management, maximizing the use of mobile equipment, reducing the total amount of snow hauling required, and minimizing the volume of contact water that requires management; in line with the ECRP's overall water management strategy.
Camp location	• Near Process Plant • Near Coulter Creek Access Road and TMSF • Near KM53.5 • Near North Spoils area • Existing Forrest Kerr camp	**Near Coulter Creek Access Road and TMSF** This option was assessed as the preferred choice as it balances a small daily commute for workers and minimized noise and disturbance levels for employees by accommodating workers farther from active mining, crushing, and processing areas. This option also has sufficient bedspace capacity to independently meet the Project's accommodation requirements.
Overburden and topsoil management	• Store in windrows along haul roads • Designated stockpiles onsite • Co-disposal with waste rock • No designated stockpiles onsite	**Store in windrows along haul roads and designated stockpiles onsite** These two options were assessed as allowing for the segregation of overburden and topsoil materials, maximizing opportunities for progressive reclamation, supporting closure activities during reclamation and closure and allowing for flexibility in material management. They were also assessed as having the lowest impact to Tahltan Requirements and air quality.
Rock quarry source	• Onsite NPAG quarries within open pits • Quarries along the Eskay Creek Mine Access Road • Combination of options	**Combination of options (onsite NPAG quarries within open pits** and **quarries along the Eskay Creek Mine Access Road)** This option was assessed as providing the most flexibility and reliability for material sources and allowing the Project to utilize onsite materials to limit the material sourced from along the Eskay Creek Mine Access Road, as well as providing the highest potential for additional employment.

Project Components and Activities	Alternatives Evaluated	Selected Alternative and Rationale
Non-hazardous material management	• Onsite incineration and onsite landfill • Onsite incineration and disposal at offsite landfills • Offsite incineration and disposal at offsite landfills	**Onsite incineration and disposal at offsite landfills** This option was assessed as allowing for the frequent incineration of domestic materials, limiting the potential attraction of wildlife to the Project site. In addition, this option would not require new land disturbance and construction associated with an onsite landfill and would be lower in operating cost due to lower transportation distance. This option was also assessed to have the lowest impacts to Tahltan Requirements for health of land and water and lower wildlife interactions.
Hydrocarbon contaminated soils management	• Onsite bioremediation • Onsite co-disposal with waste rock • Offsite disposal	**Offsite disposal** This option was assessed as having no potential interaction with water, no monitoring requirements, no closure costs, removing the requirements for additional infrastructure construction and potential additional water treatment; however, Skeena will continue to explore additional alternatives options with regulators and First Nations through closure and reclamation planning to confirm the best management option for hydrocarbon contaminated soils at the ECRP mine site.
Stationary infrastructure power source	• Hydroelectric power from Volcano Creek Substation • Hydroelectric power from Bob Quinn Substation • Wind power generation • Solar power generation • Diesel power generation	**Hydroelectric power from Volcano Creek Substation** This option was assessed as utilizing existing infrastructure as much as practicable and removing the disturbance requirement for additional electrical infrastructure and the associated additional permitting. In addition, the ECRP will utilize **diesel power generation** only for the application of emergency power, with no power plant or additional fuel storage required for the limited use of this option. This option was also assessed as having the lowest impacts to Tahltan Requirements.
Mobile equipment power source	• Diesel-powered equipment • Electric-powered equipment • Combination of power sources	**Combination of power sources** This option was assessed as allowing the Project to use electric-powered mobile equipment as much as practicable while providing the reliability and size flexibility of diesel-powered mobile equipment. As battery technology and mobile equipment sizes improve, the ECRP would consider opportunities to expand the electric-powered mobile equipment fleet onsite in consideration of existing electrical grid capacity limitations.
Worker rotation schedule	• 5 days on / 2 days off • 1 week on / 1 week off • 2 weeks on / 2 weeks off • 3 weeks on / 3 weeks off	**2 weeks on / 2 weeks off** This option was assessed as providing a blend of flexibility and predictability that would enable the Project to efficiently manage staffing requirements while prioritizing employee work-life balance. This option would be utilized for all salaried, hourly, and contractor personnel throughout the mine life. Additional worker rotation schedules will be considered through development of the ECRP and discussions with First Nations.

22.1 Key Issues Raised

During Application development, TCG raised a number of concerns related to Skeena's assessment of alternative means of carrying out the ECRP, including specifically expressing interest in alternative project designs around mining methodology and the TMSF. Skeena considered these concerns through extensive engagement with TCG on this topic, including technical workshops and regular meetings.

While Skeena's extensive engagement with the TCG did support in-depth discussions on issues and integrated Tahltan Assessment Criteria into the alternatives assessment, the process had challenges and did not include all the possible risks which ended up being carried forward as key issues into conditioning and permitting. This was partially due to issues of limited data, as the alternatives process was conducted during a time when the water optimization data was not yet available, issues of cover systems had not been fully raised/explored, and the knowledge of water treatment in perpetuity had not yet been determined. Had these risks (raised by TCG and other TAC members during Application Review) and the related additional data been considered, the alternative assessment process may have resulted in different designs or other alterations to the Project as proposed. Skeena did update and change the proposed Water Treatment Technology in its Revised Application as a result of water optimization work and related discussions with TCG and the TAC.

While no key issues were raised during Application Review regarding alternative means to carry out the ECRP, TCG remained deeply concerned with related key issues, including: the PAG pit walls, the costs and technology demands of perpetual water treatment, seepage from the TMSF, and reclamation planning (including post-closure liability and bonding) and these key issues were carried forward to be addressed through a combination of *Mines Act*/*EMA* permitting and through the following proposed Certificate condition:

- Condition 26: Skeena must develop an End Land Use Plan, detailing existing land capability and use, predicted land capability and use after Closure of ECRP, efforts to reconcile differences between pre- and post-ECRP conditions, forecast of overall changes in land capability due to ECRP, and incorporation of mitigation targets related to valued components examined in the Revised Application.

22.2 The EAO's Assessment and Conclusions

The EAO concludes that Skeena has adequately assessed alternative means for the ECRP and components of the ECRP's design.

23.0 Appendix 12 Potential Changes to the Project Caused by the Environment

23.1 Background

Section 25(2)(j) of the Act requires that the potential changes to the reviewable project that may be caused by the environment be considered in every assessment. Paragraph 22(1)(j) of the IAA specifies that the assessment of a designated project must take into account any change to the project that may be caused by the environment. In *Chapter 30* of the Revised Application, Skeena assessed the likelihood of the potential changes to ECRP that may be caused by the environment, including geological hazards and extreme weather and weather-related events. These environmental effects and processes have the potential to affect ECRP and result in changes or effects to the valued components assessed in the Revised Application.

23.2 Potential Effects and Proposed Mitigations

23.2.1 Extreme Weather and Weather-related Events

Extreme weather and weather-related events include cold and hot temperatures, high and low precipitation, flooding and drought, high winds, lightning and wildfire. Over time, it is anticipated that climate change will increase temperatures and precipitation subsequently increasing the frequency of lightning and freeze-thaw cycles in the region of ECRP.

Potential Project Effects

Although hazards associated with extreme cold are predicted to decrease over time, potential effects are considered. Temperature fluctuations may increase the density of snow and cause freezing and thawing and cold temperatures may result in extended winter precipitation and increased snow accumulation. Cold temperatures could damage project infrastructure, increase the risk of malfunctions and accidents, adversely affect worker health, require more frequent maintenance of access roads and water management infrastructure, and increase operating and maintenance costs. More freeze-thaw cycles could accelerate road deterioration and compromise the stability of permanent mine facilities (e.g., dam and pit walls, and stockpiles).

High temperatures may increase the number of melt events over winter, shift the onset of freshet and the snow-free period, and result in more rapid runoff, increased erosion, faster drying of the ground, and increased evaporation. High temperatures could expose acid generating materials and have implications on how water is managed at the mine site, impact reclamation and closure of the mine site, increase wildfire risk, adversely affect worker health, limit working periods, delay or disrupt maintenance, and increase costs.

Heavy precipitation (rain and snow) could lead to flooding, erosion and sedimentation, and excess mine contact water. Heavy precipitation could force vehicles to reduce speeds, increase mine site dewatering complexity and cost, and damage or compromise the stability of mine facilities (e.g., pit walls). Flooding could damage containment structures, diversion channels, and equipment, and cause unauthorized discharges of mine effluent into the receiving environment. Heavy precipitation and flooding could damage roads, bridges and culverts, and block access to key sites and access routes. Heavy precipitation and flooding could cause short-term mine production delays, and damage to District of Stewart port infrastructure.

Low precipitation and drought could reduce erosion and sedimentation, and the amount of water potentially requiring management and treatment but also limit the water available for mine processing/operation, require additional non-contact water for processing/operation, and reduce stream flow thereby limiting the ability to meet water quality objectives where mine effluent is discharged into the receiving environment. Low precipitation and drought could also increase dust generation in the mine site and on roads, increase wildfire risk, and impact planting success rates during Reclamation and Closure of the mine site.

High winds could create large waves in the tailings storage facility, and at port in the District of Stewart, and damage buildings, the transmission line and power lines. Roads could become blocked with downed trees. High winds could increase dust generation and increase the windchill factor for outside workers during winter months, affecting worker health and safety.

If it occurs at or near the mine site, lightning could cause injuries to workers, and cause damage to electrical and communication infrastructure and equipment.

If wildfires occur at or near the mine site, operations would be suspended, infrastructure could be damaged, and project-related contaminants could be released into the receiving environment (water and air).

Proposed Mitigations and Risk Analysis

The measures that would be implemented to mitigate the above effects include infrastructure design, engineering, maintenance, and monitoring considerations, and worker health and safety management plans, policies, risk assessments, and training.

The mine process plant would be sited and constructed to allow for sufficient water supply during drought conditions. Tailings storage dams would be designed to a Very High dam classification level given the potential for incremental downstream consequences to natural resources from a dam failure. The facility would be designed to reduce metal leaching and acid rock drainage, handle runoff from a 1,000-year storm event, and withstand a seismic event occurring within about a 6,000-year period.

With mitigations, if extreme weather and weather-related events were to influence ECRP, the overall risk to valued components is anticipated to be:

- Low to fish and fish habitat, vegetation and ecosystems, non-traditional land and resource use, and current and future use of land and resources for traditional purposes (overall risk could be higher to Indigenous Peoples who may experience greater health risks); and
- Moderate to air quality, surface water, terrain and soils, and human health (overall risk could be higher to Indigenous Peoples who may experience greater health risks from changes to the availability or quality of country foods).

23.2.2 Geological Hazards

Geological hazards include soil erosion, terrain stability, seismic activity, and avalanches. Over time, it is anticipated that climate change could indirectly increase the frequency or magnitude of seismic events in the region of ECRP due to post-glacial rebound from accelerated glacier and sea ice melt. These events would increase landslide risk to ECRP and would increase avalanche risk in winter at higher elevations.

Potential Project Effect

A seismic event could affect all ECRP components. Risks include failure of tailing storage facility dams, slope failure of waste dumps and stockpiles, damage to or collapse of other mine infrastructure such as pit walls and roads, secondary risks from landslides, rockfall, and snow avalanches, and compromised worker health and safety. There could be short- or long-term disruptions to operations and cost implications could be substantial. The consequences of a tailings dam failure have been assessed as very high.

Landslides are a key hazard for all ECRP components. Landslides could cause damage to mine infrastructure, injury to workers, and short- or long-term impacts to mine production.

Exposed soils, and mine infrastructure such as dams, water diversions and ditches, stockpiles, roads, and laydowns will be prone to water and wind erosion. Erosion could impact water quality in waterbodies and watercourses and could compromise the structural integrity of facilities such as dams, embankments, and roads.

Avalanches could damage mine infrastructure and equipment, cause blockage of water management infrastructure, cause worker injury or death, and disrupt mine production. There could be short- or long-term disruptions to operations with cost implications.

Proposed Mitigations and Risk Analysis

The measures that would be implemented to mitigate the above effects are like those noted for extreme weather and weather-related events, in addition to other mitigations specific to geological hazards (e.g., rock scaling, mesh or cable nets, avalanche safety, etc.). Otherwise, management plans and mine reclamation would have a prominent role in helping to minimize soil erosion.

With mitigations, if geological hazards were to influence ECRP, the overall risk to valued components is anticipated to be:

- Soil erosion:
  - Low to fish and fish habitat, soil quality and quantity; and
  - Moderate to air quality, surface water quality.
- Terrain stability:
  - Low to fish and fish habitat, employment and economy, non-traditional land and resource use, quiet enjoyment of land, surface water, vegetation and ecosystems, wildlife and wildlife habitat.
- Seismic activity:
  - Moderate to fish and fish habitat, employment and economy, non-traditional land and resource use, quiet enjoyment of land, surface water, vegetation and ecosystems, wildlife and wildlife habitat; and
  - High to current and future use of land and resources for traditional purposes, heritage resources, human health (overall risk could be higher to Indigenous Peoples who may experience greater health risks from changes to environmental conditions, the availability of quality of country foods, and fears about contamination leading to reduction in collecting traditional foods and medicines).
- Avalanches:
  - Low to surface water.

23.3 Key Issues Raised

The key issues raised about potential changes to ECRP caused by the environment considered the likelihood and consequences of risks, who would bear those risks, and whether those risks could outweigh the economic benefits of ECRP. Reviewers also raised concerns related to how increased precipitation and temperature would affect terrestrial ecosystems and groundwater, specifically during Reclamation and Post-closure phases.

Skeena responded that extreme weather may affect ECRP through increased snow dump volumes, runoff via erosion or the ability to meet discharge quality objectives, which may affect surface water; however, these events may increase groundwater recharge but are not anticipated to adversely impact groundwater. Skeena acknowledged that extreme weather may increase the likelihood of spills and other accidents and malfunctions, which may affect vegetation and ecosystems, but the likelihood of these impacts may decrease during Closure and Post-closure phases as activity decreases at the ECRP site or may increase due to reduced onsite personnel and monitoring.

Another key issue raised by TCG was that man made dam walls and the hybrid cover system on the TMSF would be highly impacted by extreme weather and will require ongoing monitoring and management activities. These requirements are inconsistent with the current Tahltan Shared Vision and Objectives for Closure as well as several Tahltan Risk Assessment requirements.

The EAO acknowledges that MCM requires proponents of mines to post reclamation security bonds with the Province to cover the cost of reclaiming a site as part of the *Mines Act* permitting process. The MCM website provides more information on *reclamation security and bonding*.

23.4 The EAO's Assessment and Conclusions

The EAO considered the following factors in reaching its conclusions on potential changes to ECRP caused by the environment:

- Mine facilities such as the TMSF, waste rock dumps, pit walls, water diversion structures, and primary road access to the site are permanent facilities that would not be decommissioned. These facilities would need to remain stable, function effectively, and be monitored and maintained in perpetuity;
- The potential geographic extent of major and critical consequences to environmental valued components and Indigenous Interests outside/downstream of the mine site associated with potential changes to ECRP caused by the environment would be influenced by where it is located/situated;
- The relatively short mine life means limited climate changes are anticipated. Skeena anticipates that climate change related hazards, including extreme heat and landslide, are anticipated to increase from minimal to moderate to high risk by the long-term 2080 target year, when active water treatment and management activities would still be ongoing, whereas other climate related hazards may remain the same or decrease over the same time period;
- Skeena's assessment considered environmental hazards individually. The consequences might be worse if, for example, a seismic event occurred in conjunction with a heavy precipitation event;
- History of an existing TMSF and operating mine at the site; and
- Robust permitting and code requirements related to management of risks.

The EAO has proposed the following Certificate conditions to manage the potential changes to ECRP that may be caused by the environment, and potential consequences:

- Condition 12: Construction Environmental Management Plan, which would require Skeena to develop and implement a plan to manage environmental effects during construction;
- Condition 13: Care and Maintenance Plan, which would set out the requirements for the plans and conditions that would apply during a period of care and maintenance or temporary closure;
- Condition 14: Public Information, which would require Skeena to maintain a website to ensure the public has access to monitoring and safety data reports associated with ECRP and other public information such as contact information; and
- Condition 21: Health and Medical Services Plan, which would require Skeena to develop and implement a plan to inform health authorities of potential impacts to emergency medical services as well as the connections to the Mine Emergency Response Plan required under the *Mines Act.*

The EAO has also recommended federal Key Mitigation Measures and Follow-up Programs that may also mitigate potential effects to changes caused by the environment (see *Appendix 2* and *Appendix 13* for full descriptions). These federal Key Mitigation Measures and Follow-up programs were considered by IAAC in the development of proposed federal conditions.

The risk of negative consequences occurring from environmental hazards, whether or not they are related to climate change, would be permanent. In relation to the mine site, the potential scope of these consequences includes severe

offsite environmental damage that would persist, loss of natural resources over a wide area, damage to mine infrastructure/facilities that takes more than three years to repair or which is irreversible, and injuries that are irreversible or fatal.

After considering the above mitigation measures and the Certificate conditions proposed, the EAO concludes the effects of the environment would likely pose a low risk to ECRP during Construction and Operations due to the short duration of these phases, excluding evolving climate change trends during the period within which ECRP would have to be substantially started if a Certificate is issued (i.e., up to ten years).

The EAO concludes the effects of the environment would pose a moderate risk over the long-term with respect to adverse effects of ECRP during Closure and Post-closure, particularly on groundwater and surface water due to ongoing water treatment requirements. Long-term concerns related to climate change could impact when Skeena would be released from its obligations under a *Mines Act* permit. The EAO concludes that the effects of the environment would not have significant adverse effects on ECRP.

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24.0 Appendix 13 Federal Requirements

24.1 Overview

This section describes how the legislative requirements of the *Impact Assessment Act* (IAA) were considered and met by the B.C. Environmental Assessment Office (EAO) for the Eskay Creek Revitalization Project (ECRP).

24.1.1 The Substituted Assessment Process and Cooperation with British Columbia

On November 29, 2022, the provincial environmental assessment process was substituted for the federal impact assessment process. Under substitution, the provincial assessment process is used to meet the requirements for an environmental assessment under the provincial *Environmental Assessment Act* (2018) and an impact assessment under the federal IAA. This Assessment Report (Report) is the result of that single substituted assessment process. It will be submitted to the federal Minister of Environment and Climate Change to inform federal decision-making, fulfilling the requirements of the IAA, the *Environmental Assessment Act (2018),* and the conditions for substitution outlined in the *Notice of Substitution Approval under the IAA*. It will also be used by Tahltan Central Government (TCG) decision makers, fulfilling requirements of the *Declaration Act Consent Decision-Making Agreement for the Project between B.C. and Tahltan Central Government* (the Consent Agreement).

When provincial and federal assessments are both required, the *Impact Assessment Cooperation Agreement between Canada and British Columbia* (the Cooperation Agreement) describes the way IAAC and EAO work together to ensure one efficient and effective assessment process, including for substituted assessments.[21]

24.1.2 Requirements of the *Impact Assessment Act*

An impact assessment under the IAA must:

- consider adverse effects within federal jurisdiction and direct or incidental adverse effects ("adverse federal effects") as defined in Section 2 of the IAA (Table A; *Section 24.1.6*);
- consider the factors set out under Subsection 22(1) of the IAA (Table B, *Section 24.1.7*); and
- determine whether adverse effects within federal jurisdiction are likely to be to some extent significant, and if so, to what extent (Table A, *Section 24.1.6*).

The requirements of the *Notice of Substitution Approval under the IAA*, which contains additional conditions for the substituted assessment, are listed in Table C, *Section 24.1.8*.

24.1.3 Assessing Effects Within Federal Jurisdiction

To meet the requirements of the IAA, the Report must characterize effects under federal jurisdiction by specifying whether adverse federal effects, including cumulative effects, are likely to be to some extent significant, and if so, to what extent.

EAO carried out the assessment of effects in federal jurisdiction in accordance with its Effects Assessment Policy (the Policy).[22] The assessment described in this Appendix includes characterization of residual adverse effects in federal jurisdiction which consider the application of recommended federal Key Mitigation Measures, which are those that are important for addressing potentially significant adverse effects in federal jurisdiction. EAO recommends that IAAC consider the recommended federal Key Mitigation Measures in the development of potential federal conditions, should

[21] Section 7 of the Cooperation Agreement describes specific provisions for substituted assessments.

[22] See *Appendix 3* Residual Effects Characterization Definitions of this Report for additional detail about EAO's effects assessment methodology.

the ECRP be approved to proceed. See *Appendix 2* for the complete list. The characterization of significance applies only to non-negligible residual adverse federal effects and is completed using similar factors and criteria used elsewhere in the Report for each effect being assessed (e.g., magnitude, geographical extent, timing, frequency, duration, reversibility and uncertainty, and social and ecological contexts), and standards, guidelines, descriptors or objectives, where they exist.

While the frameworks and language used to describe "significance" are different between the federal and provincial assessment processes, the conclusions are informed by a common body of scientific information and consideration of Indigenous Knowledge. Where effects to a valued component are negligible, an extent of significance determination is not required because they are no longer captured in the definition of effects in federal jurisdiction.

The criteria for characterizing extent of significance for residual (i.e. following the application of mitigation measures) non-negligible adverse federal effects are listed below:

Not Significant: Effects are sufficiently small that they do not individually or cumulatively have a significant effect on a Valued Component and generate no or few impacts in social or ecological contexts.

Low: Effects are significant but are low in magnitude, of short duration, infrequent, small in spatial extent, reversible or readily avoided, and to generate few or minor impacts in social or ecological contexts. Mitigation measures will allow baseline conditions to remain largely unchanged.

Moderate: Effects are significant and are moderate in magnitude, of moderate duration, occasionally frequent, possibly/partially reversible, and generate a moderate level of impacts in social or ecological contexts. Mitigation measures may not fully eliminate, reduce, control or offset effects but should enable affected communities to maintain economic and social well-being, and should prevent the diminishment or loss of key components of the environment and its ecological functioning.

High: Effects are significant and are high in magnitude, permanent/long term, frequent, irreversible, and over a large spatial extent or within an area of exclusive/preferred Indigenous use or of ecological/environmental sensitivity. High levels of impacts in social or ecological contexts are expected. There is a high degree of uncertainty of the effectiveness of mitigation measures, or mitigation measures are unable to fully address effects such that valued components are diminished or lost.

Extent of significance determinations for non-negligible adverse federal effects are summarized in Table 33. They are based on EAO's assessment of residual effects presented in *Appendix 13* and the additional analysis specific to adverse federal effects conducted in this Appendix. The factors outlined in Subsection 22(1) of the IAA (Table 34) do not require a characterization of extent of significance.

24.1.4 Malfunctions and Accidents

The Proponent (Skeena) was required to provide an assessment of malfunctions and accidents that could impact valued components and Indigenous interests. EAO's assessment of malfunctions and accidents, and their potential effects on areas of federal jurisdiction, is provided in *Appendix 7*.

24.1.5 Assessment of Effects within Federal Jurisdiction

Tables 33 and 34 point to locations in this Report where information about adverse effects under Section 2 of the IAA and the factors set out under Subsection 22(1) of the IAA were assessed by EAO.

For some Section 2 and Section 22 IAA factors, it was necessary for EAO to include additional assessment in this Appendix beyond that conducted elsewhere in the Report to adequately assess effects within federal jurisdiction.

The following Section 2 IAA factors were subject to additional assessment in this Appendix:

- *Section 24.2* — Fish and Fish Habitat

- *Section 24.3* — Migratory Birds
- *Section 24.4* — Federal Lands
- *Section 24.5* — Transboundary Water Pollution
- *Section 24.6* — Assessment of 2(e) and (f) Factors with Respect to Indigenous Peoples of Canada

The following Section 22 IAA factors were subject to additional assessment in this Appendix:

- *Section 24.8* — Considering the Extent to which the ECRP's Likely Effects Contribute to Sustainability
- *Section 24.9* — Considering Environmental Obligations and Commitments in Respect of Climate Change

Additionally, this Appendix contains an assessment of the Indigenous Knowledge Provided with Respect to the Designated Project (*Section 24.7*) and Federal Crown's Duty to Consult and Nisga'a Treaty Obligations (*Section 24.10*).

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Table 33 Location in the Report of the Assessment of Adverse Effects within Federal Jurisdiction, as defined in Section 2 of the IAA and Classification of Extent of Significance

Federal Requirement	Report Location	Extent of Significance for Residual Effects under the IAA	Extent of Significance for Cumulative Effects under the IAA
Adverse effects within federal jurisdiction (as defined in section 2 of the IAA)			
(a) a non-negligible adverse change to the following components of the environment that are within the legislative authority of Parliament:			
(a)(i) fish and fish habitat, as defined in subsection 2(1) of the *Fisheries Act*	• Section 17.5: Fish and Fish Habitat • Section 17.4: Surface Water • **This s.2 factor was further assessed in Section 24.2 — Fish and Fish Habitat**	Significant to a Low to Moderate extent	Significant to a Low to Moderate extent
(a)(ii) aquatic species, as defined in subsection 2(1) of the *Species at Risk Act*	• The *Species at Risk Act* defines aquatic species as wildlife species that are fish (*Fisheries Act,* Section.2*)* or marine plants (*Fisheries Act,* Section 47). Fish are discussed in Section 17.5 Fish and Fish Habitat of this Report. The assessment doesn't include marine plants because none were identified. The Regional Assessment Area ends at the Canada-United States border, upstream of the marine environment.	Not Applicable	Not Applicable
(a)(iii) migratory birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act*, 1994	• Section 17.7: Wildlife and Wildlife Habitat • **This Section 2 factor was further assessed in Section 24.3 — Migratory Birds**	Non-negligible – Not Significant	Negligible
(a)(iv) any other component of the environment that is set out in Schedule 3	There are no other components of the environment set out in Schedule 3 of the IAA.	Not Applicable	Not Applicable
(b) a non-negligible adverse change to the environment that would occur on federal lands	**This Section 2 factor was further assessed in Section 24.4 — Federal Lands**	Negligible	Negligible
(c) a non-negligible adverse change to the marine environment that is caused by pollution and that would occur outside Canada;	The assessment doesn't include the marine environment because the Regional Assessment Area ends at the Canada-U.S. border on the Unuk River, upstream of the marine environment.	Not Applicable	Not Applicable

Federal Requirement	Report Location	Extent of Significance for Residual Effects under the IAA	Extent of Significance for Cumulative Effects under the IAA
(d) a non-negligible adverse change – that is caused by pollution – to *boundary waters* or *international waters,* as those terms are defined in subsection 2(1) of the *Canada Water Act*, or to interprovincial waters	**This Section 2 factor was further assessed in Section 24.5 — Transboundary Water Pollution**	Non-negligible – Not Significant	Non-negligible – Not Significant
(e) with respect to the Indigenous peoples of Canada, a non-negligible adverse impact—occurring in Canada and resulting from any change to the environment—on:			
(e)(i) physical and cultural heritage	• *Section 6*: Indigenous Nation Engagement and Summary Effects • **This Section 2 factor was further assessed in Section 24.6 — Assessment of 2(e) and (f) Factors with Respect to Indigenous Peoples of Canada**	Significant to a Low extent	Significant to a Low extent
(e)(ii) the current use of lands and resources for traditional purposes	**This Section 2 factor was further assessed in Section 24.6 — Assessment of 2(e) and (f) Factors with Respect to Indigenous Peoples of Canada**		
(e)(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance	• *Section 6*: Indigenous Nation Engagement and Summary Effects • **This Section 2 factor was further assessed in Section 24.6 — Assessment of 2(e) and (f) Factors with Respect to Indigenous Peoples of Canada**		
(f) a non-negligible adverse change occurring in Canada to the health, social or economic conditions of the Indigenous peoples of Canada	• *Section 6*: Indigenous Nation Engagement and Summary Effects • **This Section 2 factor was further assessed in Section 24.6 — Assessment of 2(e) and (f) Factors with Respect to Indigenous Peoples of Canada**	Significant to a Low extent	Significant to a Low to Moderate extent
(g) a non-negligible adverse change to a health, social or economic matter that is within the legislative authority of Parliament that is set out in Schedule 3	There are no other health, social, or economic matters set out in Schedule 3.	Not Applicable	Not Applicable

Table 34 Location in the Report of the Assessment of Effects Required under the IAA [Subsection 22(1)]

Federal Requirement	Report Location
Factors to be Considered (as defined in Section 22 of the *IAA*)	
(a) the changes to the environment or to health, social or economic conditions and the positive and negative consequences of these changes that are likely to be caused by the carrying out of the designated project, including:	
(a)(i) the effects of malfunctions or accidents that may occur in connection with the designated project	Appendix 7: Risks of Malfunctions and Accidents
(a)(ii) any cumulative effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out	Within each Valued Component Section: Sections 24.1 to 24.10
(a)(iii) the result of any interaction between those effects	Within each Valued Component Section: Sections 24.1 to 24.10
(b) Mitigation measures that are technically and economically feasible and that would mitigate any adverse effects of the designated project	• Within each Valued Component Section: Sections 24.1 to 24.10 • Appendix 2: EAO's Recommended Key Federal Mitigation Measures and Follow Up Program Under the IAA
(c) the impact that the designated project may have on any Indigenous group and any adverse impact that the designated project may have on the rights of the Indigenous peoples of Canada recognized and affirmed by Section 35 of the *Constitution Act*, 1982	Appendix 5: Detailed First Nations Assessments
(d) the purpose of and need for the designated project	Section 2.3: Purpose and Need for the Designated Project
(e) alternative means of carrying out the designated project that are technically and economically feasible, including through the use of best available technologies, and the effects of those means	Appendix 11: Alternative Means of Carrying out the Project
(f) any alternatives to the designated project that are technically and economically feasible and are directly related to the designated project	Appendix 11: Alternative Means of Carrying out the Project
(g) Indigenous knowledge provided with respect to the designated project	• Appendix 5: Detailed First Nations Assessments • Within each Valued Component Section: Sections 24.1 to 24.10
(h) the extent to which the designated project contributes to sustainability	• Appendix 5: Detailed First Nations Assessments • Within each Valued Component Section: Sections 24.1 to 24.10 • Appendix 7: Risks of Malfunctions and Accidents • Appendix 8: Summary of Effects on Biophysical Factors that Support Ecosystem Function

Federal Requirement	Report Location
	• *Appendix 9*: Effects on Current and Future Generations • **This Section 22 factor was further assessed in Section 24.8 — Considering the Extent to which the Project's Likely Effects Contribute to Sustainability**
(i) the extent to which the effects of the designated project hinder or contribute to the Government of Canada's ability to meet its environmental obligations and its commitments in respect of climate change	• *Appendix 10*: Greenhouse Gases • **This Section 22 factor was further assessed in Section 24.9 — Considering Environmental Obligations and Commitments in Respect of Climate Change**
(j) any change to the designated project that may be caused by the environment	*Appendix 12*: Potential Changes to the Project caused by the Environment
(k) the requirements of the Follow Up Program in respect of the designated project	• Within each Valued Component Section • *Appendix 2*: EAO's Key Mitigation Measures and Follow Up Programs under the IAA
(l) considerations related to Indigenous cultures raised with respect to the designated project	*Appendix 5*: Detailed First Nations Assessments
(m) community knowledge provided with respect to the designated project	• *Section 5*: Participant Engagement • Within each Valued Component Section
(n) comments received from the public	• *Section 5.2*: Public Engagement • Within each Valued Component Section
(o) comments from a jurisdiction that are received in the course of consultations conducted under section 21 of the IAA	• *Appendix 5*: Detailed First Nations Assessments • *Appendix 7*: Risks of Malfunctions and Accidents • *Appendix 8*: Summary of Effects on Biophysical Factors that Support Ecosystem Function • *Appendix 9*: Effects on Current and Future Generations • *Section 3.4.2*: Land Use Plans • *Appendix 10*: Greenhouse Gases • *Appendix 11*: Alternative Means of Carrying out the Project • *Appendix 12*: Potential Changes to the Project caused by the Environment • Within each Valued Component Section
(p) any relevant assessment referred to in section 92, 93 or 95 of the IAA	**This Section 22 factor was subject to additional assessment in Section 24.9 — Considering Environmental Obligations and Commitments in Respect of Climate Change**

Federal Requirement	Report Location
(q) any assessment of the effects of the designated project that is conducted by or on behalf of an Indigenous governing body and that is provided with respect to the designated project	*Appendix 5*: Detailed First Nations Assessments
(r) any study or plan that is conducted or prepared by a jurisdiction—or an Indigenous governing body not referred to in paragraph (f) or (g) of the definition jurisdiction in Section 2—that is in respect of a region related to the designated project and that has been provided with respect to the project	EAO did not identify any requirements applicable to Section 22 of the IAA (r).
(s) the intersection of sex and gender with other identity factors	*Section 17.9*: Infrastructure and Services *Section 17.12*: Employment and Economy
(t) any other matter relevant to the impact assessment that IAAC requires to be taken into account	EAO did not identify any requirements applicable to Section 22 of the IAA (t).

Table 35 Location in the Report of the Assessment of Additional Requirements Outlined in the Minister's Notice of Substitution Approval under the IAA

Condition of Substitution	Report Location
The designated project to be assessed is the Construction, Operation, and Decommissioning of an open-pit gold and silver mine, and any incidental physical activities.	*Section 2*: Project Overview
B.C. will gather necessary information to inform IAAC's assessment of the potential effects of the project, including from road transportation of concentrate, supplies and personnel, on the Nisg*a'a* Nation's treaty rights, as Canada is required to do under the *Nisga'a Final Agreement,* and to allow Canada to make a determination of whether it has met its obligations under Chapter 10 of the *Nisga'a Final Agreement*.	• *Section 16.2*: Nisga'a Nation • **This substitution condition was further assessed in Section 1.10 — Federal Crown's Duty to Consult and Nisga'a Treaty Obligations**

24.1.6 Direct or Incidental Adverse Effects

In addition to the assessment approvals, the ECRP would need various authorizations from federal authorities to proceed. These authorizations are documented in the most recent version of the *Joint Permitting/Regulatory Coordination Plan*, which will be updated again. Under the IAA, the assessment must include a characterization of significance for non-negligible direct or incidental adverse effects that are directly linked or necessarily incidental to a federal authority's exercise of power or performance of a duty or function that would permit the carrying out of the ECRP (defined as "direct or incidental adverse effects" in Section 2 of the IAA). At this time, there are no direct or incidental adverse effects anticipated from any of the identified authorizations that haven't already been considered in this assessment. This conclusion is preliminary and will be revisited as the assessment process advances. As such, EAO has not provided a characterization of significance for any direct or incidental adverse effects from the ECRP.

24.2 Fish and Fish Habitat

24.2.1 Overview and Regulatory Context

The IAA requires an assessment of non-negligible adverse changes to fish and fish habitat.[23] EAO has assessed effects to fish and fish habitat (see *Section 17.5* of this Report) and effects to groundwater and surface water (see *Sections 17.3* and *17.4* of this Report, respectively). This section draws from those assessments to assess effects to fish and fish habitat.

24.2.2 Proponent Assessment

24.2.2.1 Geographic Context

The assessment boundaries and the current surface water system are discussed in *Section 17.4* of this Report.

24.2.2.2 Surface Water and Groundwater

Changes to surface water and groundwater may indirectly affect fish and fish habitat, so they are both considered in the assessment to inform the understanding of effects. The effects on these valued components differ by location, and changes to both water quality and quantity were considered. A detailed description of effects to surface water and groundwater can be found in this Report (see Sections 17.3 and 17.4, respectively).

24.2.2.3 Fish and Fish Habitat

Residual Effects

Skeena identified the following potential effects to fish and fish habitat:

- changes in water quality on periphyton, benthic macroinvertebrates, and fish;
- changes in water quality on sediment accumulation of contaminants of potential concern;
- changes in water quality on bioaccumulation of metals in periphyton, benthic macroinvertebrates, and fish; and
- changes in water quantity and flow on aquatic resources and fish habitat.

In the Revised Application, Skeena characterized the effects to aquatic resources, fish, and fish habitat. The definition of fish habitat in the *Fisheries Act* is "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas." The EAO considers aquatic resources as defined by Skeena to be part of fish habitat because they support fish needs, contribute to functional connectivity, and influence the quality of downstream fish-bearing watercourses.

The residual effects are described further in *Section 17.5* Fish and Fish Habitat (17.5.4 and 17.5.7). In summary:

The residual effects to fish and fish habitat vary by type and location and were predicted to have low to moderate magnitudes.

Low magnitude effects include:

[23] See Section 2(a)(i) of the *Impact Assessment Act.*

- changes in water quality on periphyton and benthic macroinvertebrates in watercourses other than Tom MacKay Creek;
- changes in water quality on sediment accumulation of contaminants of potential concern;
- changes in water quality on bioaccumulation of mercury in periphyton, benthic macroinvertebrates and fish; and
- changes in water flows on aquatic resources and fish habitat.

Moderate magnitude residual effects include:

- changes in water quality on periphyton and benthic macroinvertebrates in Tom MacKay Creek;
- changes in water quality on bioaccumulation of selenium on periphyton and benthic macroinvertebrates in Tom MacKay and Ketchum creeks, which could extend from these creeks out to the Unuk River; and
- changes to water quantity and flow on aquatic resources (habitat loss), which are limited to Tom MacKay Creek and Ketchum Creek.

Cumulative Effects

The potential for cumulative effects considered changes caused by the ECRP in combination with other existing and reasonably foreseeable projects, as described in *Section 17.5* (17.5.7). In summary:

The cumulative effects to fish and fish habitat vary by type and location and were predicted to have low to moderate magnitude.

Low magnitude effects include:

- changes in water flow (aquatic habitat loss).

Moderate magnitude residual effects include:

- bioaccumulation of selenium in periphyton, benthic macroinvertebrates, and fish.

24.2.3 Malfunctions and Accidents

EAO assessed the effects of potential accidents and malfunctions on fish and fish habitat in *Appendix 7* Risks of Malfunction and Accidents. Potential malfunctions and accidents that could result in effects to fish and fish habitat include spill or accidental release of hazardous materials onsite; leakage or spill during transportation; accidental release of contaminants from Ore or Waste Rock Stockpiles; breach or failure of Tailings Storage Facility and other containment structures; prolonged power failure (transmission Lines or transformer); and failure of Underground Mine stability and ground instability or failure. See *Appendix 7*: Risks of Malfunctions and Accidents for further detail on the accidents and malfunctions, their potential effects, and risk ratings. EAO's recommended federal Key Mitigation Measures for malfunctions and accidents are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

24.2.4 Key Issues Raised

Section 17.5 (17.5.6) of this Report describes the key issues raised during review of the Revised Application by the Technical Advisory Committee.

24.2.5 Key Mitigation Measures for Fish and Fish Habitat

The EAO recommends federal Key Mitigation Measures to reduce potential effects to fish and fish habitat. These key mitigation measures are described in full in *Appendix 2*. In summary, Key Mitigation Measures were identified to control erosion, sedimentation and runoff in the Designated Project area and along the portion of the Eskay Creek Mine Access Road within Skeena's care and control during all phases of the Designated Project (1). EAO also recommends Follow Up Programs be developed for surface water quantity (2), surface water quality (3), and groundwater quality & quantity (4).

24.2.6 EAO Analysis and Conclusion

24.2.6.1 Residual effects

The residual effects to fish and fish habitat were assessed in *Section 17.5* (17.5.7).

In Tom MacKay Creek and Ketchum Creek upstream of the lower 200 m, there are potential residual effects on fish and fish habitat from changes in water quantity on fish habitat due to the loss of non-fish-bearing areas because of project Construction; and predicted reduction in water flows marginally below the flow thresholds for non-fish-bearing watercourses; changes in water quality (increased concentrations of copper, nickel and zinc) on aquatic habitat (periphyton and benthic invertebrate communities) in Tom MacKay Creek; and changes in water quality on bioaccumulation of selenium in periphyton and benthic macroinvertebrates in Tom MacKay Creek and portions of Ketchum Creek.

The effects described above are of moderate magnitude. However, there are no fish present in Tom MacKay Creek or in Ketchum Creek above the lower 200 m. The residual effects are expected to mostly affect low order watercourses (lost to the ECRP footprint) and aquatic invertebrates (hazards to fish populations are low). The effects associated with selenium bioaccumulation could extend beyond Tom MacKay Creek and Ketchum Creek into the Unuk River.

In the Lower 200 m of Ketchum Creek, there are potential residual effects on fish and fish habitat from changes in water quantity because water flows were predicted to be below the flow thresholds for fish-bearing watercourses; and changes in water quality from selenium bioaccumulation in periphyton, benthic macroinvertebrates, and fish, which could result in selenium concentrations above the protective threshold for fish-bearing watercourses.

The residual effects associated with changes in water flow on fish habitat have a low magnitude (changes are largely indistinguishable from the "No Project" case flows), a landscape geographic extent, high probability, a regular frequency (changes predicted to occur seasonally through all phases of the ECRP) and would be irreversible (changes predicted to occur in perpetuity). The Lower 200 m of Ketchum Creek will be subject to a *Fisheries Act* authorization due to the loss of habitat.

The residual effects associated with selenium bioaccumulation have a moderate magnitude, a landscape geographic extent, a medium-term duration, a regular frequency, a high probability of occurrence, and low confidence. The degree of effects to fish would be dependant on the amount of time individual fish spend in this location and the amount of invertebrates they consume.

In the Unuk River, there are potential residual effects on fish and fish habitat from changes in water quality from selenium bioaccumulation in periphyton, benthic macroinvertebrates, and fish.

These residual effects have a moderate magnitude (hazard quotients of greater than four are predicted for selenium water concentrations), a regional geographic extent (effects from selenium bioaccumulation in periphyton, benthic macroinvertebrates, and fish could extend from Tom MacKay Creek and Ketchum Creek out to the Unuk River), a medium-term duration (selenium concentrations in water are expected to be elevated throughout the Operations phase), a regular frequency (water loading would occur

seasonally during winter months through the Operations phase), a high importance (if adverse effects are present in benthic macroinvertebrates and periphyton, they would be observed on fish populations, which have been identified as a key interest from participants), low confidence (uncertainty of trophic transfer model assumptions and potential underprediction of site-specific bioaccumulation), and would be reversible short-term (selenium loading to water is expected to decrease in the at the conclusion of the Operations period).

Bioaccumulation of selenium in aquatic food chains can further contribute to selenium concentrations in benthic macroinvertebrates that are already exceeding the interim tissue guideline of 4 mg/kg dwt. These benthic invertebrates can drift downstream and become food for fish living in the Unuk River (two fish sampled as part of the baseline studies exceeded the tissue residue guideline of 4 mg/kg dwt). However, Selenium concentrations in the environment, including in the Unuk River upstream of mine-influenced water, are already elevated above the guideline due to natural background conditions.

24.2.6.2 Cumulative residual effects:

The cumulative residual effects to fish and fish habitat were assessed in *Section 17.5* (17.5.8).

There are potential cumulative residual effects on fish and fish habitat in the Unuk River associated with selenium bioaccumulation in the aquatic food chain. These cumulative residual effects are due to contributions of selenium from multiple projects in the region. The cumulative concentrations of selenium in the Unuk River will likely lead to sustained exceedances of 2 µg/L immediately downstream of Sulphurets Creek, which would be above the B.C. ambient water quality guidelines for selenium.

Cumulative residual effects for changes in water quality on bioaccumulation of selenium are predicted to be of moderate magnitude (hazard quotients of greater than one are predicted for selenium water concentrations), regional geographic extent (selenium bioaccumulation would be present in the Unuk River), far-future duration (selenium concentrations in water are expected to be elevated consistently over the life of the contributing projects), regular frequency (water loading would occur seasonally during winter months), low confidence (uncertainty of trophic transfer model assumptions and potential underprediction of site-specific bioaccumulation), and high importance (fish in the Unuk River have been identified as a key interest by participants).

The cumulative effects of changes in water quality associated with selenium are primarily from other projects (most of the total selenium loading would originate from the KSM Mine) and there are elevated baseline conditions. The selenium concentration difference between the “No-Project” and “Project” case scenarios is minimal. Water concentrations in the Unuk River upstream of Sulphurets Creek are expected to remain below the water quality guideline that is intended to be protective of selenium bioaccumulation in fish. In addition, selenium concentrations are predicted to decrease further down the Unuk River due to dilution, however, fish in the Unuk River have large home ranges and could therefore potentially move between upstream and downstream areas.

EAO also considered the cumulative residual effects to fish and fish habitat associated with aquatic habitat loss due to project construction. However, these cumulative residual effects are expected to be low in magnitude (relatively small compared to the cumulative effects assessment area) and have a local geographic extent (occurring only in the ECRP Footprint).

24.2.6.3 Conclusion

A Low to Moderate extent of significance is expected for both residual effects and cumulative effects to fish and fish habitat, primarily in consideration of the potential effects of changes in water quality from

selenium bioaccumulation in periphyton, benthic macroinvertebrates, and fish described above, which are of moderate magnitude, high importance, and high uncertainty.

Effects in the lower 200 m of Ketchum Creek would affect a relatively small geographic area, and that area is subject to a *Fisheries Act* authorization. Water flows in the last 200 m of Ketchum Creek are not expected to meet the minimum flow requirements for a fish-bearing watercourse during certain months, which would result in habitat loss. These effects were characterized as moderate magnitude, moderate importance, and high uncertainty because of the water flow analysis.

Effects upstream of the lower 200 m of Ketchum Creek would be limited to non-fish-bearing watercourses, though affected invertebrates will drift downstream to become food for fish in lower Ketchum Creek, and the effects from bioaccumulation of selenium may extend into the Unuk River. These effects were characterized as moderate in magnitude, high importance, and high uncertainty.

As discussed in *Section 17.5* (17.5.5), Skeena has proposed a variety of mitigation measures to reduce the effects to fish, fish habitat, and aquatic resources described above. These include developing a site-specific selenium trophic transfer model and updating the Aquatic Effects Monitoring Program with selenium monitoring requirements. EAO has proposed Condition 19 (the Aquatic Effects Management Plan) which would require additional baseline fish tissue data and include fish samples from the Unuk River and Condition 20 (the Water Quality Management Plan) which includes developing an upper-case water quality model and adaptive management. *Section 17.5* (17.5.6) of this Report contains additional discussion of key issues raised regarding selenium, and proposed mitigation. Additionally, EAO's recommended Key Mitigation Measures for a surface water quality follow-up program includes monitoring of selenium in periphyton, aquatic invertebrates, and fish, and other mitigation measures to reduce potential effects to fish and fish habitat. See *Appendix 2* for further detail on Key Mitigation Measures.

EAO continues to work with IAAC, Tahltan Central Government, the Technical Advisory Committee, and Skeena to evaluate the effects of the ECRP and develop mitigation measures for effects to fish and fish habitat, including from selenium.

For further detail supporting the assessment of effects to fish and fish habitat, see *Section 17.5*.

Table 36 Fish and Fish Habitat Significance Determination

Extent of Significance Determination for Residual Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

Extent of Significance Determination for Cumulative Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

24.3 Migratory Birds

24.3.1 Overview and Regulatory Context

The IAA requires an assessment of effects to migratory birds to determine if there are non-negligible adverse federal effects.[24,25] EAO has assessed effects to wildlife, including birds, in *Section 17.7* Vegetation and Ecosystems, Wildlife and Wildlife Habitat. This section draws from that assessment to assess effects to migratory birds protected under the *Migratory Birds Convention Act (1994)*.

24.3.2 Proponent Assessment

24.3.2.1 Overview

To identify bird species, Skeena reviewed historical data and conducted surveys in 2020, 2021, and 2023. These studies were designed to collect baseline information on species presence, abundance, richness, and distribution during key time periods (e.g., migration and breeding), and to identify important habitat areas. Skeena's assessment considered birds in three categories: raptors, waterbirds, and upland breeding birds. Raptors include species such as falcons, hawks, eagles, and owls, which are not protected under the *Migratory Birds Convention Act*, and are therefore not discussed further here. Waterbirds include species such as ducks, loons, geese, swans, and shorebirds. Upland breeding birds include a range of species, mainly migratory songbirds. Not all waterbirds and upland breeding birds are protected under the *Migratory Birds Convention Act.* Skeena's surveys identified 88 species protected under the *Migratory Birds Convention Act.* These birds are listed below, with an asterisk to indicate if they're also protected under the *Species at Risk Act*.[26]

Waterbirds: American dipper, American widgeon, Barrow's goldeneye, Blue-winged teal, Bonaparte's gull, Bufflehead, Canada goose, Common goldeneye, Common loon, Common merganser, Gadwall, Glaucous-winged gull, Green-winged teal, Greater scaup, Greater white-fronted Goose, Greater yellowlegs, Harlequin duck*, Herring gull, Hooded merganser, Horned grebe*, Killdeer, Lesser scaup, Long-tailed duck, Mallard, Northern pintail, Northern shoveler, Pacific loon, Redhead, Red-necked grebe, Red-necked phalarope*, Ring-billed gull, Ring-necked duck, Spotted sandpiper, Surf scoter.

Upland breeding birds: Alder flycatcher, American redstart, American robin, American three-toed woodpecker, Black-backed woodpecker, Black-capped chickadee, Blackpoll warbler, Brown creeper, Cedar waxwing, Chestnut-backed chickadee, Chipping sparrow, Common yellowthroat, Dark-eyed junco, Fox sparrow, Golden-crowned kinglet, Golden-crowned sparrow, Gray cheeked thrush, Hammond's flycatcher, Hairy woodpecker, Hermit thrush, Least flycatcher, Lincoln's sparrow, MacGillivray's warbler, Magnolia warbler, Northern flicker, Northern waterthrush, Orange-crowned warbler, Olive-sided flycatcher*, Pacific wren, Pine siskin, Pacific slope flycatcher, Pileated woodpecker, Red-breasted nuthatch, Red-breasted sapsucker, Red crossbill*, Ruby-crowned kinglet, Rufous hummingbird, Savannah sparrow, Semipalmated plover, Semipalmated sandpiper, Song sparrow, Swainson's thrush, Tennessee Warbler, Townsends's Warbler, Varied thrush, Violet-green swallow, Warbling vireo, White-crowned sparrow, Wilson's warbler, Western-wood peewee, White-throated sparrow, Yellow warbler, Yellow-rumped warbler.

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[24] Migratory birds are listed in the Schedule to the *Migratory Birds Convention Act, 1994*.

[25] See Subsection 2(a)(iii) of the *Impact Assessment Act*.

[26] Birds listed under the *Species at Risk Act* are discussed further in *Section 24.9* — Considering Environmental Obligations and Commitments in Respect of Climate Change.

Skeena also noted a number of migratory birds of provincial or federal conservation concern that were not identified during surveys but have the potential to occur in the Regional Assessment Area, including: American bittern, American golden-plover, Black scoter, Brant, Caspian tern, Double-crested cormorant, Great blue heron, Lesser yellowlegs, Short-billed dowitcher, Tundra swan, Wandering tattler, Western grebe, Yellow-billed loon, Bank swallow*, Barn swallow*, Black swift*, Common nighthawk*, Evening grosbeak*, Rusty blackbird*, Upland sandpiper.

24.3.2.2 Residual Effects Characterizations for Migratory Birds

Skeena identified four potential effects to wildlife, including migratory birds: change in habitat, change in movement, change in mortality risk, and change in wildlife health. Changes to wildlife health were considered negligible and were therefore not carried forward to the residual effects assessment. For each potential effect, Skeena identified effects pathways and assessment parameters. For the assessment of migratory birds, EAO drew from Skeena's assessment of effects to the waterbird and upland breeding bird sub-valued components. See *Section 17.7* Vegetation, Ecosystems, Wildlife and Wildlife for more detail about Skeena's assessment.

Change in Habitat

Direct effects to migratory bird habitat include land clearing as part of site preparation activities. Land clearing activities can also result in indirect effects to habitat through edge effects (changes to vegetation at habitat boundaries), windthrow (tree uprooting by wind), and habitat fragmentation. Indirect effects also include sensory disturbance (from noise, vibration, and light) and/or dust emissions. These effects are primarily anticipated to occur during the Construction phase, however some effects will continue through the life of the ECRP.

For waterbirds, Skeena noted a loss and alteration of 165.9 ha (7%) of existing wetland habitat in the Local Assessment Area, which Skeena characterized as a limited loss in breeding and migration habitat. Skeena also noted that the ECRP was unlikely to result in a notable loss or alteration of breeding or staging habitat because waterbirds are more abundant in preferred habitat outside the ECRP Footprint. In the broader Assessment Footprint, waterbirds were predicted to experience a reduction in foraging habitat, increased anthropogenic disturbance, and minimal breeding habitat. This is likely to result in a reduction in abundance and density of waterbird community. However, changes to species composition were characterized as unlikely because species found within the Local Assessment Area are generally tolerant of anthropogenic disturbance. No changes to biodiversity or density were predicted outside the Assessment Footprint. Effects to waterbird species of conservation concern were anticipated to be consistent with the above.

For upland breeding birds, Skeena noted a loss and alteration of 2,123.7 ha (10%) of native ecosystems in the Local Assessment Area. Skeena stated that the ECRP was not anticipated to result in a notable loss or alteration of species of conservation concern or unique habitats for upland breeding bird given existing disturbance. Construction may create habitat for species that breed in developed sites. The relative abundance, density, and species composition will likely be altered due to increased presence of species more tolerant of disturbance, and a decrease of those sensitive to edge effects and sensory disturbance. No changes to biodiversity or density were predicted outside the Assessment Footprint. Effects to upland breeding bird species of conservation concern were anticipated to be consistent with the above.

Skeena characterized residual effects to waterbirds and upland breeding birds as low in magnitude. Skeena defined low magnitude for change in habitat (quantitative) as the ECRP changes up to 10% of habitat in the Local Assessment Area for representative species, or up to 5% of habitat for representative species that are also species of conservation concern. The qualitative definition is a measurable change in the abundance of wildlife in the Local Assessment Area is not anticipated, although temporary local shifts in distributions in the Local Assessment Area might occur.

Change in Movement

Land clearing and sensory disturbance can result in a change in movement patterns. These effects are primarily anticipated to occur during the Construction and Operations phases. However, Skeena did not consider effects on wildlife movement to be a potential effect to birds because they can fly around/over barriers.

Change in Mortality Risk

Direct effects to migratory birds' mortality risk include vehicle-wildlife collisions and human-wildlife conflict. Indirect effects include light disturbance at night. These effects are primarily anticipated to occur during the Construction and Operations phases.

There is limited information on vehicle-wildlife collisions for birds due to underreporting. See Section 24.2 for a description of changes to traffic volumes. Skeena noted that waterbird and upland breeding bird mortalities due to vehicle collisions are expected to occur. Effects to birds from project-related traffic was predicted to be low in magnitude along Highway 37, with no effects along the Mine Access Road, primarily due to the relatively low increase in project-related traffic.

Skeena notes that migratory birds can be particularly affected by artificial light at night. Effects can include mortality during migration or alteration of foraging behaviour. While there are existing sources of light at the ECRP Site, the ECRP will introduce new light sources in the Local Assessment Area, and project activities throughout all phases will happen 24 hours per day. Skeena described how the Regional Assessment Area does not support large concentration of migratory waterbirds during the fall migration period, and that snow and ice limit use of the Assessment Footprint during spring migration. While migration surveys for upland breeding birds were not conducted, it was asserted that no known migratory corridors occur near the Assessment Footprint where interactions with light would occur. Skeena characterized residual effects to waterbirds and upland breeding birds as low in magnitude.

Table 37 summarizes Skeena's residual effects characterizations for migratory birds.

Table 37 Summary of Residual Effects Characterization for Migratory Birds

Residual Effects Characterization[27]	Change in Habitat	Change in Mortality Risk
Magnitude	Low	Low
Geographic Extent	Landscape	Landscape
Duration	Far-future	Medium-term
Frequency	Continuous	Continuous
Reversibility	Irreversible	Reversible long-term
Resilience	Moderate	Moderate
Ecological Context	High	High
Importance	High	High
Probability	High	Low

Skeena evaluated the confidence in the assessment of effects to measure the level of scientific certainty. It defined confidence levels (low, medium, and high) based on the understanding of the cause-and-effect relationship between the ECRP and its interactions with the environment. Skeena has high confidence in the characterization of residual effects.

24.3.2.3 Cumulative Effects Characterization for Migratory Birds

The potential for cumulative effects considered residual effects caused by ECRP in combination with the potential effects of other existing and reasonably foreseeable projects, as described in *Section 17.7* Vegetation, Ecosystems, and Wildlife and Wildlife Habitat.

[27] For further detail on the residual effects characterization, see *Section 17.7* Vegetation and Ecosystems, Wildlife and Wildlife

Change in Habitat

The ECRP will result in the direct and indirect loss or alteration of up to 2,213.7 ha of native ecosystems (wildlife habitat) in the Regional Assessment Area, which is a one percent reduction from existing conditions. Past, present, and reasonably foreseeable future projects are predicted to result in a direct loss of native habitats totalling 1,379.8 ha in the Regional Assessment Area. Combined, this would result in a less than two percent cumulative reduction in wildlife habitat in the Regional Assessment Area. This would correspond to a one to two percent loss of habitat in the Regional Assessment Area for bird species.

Skeena commented on specific birds, including common nighthawk and olive-sided flycatcher, both of which are characterized as resilient to habitat loss or alteration. The ECRP and other projects that may interact cumulatively are not likely to result in a reduction in the amount or composition of habitats that would threaten the persistence or viability of bird species in the Regional Assessment Area, including those of conservation concern.

Skeena characterized residual cumulative effects for change in habitat as low in magnitude, which was defined as a loss of up to 10% of habitat in the Local Assessment Area, or up to 5% of habitat for species of conservation concern.

Change in Movement

Cumulative effects to change in movement of wildlife would primarily be from increased traffic (sensory disturbance). Skeena characterized residual cumulative effects for change in movement as low in magnitude, which was defined as no measurable change in the Local Assessment Area, although temporary local shifts in distributions in the Local Assessment Area might occur.

Change in Mortality Risk

Cumulative effects to change in mortality risk would primarily be from increased traffic (vehicle-wildlife collisions). Skeena characterized residual cumulative effects for change in mortality risk as low in magnitude, which was defined as no measurable change in the Local Assessment Area, although temporary local shifts in distributions in the Local Assessment Area might occur.

See *Section 17.7* Vegetation, Ecosystems, Wildlife and Wildlife Habitat for the full characterization of cumulative effects. Skeena has moderate-high confidence in the characterization of cumulative effects.

24.3.3 Malfunctions and Accidents

EAO assessed the effects of potential accidents and malfunctions on migratory birds in *Appendix 7:* Risks of Malfunction and Accidents. Potential malfunctions and accidents that could result in effects to migratory birds include spill or accidental release of hazardous materials on site; leakage or spill during transportation; motor vehicle and trucking accidents; accidental release of contaminants from ore or waste rock stockpiles; fires or explosions; and failure of underground mine stability and ground instability or failure. See *Appendix 7:* Risks of Malfunctions and Accidents for further detail on the accidents and malfunctions, their potential effects, and risk ratings. EAO's recommended federal Key Mitigation Measures for malfunctions and accidents are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

24.3.4 Key Issues Raised

During review of the draft Application, Environment and Climate Change Canada noted deficiencies in the assessment of artificial lighting impacts on migratory birds, highlighted concerns regarding baseline surveys for Northern goshawk, and provided recommendations regarding best practices for nest surveys. Skeena responded with changes to their Revised Application and to their proposed monitoring programs and management plans. Environment and Climate Change Canada

also disagreed with Skeena's characterization of Common nighthawk and Olive-sided flycatcher as resilient to habitat loss given their special concern status under the *Species at Risk Act.*

The U.S. Fish and Wildlife Service recommended additional standard mitigation measures for effects to migratory birds. Skeena committed to considering the additional mitigation measures in their development of the Wildlife Management Plan.

Tsetsaut Skii Km Lax Ha provided comments relating to the characterization of migratory bird habitat, and Skeena responded with clarifying information.

24.3.5 Key Mitigation Measures for Migratory Birds

EAO has recommended federal Key Mitigation Measures to IAAC to reduce potential effects to migratory birds. These Key Mitigation Measures are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA of this Report. In summary, Key Mitigation Measures were identified to avoid harming migratory birds or their nests or residences (5), identify the presence of migratory bird nests (6), delineate setback distances around nests and residences (7), compensate for the loss of barn swallow nesting sites (8), deter migratory birds from accessing contact water (9), and control lighting to mitigate attraction and disorientation (10).

24.3.6 EAO Analysis and Conclusion

Based on the predicted low magnitude effects to migratory birds, which include consideration of the proposed Key Mitigation Measures, EAO has concluded that potential residual adverse effects to Migratory Birds are Non-Negligible – Not Significant. EAO has concluded that potential cumulative residual adverse effects to migratory birds are Negligible, and no extent of significance conclusion is required.

Table 38 Migratory Birds Significance Determination

Extent of Significance Determination for Residual Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

24.4 Federal Lands

24.4.1 Overview and Regulatory Context

The IAA requires an assessment of non-negligible adverse changes to the environment that would occur on federal lands.[28] Examples of federal lands include Indigenous reserves and national parks. The results of EAO's effects assessments for valued components with the potential to affect federal lands (e.g. air quality, noise) have been used to assess effects to federal lands.

24.4.2 Proponent Assessment

In the Revised Application, Skeena indicated that no federal lands would be used to carry out the ECRP and that the ECRP is not located near First Nation land as defined in Section 2(1) of the *First Nations Land Management Act.* The nearest

[28] See Section 2(b) of the *Impact Assessment Act* for more detail on Federal Lands.

federal lands to the ECRP are reserve lands of Tahltan Nation (Iskut 6; 136 kilometres away) and Gitanyow Nation (Gitanyow 3a; 224 km away).

Sections 24.4.2.1 and 24.4.2.2 below characterize the two geographic areas where project activities occur and their potential effects on federal lands.

24.4.2.1 Project Site Activities

Given the distance between the ECRP and the nearest federal lands, no Project Site activities are anticipated to result in non-negligible adverse effects to federal lands.

24.4.2.2 Transportation Activities

The transportation corridor includes the mine access road that connects the ECRP to Highway 37 and 37A. It also includes Highway 37 and 37A to the geographic extent described in *Section 2*.[29] Skeena assessed these areas as the Transportation Corridor Assessment Area. North of the ECRP, the Transportation Corridor Assessment Area overlaps one Indigenous Reserve, Iskut 6. Kluachon Lake 1 is 350 meters west of Iskut 6 but is outside the Transportation Corridor Assessment Area. South of the ECRP, no Indigenous reserves overlap the Transportation Corridor Assessment Area. The Gitanyow 3a reserve is located 15 kilometres south of the Transportation Corridor Assessment Area.

ECRP transportation activities in the Transportation Corridor Assessment Area mainly occur along Highway 37 south of the ECRP between the ECRP and the District of Stewart where the concentrate would be loaded onto ships. The effects from project transportation activities that could affect federal lands are air and noise emissions from vehicle traffic. The ECRP would increase the annual average daily traffic for this section of highway by up to two vehicles per day during the Construction phase and up to 18 vehicles per day during the Operations phase. The ECRP transportation activities in the Transportation Corridor Assessment Area are not anticipated to result in non-negligible adverse effects to federal lands.

24.4.3 Malfunctions and Accidents

EAO assessed the effects of potential accidents and malfunctions on federal lands in Section 18 *Appendix 7*: Risks of Malfunction and Accidents. Potential malfunctions and accidents that could result in effects to federal lands include motor vehicle and trucking accidents. See *Appendix 7:* Risks of Malfunction and Accidents for further detail on the accidents and malfunctions, their potential effects, and risk ratings. See *Appendix 7:* Risks of Malfunctions and Accidents for further detail on the accidents and malfunctions, their potential effects, and risk ratings. EAO's recommended federal Key Mitigation Measures for malfunctions and accidents are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

24.4.4 Key Issues Raised

No comments were received specifically on effects to federal lands, although some comments were submitted by Tahltan Central Government relating to the demographic data for populations living on reserves that Skeena used in their assessment.

[29] Skeena assessed effects from road use and transportation of concentrate, supplies, and personnel between the mine site and the port facilities located in the District of Stewart; between the mine site and Iskut; from the mine site along Highway 37 to the Nass Area; and along Highway 37 within the Nass Area and Nass Wildlife Area. Skeena also assessed effects from loading, unloading, handling, and storage of concentrate at the port facilities located in the District of Stewart, up to the point at which the loading of concentrate onto a vessel is completed.

24.4.5 Key Mitigation Measures for Federal Lands

EAO has recommended federal Key Mitigation Measures to IAAC to reduce potential effects to federal lands. These Key Mitigation Measures are described in full in *Appendix 2*: EAO's Recommended Key Federal Mitigation Measures and Follow Up Program Under the IAA. In summary, Key Mitigation Measures were identified to take all reasonable measures to prevent accidents and malfunctions (26), consult Indigenous groups and relevant authorities to prevent accidents and malfunctions (27), develop an accidents and malfunctions response and communication plan in consultation with Indigenous groups and relevant authorities (28, 31), ensure that accident and malfunction plans are maintained and updated for each phase of the Designated Project (29), and implement measures appropriate to the accident and malfunction as soon as practicable (30).

24.4.6 EAO Analysis and Conclusion

Given the distance between the ECRP and the nearest federal lands, no Project Site activities are anticipated to result in non-negligible adverse effects to federal lands.

With respect to the Transportation Corridor Assessment Area, there is overlap with one Indigenous Reserve (Iskut 6) and proximity to another (Kluachon Lake). However, the magnitude of the increase in daily traffic resulting from the ECRP is very low and therefore is not anticipated to cause non-negligible adverse effects. For further details on increased traffic from the ECRP and potential effects, see *Section 17.1* Air Quality and *Section 17.9* Infrastructure and Services.

EAO has concluded that potential residual adverse effects to federal lands are negligible, and no extent of significance conclusion is required.

24.5 Transboundary Water Pollution

24.5.1 Overview and Regulatory Context

The IAA requires an assessment of non-negligible adverse changes, that are caused by pollution, to boundary waters, international waters, or to interprovincial waters.[30] These waters are defined in the *Canada Water Act*, and are referred to collectively here as transboundary waters.[31] This assessment focuses on the effects of the ECRP on surface water quality in the Unuk River, which flows across the border between British Columbia and Alaska. The ECRP is located approximately 40 km northeast of the border where the Unuk River crosses.

24.5.2 Proponent Assessment

The effects to surface water were assessed in *Section 17.4* Surface Water. To assess effects to transboundary waters, EAO evaluated the effects to surface water quality at the border in the context of the Regional Assessment Area, which includes the Unuk River and its watershed upstream of the border. In general, surface water flows south from the ECRP into tributary creeks of the Unuk River (e.g. Ketchum Creek), and then into the Unuk River itself. From there, surface water flows southwest across the border into Burroughs Bay, Alaska.

Residual Effects

Skeena identified the following potential effects to surface water quality: changes to suspended sediment concentrations; changes to dissolved oxygen and/or temperature; and changes to pH, major ion, nutrient, and/or metal concentrations. These effects are described further in *Section 17.4* Surface Water.

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[30] See Section 2(d) of the *Impact Assessment Act.*

[31] *Canada Water Act*.

Skeena identified 18 water quality parameters of moderate or high magnitude that were considered Contaminants of Potential Concern (COPCs) originating from the ECRP. These parameters and their predicted concentrations relative to applicable water quality guidelines are further described in *Section 17.4* Surface Water.

However, only total thallium and dissolved nickel were predicted to occur at high and moderate magnitudes, respectively, in the Unuk River. Other contaminants were predicted at a low magnitude.[32] As water flows away from ECRP towards the border, COPCs generally decrease in concentration due to dilution.

Parameter concentrations attributable to the ECRP that were predicted to be between 80% and 200% of the guideline value were characterized as moderate in magnitude, while those exceeding 200% were considered high magnitude. It is important to note that the surface water quality assessment focused on predicting surface water quality changes relative to guidelines for various receptors (e.g. aquatic life), rather than evaluating the adverse effects to those receptors. Therefore, guideline exceedances do not necessarily indicate that an adverse effect will occur. Relevant COPCs were carried forward to Skeena's assessment of fish and fish habitat and the Human Health Risk Assessment to evaluate potential effects on those receptors.

Total thallium, dissolved nickel, and dissolved zinc were the three contaminants of potential concern with potential exceedances of guidelines at the border (the UR-37.1 modelling node) warranting further consideration as described below.

Thallium

In the Unuk River downstream of Ketchum Creek (UR-78.6), total thallium was predicted to have a residual effect of an increase in concentration above the B.C. Long-Term (working) Guideline for Freshwater Aquatic Life (0.03 µg/L). This would typically occur in the months of May and July through October. Skeena characterized this effect as high in magnitude for the Unuk River overall, with a maximum concentration of >0.07 µg/L at UR-76.8. This concentration is reduced to 0.04 µg/L at UR-37.1. This predicted concentration of total thallium at UR-37.1 would represent a 43% increase over the guideline, with a maximum hazard quotient of 1.4. However, Skeena compared the "No Project" case and "Project Case" concentrations. This was to determine if the concentrations were attributable to the project or part of baseline conditions. Skeena determined that the thallium concentrations that are above guidelines at UR-37.1 were driven by baseline conditions, rather than being fully attributable to the project, and were therefore not considered as a residual effect at the border.

Nickel

Dissolved nickel guideline values were calculated using background ambient factors specific to each catchment. For the Unuk River, the B.C. Long-term Aquatic Life Water Quality Guideline for dissolved nickel is 0.0016 mg/L.

In the Unuk River, dissolved nickel was predicted to have a residual effect of an increase in concentration above the guidelines in select months during the Operations phase downstream of Ketchum Creek (UR-78.6) and downstream of Eskay Creek (UR-76.8), where the maximum exceedance was predicted at up to 120% of the guideline. Skeena characterized this effect as moderate in magnitude. However, there was no predicted dissolved nickel concentration exceedance at UR-37.1.

Zinc

[32] "Low" was defined as "predicted parameter concentration is <80% of the lowest applicable guideline(s)."

Predicted zinc concentrations would exceed B.C. Long-term Water Quality Guideline at UR-37.1, which was rated as low magnitude. However, using the Alaska Water Quality Guidelines that would apply to water when it enters the U.S., there would be no exceedance of the guidelines, and therefore no residual effects were predicted.

Skeena evaluated confidence for each of its residual effects characterizations. Confidence was defined as a measure of the degree of scientific certainty and the degree to which the model components have been verified. The level of confidence (low, medium, or high) is based on the understanding of the cause-effect relationship between the ECRP and its interactions with the environment, including the acceptability of the data inputs and analytical methods used to predict and assess the ECRP effects, and the constraints and assumptions integrated in the mine plan, geochemical source terms, water balance, and water quality model. Skeena considered the confidence to be medium because the inputs to the model are based on high quality scientific studies. However, aspects of the model (i.e., source term derivation, modelled treatment efficiency, groundwater flow, and water balance) rely to some extent on professional judgment and experience; the accuracy of the model could not be verified given that the ECRP is a new mine.

Cumulative Effects

Cumulative effects to surface water were assessed in Section 17.4 Surface Water. As described above, most COPCs were predicted to have low magnitude residual effects in the Unuk River and no residual effects at the border. While Skeena did identify total thallium and dissolved nickel as having moderate and high magnitude residual effects in the Unuk River, they were not considered to occur in discharges from other projects at levels that would contribute to cumulative effects. Therefore, they were not assessed further as part of the cumulative effects assessment.

However, Skeena did identify selenium as a potential cumulative COPC in the Unuk River downstream of the confluence with Sulphurets Creek. This point of confluence between the Unuk River and Sulphurets Creek is approximately 25 km north from the border. Cumulative interactions of varying degrees were assessed for the planned KSM Mine, the existing Brucejack mine, and the historic Goldwedge mine, all of which have or will discharge contact water that flows down Sulphurets Creek to the Unuk River. For selenium, cumulative effects from the Brucejack Mine were considered negligible and no contributions of selenium are expected from the Goldwedge Mine.

Skeena assessed the potential cumulative effects of selenium in the Unuk River at UR-61.4 (just downstream of Sulphurets Creek) and UR-37.1 for Year nine (2035) and Year 57 (the Post-closure phase year when the largest change to total selenium concentration were shown to occur at UR-61.4).

UR-61.4

The residual effect of the ECRP below Sulphurets Creek (UR-61.4) would be an increase in the monthly average total selenium concentration of 0.2 µg/L. Combined with existing conditions, this would result in a maximum concentration of 1.5 µg/L in November and December of Year nine, which is below the B.C. Aquatic Life Guideline of 2 µg/L. However, the concentration would rise above the guideline to a maximum predicted total selenium concentration of 2.3 µg/L when adding in the annual average increase in selenium contributions from the KSM Mine (0.8 µg/L) and the Brucejack Mine (0.018 µg/L). Skeena concluded that there would be a residual cumulative effect of an increased selenium concentration at UR-61.4. This potential cumulative effect was characterized as having a moderate magnitude, a regional geographic extent, a far-future duration, a regular frequency, a high importance, a high probability, a medium confidence, and being irreversible.

UR-37.1

The residual effects of the ECRP further downstream at the border would be an increase of <0.1 µg/L in the monthly average total selenium concentration, which would result in a maximum concentration of 1.0 µg/L in Year nine. The total selenium contribution from the KSM Mine would be an annual average increase of 0.3 µg/L, with a negligible contribution

from the Brucejack Mine. This maximum concentration of 1.3 µg/L would be below the B.C. Aquatic Life Guideline. Therefore, no transboundary cumulative effects are expected at the border.

24.5.3 Malfunctions and Accidents

Malfunctions and accidents described in *Section 24.2* Fish and Fish Habitat are also relevant to transboundary water. See *Appendix 7*: Risks of Malfunction and Accidents of this Report for further detail on the accidents and malfunctions, their potential effects, and risk ratings. EAO's recommended federal Key Mitigation Measures for malfunctions and accidents are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

24.5.4 Key Issues Raised

The Alaska Tribal Transboundary Committee (ATTAC) expressed concerns that the ECRP assessment boundaries didn't extend beyond the Canada-U.S. border, saying that doing so ignores obligations to consider downstream effects on U.S. territory and Indigenous communities. The ATTAC cited specific concerns regarding the water quality modelling, including the quality of data used, the assumptions made, and the lack of appropriate consideration of climate change. They also commented on which downstream species were considered in the assessment.

The U.S. National Oceanic and Atmospheric Administration submitted comments related to the possibility of a partial or complete tailings dam failure, which could result in impacts downstream in the U.S. See Section 24.1.4 - Malfunctions and Accidents and *Appendix 7*: Risks of Malfunction and Accidents in this Report for further information.

Environment and Climate Change Canada provided comments on water modelling, some of which relate to effects to water flows and quality at the Canada-U.S. border. Environment and Climate Change Canada noted that Skeena's characterization of no residual effects to transboundary water is based on a number of uncertain assumptions and methods, including the assumption that all contact water will be effectively captured and treated.

See *Section 17.4* Surface Water for further information on comments received related to water, and Skeena's responses.

24.5.5 Key Mitigation Measures for Transboundary Water Pollution

The Key Mitigation Measures identified in *Section 24.2* — Fish and Fish Habitat would also be protective of effects to transboundary water.

24.5.6 EAO Analysis and Conclusions

Based on the predicted effects to surface water, which include consideration of the proposed Key Mitigation Measures, there are no significant residual or cumulative effects predicted for transboundary water pollution.

There were no exceedance of water quality guidelines at the border for nickel and selenium. There was a low magnitude exceedance of water quality guidelines at the border for dissolved zinc. However, there would be no exceedance of the Alaska water quality guidelines for dissolved zinc that would apply to water when it enters the U.S.

There was an exceedance of water quality guidelines at the border for thallium, where the guideline would be exceeded by approximately 43%, though attributable to the baseline as opposed to the ECRP. Skeena evaluated the exceedance of thallium in the context of effects to fish and fish habitat in the Unuk River, including at the border, and found the potential effects to be negligible.

EAO continues to work with IAAC, Tahltan Central Government, the Technical Advisory Committee, and Skeena to evaluate the effects of the ECRP and develop mitigation measures for effects to surface water quality.

For further detail supporting the assessment of effects to transboundary water pollution, see *Section 17.4* Surface Water.

Table 39 Transboundary Water Significance Determination

Extent of Significance Determination for Residual Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

Extent of Significance Determination for Residual Cumulative Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

24.6 Assessment of 2(e) and (f) Factors with Respect to the Indigenous Peoples of Canada

Section 2(e) and (f) of the IAA require, with respect to the Indigenous peoples of Canada, an assessment of non-negligible adverse effects on the current use of lands and resources for traditional purposes; physical and cultural heritage; and structures, sites or things of historical, archaeological, paleontological, or architectural significance (2(e)), and non-negligible adverse changes on health, social or economic conditions (2(f)). Skeena was not required to provide a specific assessment of these factors. EAO's assessment in this section draws on information provided in various chapters of Skeena's Revised Application, and from information provided by Indigenous Nations and the public.

Due to the holistic nature of Indigenous culture, current use, and health and socioeconomic conditions, numerous connections are drawn between the two assessment factors. These connections are described in *Section 24.6.2* — Indigenous Peoples' Current Use of Lands and Resources for Traditional Purposes and Cultural Heritage, and Section *24.6.3* — Health, Social, and Economic Conditions of Indigenous Peoples.

24.6.1 Assessment Methodology

Potential non-negligible adverse effects to Indigenous peoples were assessed for each individual Indigenous group in *Appendix 5*: Detailed First Nation Assessments. Information in this section builds upon the analysis conducted in *Section 6*: Indigenous Nation Engagement and Summary of Effects, *Appendix 5*: Detailed First Nation Assessments, and *Appendix 6*: Valued Component Assessments.

The following methodology was used to assess potential non-negligible adverse effects:

1) Context about the assessment factor is presented, to further describe the interconnected nature of Indigenous values and draw connections to other valued component chapters.
2) Subcomponents of the assessment factor are identified:
    a) Potential effects and effect pathways on the subcomponent are identified.
    b) The potential effects on the subcomponent are characterized.
3) Potential effects of accidents and malfunctions on the assessment factor are identified.
4) GBA Plus considerations for the assessment factor are outlined.
5) Potential cumulative effects on the assessment factor are identified.
6) Federal Key Mitigation Measures and Follow-Up Programs as they relate to the assessment factor are considered.
7) Conclusions on the significance of potential non-negligible adverse effects to the assessment factor are presented.

Project Activities

As described in the Revised Application, the ECRP includes many activities that could affect Indigenous peoples' current use of lands and resources for traditional purposes, cultural heritage, or health, social and economic conditions. In this section, project activities have been grouped into the following categories:

Table 40 Project Activities Considered in the Assessment of Potential Effects to Indigenous Peoples

Project Activity	Phase
Land clearing and preparation	Construction
Mine infrastructure Construction and Operation	Construction, Operation
Workforce activities (including both external workforce considerations and employment)	Construction, Operation, Reclamation/Closure
Transportation of materials to and from the mine site (including personnel, equipment, wastes, etc.)	Construction, Operation, Reclamation/Closure
Discharge of ECRP emissions (including air, water, dust, noise, vibration, light, etc.)	Construction, Operation, Reclamation/Closure
Reclamation and Closure activities (including water treatment, revegetation, decommissioning, etc.)	Reclamation/Closure

Identification and Characterization of Effects and Effect Pathways

As described in *Section 24.1* — Overview, the assessment of adverse federal effects considers non-negligible adverse residual effects following the implementation of mitigation measures. Therefore, potential effects and effect pathways that are mitigated as a result of the implementation of standard mitigation measures are not included. Further information on standard mitigation measures is included in the *Appendix A-1* Summary of Management Plans and Mitigation Measures of the Revised Application.

Non-negligible adverse effects on current use of lands and resources and cultural heritage; and health, social and economic conditions of Indigenous peoples are characterized using terminology described in *Section 24.6* Assessment of Assessment of 2(e) and (f) Factors with Respect to the Indigenous Peoples of Canada. In the context of assessing impacts to Indigenous interests, additional criteria must be considered when characterizing effects. These include:

- Cultural wellbeing: the degree to which the effects will impact the ability of an Indigenous group to continue customs, traditions, and practices that are integral to the group's distinct culture.
- Governance: whether the effects of the ECRP will affect the community's ability and systems for self-governance and self-determination with respect to their members (including future generations) and for the management of traditional lands and resources, taking into consideration the laws, customs, and structures of the community (including consideration of Aboriginal title).
- Disproportionate impacts: The effects of the ECRP on sub-populations of a community (including women, elders, youth, Two-Spirit individuals, and others) with consideration of risks and benefits for members of the sub-population, and likely resiliency of the sub-population to negative impacts.

Accidents and Malfunctions

A detailed assessment of accidents and malfunctions as they relate to Indigenous interests is included in *Appendix 7*: Risks of Malfunction and Accidents, and supplemented with information provided in *Appendix 5*: Detailed First Nation Assessments. Summary tables illustrating the potential risk of accidents and malfunctions on Subsections of IAA 2(e) and 2(f) factors are provided in Section 24.6.2.3 and section 24.6.3.5 respectively.

Characterization of Significance

As described in *Section 24.1.3*— Assessing Effects Within Federal Jurisdiction, the Report characterizes whether adverse federal effects, including cumulative effects, are likely to be to some extent significant, and if so, to what extent.

24.6.2 Indigenous Peoples' Current Use of Lands and Resources for Traditional Purposes and Cultural Heritage

Section 2(e) of the IAA requires the assessment of non-negligible adverse effects on the current use of lands and resources for traditional purposes (CULRTP), physical and cultural heritage, and any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance (collectively considered as Cultural Heritage for the purposes of this assessment), as they relate to Indigenous peoples. Canada has also committed to fully implementing the *United Nations Declaration on the Rights of Indigenous Peoples* ("the UN Declaration"; UNDRIP), as articulated in the preamble of the IAA and affirmed in the *United Nations Declaration Act* (UNDA; 2021).

Information from across valued component and Nation Chapters was gathered and synthesized to assess these potential non-negligible adverse effects on the CULRTP and cultural heritage according to a holistic framework presented in Figure 16 below.

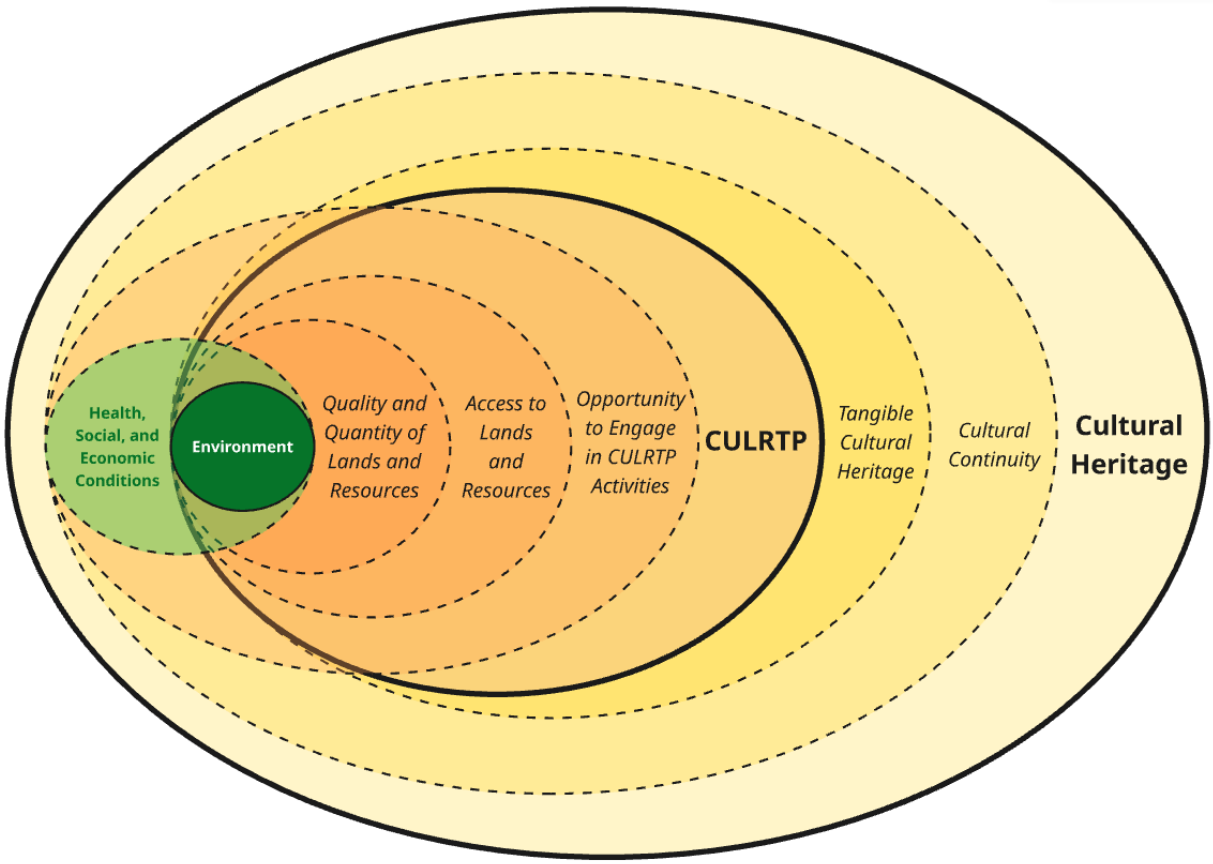

Figure 16 The Nested Circle Methodological Approach to Assessing Effects to CULRTP and Cultural Heritage

As illustrated in Figure 16, the assessment of CULRTP (Section 24.6.2.1) includes the analysis of three subcomponents: (1) quality and quantity of lands and resources, (2) access to lands and resources, and (3) opportunity to engage in CULRTP. The assessment of cultural heritage (Section 24.6.2.2) includes the analysis of two subcomponents: (1) tangible cultural heritage and (2) cultural continuity; and the consideration of health, social, and economic conditions.

The nested diagram illustrates the ways in which subcomponents (CULRTP and cultural heritage) and their sub-factors are interrelated. These interrelations illustrate the foundational importance of the environment to Indigenous peoples' current use of lands and resources and cultural heritage.

24.6.2.1 Changes to Current Use of Lands and Resources for Traditional Purposes - IAA 2(e)(ii)

This section assesses the potential effects of the ECRP, with respect to Indigenous peoples, on CULRTP. CULTRP includes current use by Indigenous peoples, uses that are likely to occur in the reasonably foreseeable future and uses that may have ceased due to external factors.

CULRTP includes activities such as the harvest of resources (including hunting, trapping, fishing, and gathering), accessing and inhabiting the land (including use of trails and travel ways and connections), and preferred uses of lands and resources. CULRTP may have tangible values (e.g., wildlife species or traditional plants) and/or intangible values (e.g., ability to experience quiet enjoyment on the land, knowledge transmission, and community gathering). The assessment of potential effects of the ECRP on CULRTP implements a holistic approach which considers effects pathways associated with subsistence practices and social and cultural norms.

In the assessment of CULRTP, EAO organized data according to three identified subcomponents:

- quality and quantity of resources;
- access to lands and resources for traditional purposes; and
- opportunity to engage in CULRTP activities.

Quantity and Quality of Lands and Resources

The ability to harvest resources is a fundamental component of CULRTP. Changes in the quantity and quality of resources may result in changes to harvesting activities, ability to access CULRTP locations, cultural heritage, and wellbeing.

As described in *Section 6* Indigenous Nation Engagement and Summary of Effects, *Appendix 5*: Detailed First Nation Assessments and *Section 17.7* Vegetation, Ecosystems, Wildlife and Wildlife Habitat and *Section 17.5* Fish and Fish Habitat, there are a variety of species that are culturally important ("species of importance") to Indigenous peoples in proximity to the ECRP. Commonly harvested resources for traditional purposes include, but are not limited to:

- Hunting: mountain goat, grizzly and black bear, moose, wolverine and marmot.
- Trapping: beaver, fisher, fox, martin, wolf and rabbit.
- Fishing: salmon (sockeye, chinook, coho, pink), trout, and eulachon.
- Plant harvesting: berries, cambium, mushrooms, and devil's club.

Appendix 5: Detailed First Nation Assessments, *Section 17.7* Vegetation and Ecosystems, Wildlife and Wildlife Habitat, and *Section 17.5* Fish and Fish Habitat describes the importance of resource harvesting as a culturally important and communal activity, where families and groups come together to experience the land and share intergenerational knowledge. The quantity and quality of resources is therefore important to the ability of Indigenous groups to engage in land-based practices and maintain cultural continuity.

Changes to the quantity of a resource considers the number of species or density of species that are available to be harvested within preferred and accessible areas. Changes to the quality of country foods may be quantitative (e.g., the size of a species) or qualitative (e.g., taste, thickness of fur, dust deposition on a plant). Adequate quality and quantity of resources necessary for current and future use should not be conflated with the ability and willingness to use the resources. Perceived risk may result in avoidance of lands and resources. While studies may indicate no biophysical effect to the lands and resources, social avoidance due to perceived risk constitutes a potential effect. Therefore, indirect changes to the quantity and quality of country foods can arise as a result of perceived risk of contamination. This nuance is further discussed in *Section 24.6.3* — Health, Social, or Economic Conditions of Indigenous Peoples.

The assessment of potential effects to the quality and quantity of resources has been subdivided into the three factors outlined below: A) Species of importance, B) Fish and freshwater resources, and C) Vegetation and plant harvesting resources.

(A) Species of Importance

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to the quantity and quality of species of importance via the key effect pathways. These effects may occur throughout the Construction and Operation phases.

Table 41 Potential ECRP Effect Pathways on Quality and Quantity of Species of Importance

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Creation of edge effects, windthrow, and fragmentation in the environment affecting movement patterns	Relocation of ungulates, bears, and other fur-bearing mammals to other areas
		Inability of ungulates to follow migration routes and reach breeding areas
	Sensory disturbance due to mine infrastructure operation (e.g., lights, noise)	Increased mortality of birds
		Relocation of ungulates and small- and medium-sized fur bearing mammals to other areas
Transportation of materials and use of roads (Construction, Operations phases)	Roads and vehicle traffic serving as a barrier to wildlife movement patterns	Inability of ungulates to follow migration routes and reach breeding areas
	Dust, noise, and vibration generated by transportation of along roads resulting in sensory disturbance	Relocation of ungulates, other fur-bearing mammals, birds
		Disruption of conditions necessary for successful breeding of ungulates, bears, and small- and medium-sized fur bearing mammals
	Increased vehicle strikes due to increased traffic on roads	Increased mortality of ungulates and bears
ECRP emissions (noise and vibration) (Construction and Operations phases)	Noise and vibration generated by helicopters associated with the ECRP resulting in sensory disturbance	Relocation of ungulates (mountain goats)

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in *Section 24.1.3*— Assessing Effects Within Federal Jurisdiction, the characterization of the adverse residual effects on quantity and quality of species of importance is as follows: Magnitude: Medium, Duration: Long-term, Frequency: Continuous, Reversibility: Partially Reversible, Resilience: Moderate, and Importance: High. Characterization uncertainty is moderate, and the overall risk is considered medium.

(B) Fish and Freshwater Resources

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to the quantity and quality of fish and fish habitat, via the key effect

pathways. These effects may occur throughout the Construction and Operation phases. The table also includes the identification of key geographic areas, as summarized in *Section 17.4* Surface Water and *Section 17.5* Fish and Fish Habitat, and *Section 24.2*.

Table 42 Potential ECRP Effect Pathways on Quality and Quantity of Fish and Freshwater Resources

ECRP Activity	Effect Pathway	Effect
Mine infrastructure (Construction and Operations phases)	Changes in water quantity due to the loss of non-fish-bearing areas in the ECRP Development Area and the lower 200 metres of Ketchum Creek	Reduction in fish habitat and the quantity of fish and freshwater resources
ECRP emissions (water) (Construction and Operations phases)	Changes in water quality (increased concentrations of copper, nickel and zinc) on aquatic habitat (periphyton and benthic invertebrate communities) in the ECRP Development Area	Reduction in fish habitat and the quantity and quality of fish and freshwater resources
	Bioaccumulation of selenium via periphyton and benthic-dwelling organisms in the ECRP Development Area, the lower 200 metres of Ketchum Creek, and the Unuk River	Mortality of fish eggs and malformations of fish fry resulting in mortality

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in Section 24.1.3 — Assessing Effects Within Federal Jurisdiction, the characterization of the adverse residual effects on quantity and quality of fish and freshwater resources is as follows: Magnitude: Medium, Duration: Medium-term, Frequency: Regular, Reversibility: Fully Reversible, Resilience: Low, and Importance: Low. Characterization uncertainty is Moderate, and the overall risk is considered Low to Medium.

(C) Vegetation and Plant Harvesting Resources

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to the quantity and quality of vegetation and plant harvesting resources, via the key effect pathways. These effects may occur throughout the Construction, Operation, and Reclamation/Closure phases.

Table 43 ECRP Effect Pathways on Vegetation and Plant Harvesting Resources

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Vegetation and plant resource clearing as a result of ECRP Construction	Removal of vegetation and culturally important plant species

ECRP Activity	Effect Pathway	Effect
Transportation of materials and use of roads (Construction, Operation phases)	Increased dust deposition on vegetation and plant resources and surrounding lands as a result of increased vehicle traffic	Reduction in growth conditions necessary to support vegetation and culturally important plant species
		Reduction in quality of vegetation and plant harvesting resources
ECRP emissions (Construction, Operation, and Reclamation/Closure phases)	Emission of air contaminants such as particulate matter, nitrogen oxides, and volatile organic compounds as a result of ECRP activities and vehicles travelling to/from the mine site	Reduction in growth conditions necessary to support vegetation and culturally important plant species
		Reduction in quality of vegetation and plant harvesting resources

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in *Section 24.1.3* – Assessing Effects within Federal Jurisdiction, the characterization of the adverse residual effects on the quantity and quality of vegetation and plant harvesting resources is as follows: Magnitude: Medium, Duration: Long-term, Frequency: Continuous, Reversibility: Partially Reversible, Resilience: Moderate, and Importance: Moderate to High. Characterization uncertainty is Medium, and the overall risk is considered Medium.

Access to Lands and Resources for Traditional Purposes

To engage in current and future use activities, Indigenous peoples must have access to preferred areas associated with traditional practices. Preferred areas often include important locations such as hunting grounds, trapping routes, fishing sites, and key gathering areas. Preferred areas also include sites and locations necessary for intangible elements of current use such as knowledge transmission and spiritual, ceremonial, and cultural practices (e.g., historic camp sites, key gathering sites, and teaching locations). Loss of access to preferred areas may directly affect the ability of Indigenous peoples to engage in current and future use activities. Loss of access to preferred areas is further connected to cultural heritage (Section 24.6.2.1), and the Health, Social, and Economic Conditions of Indigenous Peoples (Section 24.6.3).

It is important to note that access to preferred areas is directly connected to the quality and quantity of resources necessary for current use activities in that area (see Figure 16). Changes to the quality and quantity of resources will therefore have a direct impact on access to lands and resources. As highlighted in Section 24.6.1.2, access to an ECRP-affected area should not be conflated with the willingness to use that ECRP-affected area for harvesting and cultural practices. Perceived risk may result in avoidance of lands and resources. While studies may indicate no biophysical effect to the lands and resources, social avoidance due to perceived risk constitutes a potential effect. This nuance is further discussed in Section 24.6.3 Health, Social, and Economic Conditions.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to accessing lands and resources for traditional purposes, via the key effect pathways. The table also identifies key CULRTP sites (listed in Table 44) within or close to assessment boundaries, including the Transportation Corridor Assessment Area, which may be impacted by adverse effects. These effects may occur throughout the Construction, Operation, and Reclamation/Closure phases.

Table 44 ECRP Effect Pathways on Access to Lands and Resources for Traditional Purposes

ECRP Activity	Effect Pathway	Effect	Key CULRTP Sites
Land clearing and preparation (Construction phase)	Vegetation and plant resource clearing as a result of ECRP Construction	Direct loss of access to lands and resources necessary to support CULRTP	• A Tahltan Nation culturally modified tree, identified as having been stripped for cambium, has been identified in the Assessment Footprint
	Sensory disturbances (noise, dust, visual) due to land clearing and site preparation activities	Functional loss in the ability to access lands and resources necessary to support CULRTP	• There is a Tahltan Nation trapline overlapping the northern portion of the Local Assessment Area / Regional Assessment Area • Two Tsetsaut / Skii km Lax Ha traplines overlap with the easternmost portions of the Local Assessment Area / Regional Assessment Area
	Reduction in the quantity and quality of resources	Direct loss in the ability to access resources necessary to support CULRTP	• There is a Tahltan Nation trapline overlapping the northern portion of the Local Assessment Area / Regional Assessment Area • Two Tsetsaut / Skii km Lax Ha traplines overlap with the easternmost portions of the Local Assessment Area / Regional Assessment Area
Transportation of materials and use of roads (Construction, Operations phases)	Reduction in the quantity and quality of resources necessary to support CULRTP	Direct loss in the ability to access resources necessary to support CULRTP	• Areas along the Eskay Creek Mine Access Road have historically been used for harvesting plants by Tahltan Nation • Preferred hunting areas around Meziadin Lake, on either side of a segment of Highway 37 by Tsetsaut Skii km lax Ha Nation • Wetlands along this segment of Highway 37 are valued areas for hunting moose and bears for Tsetsaut Skii km lax Ha Nation • Taft Creek in the area where it crosses Highway 37 to join the Bell-Irving River is important for moose hunting for Tsetsaut Skii km lax Ha Nation • Wetlands along Highway 37 are valued areas for trapping beaver for Tsetsaut Skii km lax Ha Nation • High cultural value of Highway 37 and 37A for moose and grizzly bear for Gitanyow Nation

ECRP Activity	Effect Pathway	Effect	Key CULRTP Sites
	Physical barriers to access due to vehicles travelling to and from the mine site along Highway 37 and 37A	Direct loss in the ability to access lands and resources necessary to support CULRTP	• The Mine Access Road along the Eskay Creek MAR have historically been used for harvesting plants by Tahltan Nation • Preferred hunting areas around Meziadin Lake, on either side of a segment of Highway 37 for Tsetsaut Skii km lax Ha Nation • Wetlands along this segment of Highway 37 are valued areas for hunting moose and bears for Tsetsaut Skii km lax Ha Nation • Taft Creek in the area where it crosses Highway 37 to join the Bell-Irving River is important for moose hunting for Tsetsaut Skii km lax Ha Nation • Wetlands along Highway 37 are valued areas for trapping beaver for Tsetsaut Skii km lax Ha Nation • High cultural value of Highway 37 and 37A for moose and grizzly bear for Gitanyow Nation
Emissions (including air contaminants and dust; Construction, Operations phases)	Perceived reduction in the quality of lands and resources necessary to support CULRTP	Functional loss in the ability to access lands and resources necessary to support CULRTP	• There is a Tahltan Nation trapline overlapping the northern portion of the Local Assessment Area / Regional Assessment Area • The Bob Quinn Lake area has also been reported as an area for plant gathering by Tahltan Nation • Two Tsetsaut Skii km Lax Ha Nation traplines overlap with the easternmost portions of the Local Assessment Area / Regional Assessment Area
	Dust, noise, vibration, and visual changes generated by transportation of materials along roads resulting in sensory disturbance	Functional loss in the ability to access lands and resources necessary to support CULRTP	• There is a Tahltan Nation trapline overlapping the northern portion of the Local Assessment Area / Regional Assessment Area • The Bob Quinn Lake area has also been reported as an area for plant gathering by Tahltan Nation • Two Tsetsaut Skii km Lax Ha Nation traplines overlap with the easternmost portions of the Local Assessment Area / Regional Assessment Area

ECRP Activity	Effect Pathway	Effect	Key CULRTP Sites
	Noise and vibration generated by helicopters associated with ECRP resulting in a reduction in the quantity and quality of resources	Direct loss in the ability to access resources necessary to support CULRTP	• Mountain goats are hunted adjacent to montane glaciers, including the Oweegee range by Tsetsaut Skii km lax Ha Nation
Reclamation and Closure Activities (Reclamation/Closure phases)	Vegetation and plant resource clearing as a result of ECRP Reclamation	Direct loss of access to lands and resources necessary to support CULRTP	• A Tahltan Nation culturally modified tree, identified as having been stripped for cambium, has been identified in the Assessment Footprint

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in *Section 24.1.3*- Assessing Effects within Federal Jurisdiction, the characterization of the adverse residual effects on access to lands and resources for traditional purposes by Indigenous peoples is as follows: Magnitude: Moderate, Duration: Far-Future, Frequency: Continuous, Reversibility: Partially Reversible, Resilience: Moderate, and Importance: High. Confidence in this characterization is Moderate, and the overall risk is considered Low to Moderate.

Opportunity to Engage in CULRTP Activities

Indigenous peoples must have the necessary time and resources to engage in CULTRP activities. CULRTP activities are often seasonal in nature, coinciding with specific events and date ranges throughout the year. Activities such as harvesting practices may take days or weeks to complete depending on the activity, proximity of the harvesting location, and the quantity and quality of resources available. Accordingly, changes to both quantity and quality of lands and resources and access are directly connected to opportunities to engage in current use activities.

Resources such as harvesting materials and supplies (e.g., fishing nets, hunting ammunition, ATVs) are also necessary to engage in current use activities. The ability to access these resources is related to economic and employment conditions. Further information on potential economic effects of the ECRP and the associated effects pathways, is described in Section 24.6.3 Health, Social or Economic Conditions of Indigenous Peoples.

The time available to engage in CULRTP is also connected to employment opportunities. As the ECRP employment is predominantly rotational in nature, time on-site may serve as a barrier to engagement in CULRTP activities.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to opportunities to engage in CULRTP via the effect pathway of reduced time available to engage in the practices. These effects may occur throughout the Construction, Operation, and Reclamation/Closure phases.

Table 45 ECRP Effect Pathways on Opportunities to Engage in CULRTP

ECRP Activity	Effect Pathway	Effect
Workforce activities (Construction, Operation, Reclamation/Closure phases)	Reduced time available to engage in CULRTP due to rotational work	Direct loss in the ability to engage in CULRTP activities

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in Section 24.1.3— Assessing Effects within Federal Jurisdiction, the characterization of the adverse residual effects on opportunities to engage in CULRTP activities by Indigenous peoples is as follows: Magnitude: Low, Duration: Medium-term, Frequency: Continuous, Reversibility: Partially Reversible, Resilience: Low to Moderate, and Importance: High. Confidence in this characterization is Low, and the overall risk is considered Low.

24.6.2.2 Changes to Cultural Heritage – IAA 2(e)(i and iii)

This section assesses the potential adverse impacts of the ECRP on Indigenous Cultural Heritage, collectively covering physical and cultural heritage and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, as set out in Subsection 2(e)(i) and (iii), respectively, of the IAA. In assessing potential effects to Cultural Heritage, EAO has considered how both tangible and intangible elements of cultural heritage may be affected through the ECRP's lifecycle and into the foreseeable future. Appendix 5: Detailed First Nation Assessments and Section 17.13 Heritage Resources include further discussion of cultural heritage for Tahltan Nation, Nisga'a Nation, Gitanyow Nation, Tsetsaut Skii km Lax Ha, and Métis Nation British Columbia (MNBC).

Indigenous cultural heritage is holistic in nature and includes physical, emotional, mental, kinship and spiritual components. It can be understood as including both tangible (physical) elements such as objects and places, as well as intangible elements such as stories, practices, songs, language, and laws. These elements are considered valued due to cultural importance and meaning, and their connection to shared memory/collective identity. The CULRTP is also a fundamental component of cultural heritage, as it involves the use of lands and resources, including specific places and sites, for cultural and spiritual practices which are intricately connected to Indigenous identity. As such, the assessment of potential non-negligible adverse effects on cultural heritage implements a holistic approach which considers effect pathways associated with current and future use of lands and resources for traditional purposes, and governance and stewardship initiatives, cultural continuity, and community wellbeing.

In the assessment of cultural heritage, EAO organized data according to two identified components:

- Tangible Cultural Heritage (including sites and items of cultural heritage significance).
- Cultural Continuity (intangible cultural heritage).

These components are qualitatively evaluated based on quantitative descriptors of changes to related valued components.

Tangible Cultural Heritage

Tangible cultural heritage includes sites and items of cultural heritage significance. Sites of cultural heritage include mappable locations that are of cultural importance, including those related to the historic and current use of lands and resources for traditional purposes, archaeological sites, and palaeontological sites. Items of cultural heritage include

artifacts and features that have cultural significance such as palaeontological resources. Sites and items of cultural heritage are closely connected to the current use of lands and resources for traditional purposes as harvesting, ceremony, and cultural sites are often identified as sites of cultural heritage. These land-based practices require a certain quality of sensory conditions to facilitate a spiritual connection to the land. These conditions may include solitude, quiet, and a lack of sensory disruption. Changes and barriers to these conditions and the ability to participate in quiet enjoyment on the land therefore represent potential effects to cultural heritage.

As potential ECRP effects to CULRTP sites are discussed in Section 24.6.2.1, this section focuses on potential ECRP effects on archaeological sites, palaeontological sites, and items of cultural significance, as well as potential effects to the conditions necessary to support a spiritual connection to the land.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to opportunities to tangible cultural heritage. These effects may occur throughout the Construction, Operation, and Reclamation/Closure phases.

Table 46 Effect Pathways on Tangible Cultural Heritage

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Destruction of artifacts/features of cultural heritage significance	Direct tangible loss of artifacts/features of cultural heritage significance
Workforce activities (Construction, Operation, Reclamation/Closure phases)	Indirect barriers to access as a result of increased human presence in the area	Loss of access to sites of cultural heritage
	Increased sensory disturbance as a result of increased human presence in the area	Functional loss of access to sites and items of cultural heritage

Characterization of Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in *Section 24.1.3* — Assessing Effects within Federal Jurisdiction, the characterization of the adverse residual effects on tangible cultural heritage is as follows: Magnitude: Moderate, Duration: Long-term, Frequency: Once to Continuous, Reversibility: Irreversible, Resilience: Moderate, and Importance: Moderate. Confidence in this characterization is Moderate, and the overall risk is considered Low.

Cultural Continuity (Intangible Cultural Heritage)

Cultural continuity is broadly understood as the ability to preserve the historical traditions of culture and to carry them forward into the future. This concept is closely tied to cultural identity and is related to current and future use of lands and resources for traditional purposes (Section 24.6.1.1), and health, social and economic conditions (Section 24.6.3). The assessment of potential ECRP effects on cultural continuity therefore includes an assessment of potential effects to CULRTP, access to sites and items of cultural heritage, consideration of intangible facets such as knowledge transmission, ceremony, spirituality, governance, and consideration of health, social, and economic conditions.

As potential effects to CULRTP (Section 24.6.2.1), sites and items of cultural heritage significance (Section 24.6.2.2), and health, social and economic conditions (Section 24.6.3) are assessed elsewhere in *Appendix 13*: Federal Requirements,

only the overall conclusions are brought forward and considered in the characterization of significance for potential effects to cultural continuity. This section focuses on potential ECRP effect pathways leading to effects to knowledge transmission, and stewardship and governance.

Indigenous Knowledge is often land-based and closely tied to traditional territories and harvesting, ceremonial, and spiritual sites of importance. Therefore, the transmission of knowledge related to traditional practices, history, and culture require access to the lands and resources that sustain such practices and activities. As such, any impacts to the quality and quantity of lands and resources, CULRTP, and access to sites and items of cultural heritage significance represent direct effects on the ability to access lands, resources, and sites necessary for knowledge transmission.

The transmission of Indigenous Knowledge also requires adequate health, social, and economic conditions. For example, Indigenous Elders and youth must be healthy enough to travel to, and engage in, land-based practices. Disconnection from land reflects a direct loss of Indigenous Knowledge and therefore a loss in ability to transmit knowledge. Similarly, social conditions such as community cohesion and connection to lands must be adequate. Without foundational trust and relationships between Indigenous Elders and youth, Indigenous Knowledge will not be transmitted.

The concept of stewardship and governance relates to the ability of Indigenous communities to self-determine and self-govern. This includes the ability of an Indigenous Nation's government to ensure the safety, security, stability, and prosperity of their communities. More broadly, stewardship and governance relate to the practices and systems by which Indigenous peoples are able to manage their lands, resources, and communities.

Stewardship and governance over lands, resources, and communities therefore includes the ability to make decisions concerning land use, the ability to engage in and maintain cultural practices, the passing along of knowledge, maintaining and ensuring health conditions, ensuring adequate employment and security, ensuring the safety of community members, the provision of necessary services, and the development and maintenance of critical infrastructure.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 — Assessment Methodology) may result in potential effects to opportunities to cultural continuity. These effects may occur throughout the Construction, Operation, and Reclamation/Closure phases.

Table 47 Effect Pathways on Indigenous Knowledge Transmission, and Stewardship and Governance

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Loss of land-based knowledge due to changes in animal movement patterns and relocation of ungulates and small- and medium-sized fur bearing mammals	Loss of ability to transmit knowledge
	Direct loss of access to lands and resources necessary to support CULRTP as a result of vegetation and plant resource clearing	Loss of ability to transmit knowledge
		Loss of stewardship and governance
	Reduced control over health, social and economic conditions due to reduced access to country foods	Loss of stewardship and governance

ECRP Activity	Effect Pathway	Effect
Workforce activities (Construction, Operation, Reclamation/Closure phases)	Indirect barriers to access as a result of increased human presence in the area	Loss of access to sites of cultural heritage
	Reduced control over health, social, and economic conditions due to reduced access to country foods	Loss of stewardship and governance
	Reduced control over health, social, and economic conditions due to increased prevalence of infectious diseases	Loss of stewardship and governance
	Reduced control over health, social, and economic conditions due to increased burdens on infrastructure and services as a result of increased ECRP workforce in the area	Loss of stewardship and governance
	Reduced control over health, social, and economic conditions due to reduced feelings of safety, increased stress and anxiety, reduced community cohesion, and/or disconnection from the land as a result of increased ECRP workforce in the area	Loss of stewardship and governance
	Reduced control over health, social, and economic conditions due to economic shifts in community due to inflation and/or changes to cost of living	Loss of stewardship and governance
Transportation of materials and use of highways and mine access roads (Construction, Operations phases)	Loss of land-based knowledge due to changes in animal movement patterns and relocation of ungulates and small and medium-sized fur bearing mammals	Loss of ability to transmit knowledge
	Direct loss of access to lands and resources necessary to support CULRTP as a result of vegetation and plant resource clearing	Loss of ability to transmit knowledge
		Loss of stewardship and governance
ECRP emissions (noise and vibration) (Construction and Operations phases)	Loss of land-based knowledge due to relocation of ungulates (mountain goats) due to noise and vibration disturbances	Loss of ability to transmit knowledge
	Reduced control over health, social, and economic conditions due to increased	Loss of stewardship and governance

ECRP Activity	Effect Pathway	Effect
	exposure to particulates of concern due to air and/or water emissions	
Reclamation and Closure Activities (Reclamation/Closure phases)	Direct loss of access to lands and resources necessary to support CULRTP as a result of vegetation and plant resource clearing	Loss of ability to transmit knowledge
		Loss of stewardship and governance
	Reduced control over health, social, and economic conditions due to economic shifts in community due to inflation and/or changes to cost of living	Loss of stewardship and governance

Characterization of Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in Section 24.1.3— Assessing Effects within Federal Jurisdiction, the characterization of the adverse residual effects on cultural continuity is as follows: Magnitude: Low to Moderate, Duration: Long-term, Frequency: Sporadic to Continuous, Reversibility: Partially Reversible, Resilience: Moderate, and Importance: Moderate to High. Confidence in this characterization is Moderate, and the overall risk is considered Low to Moderate.

24.6.2.3 Malfunctions and Accidents

EAO assessed the effects of potential accidents and malfunctions on Indigenous peoples' CULRTP and cultural heritage in Appendix 7: Risks of Malfunction and Accidents. Potential malfunctions and accidents are outlined in Table 48 below. See Appendix 7: Risks of Malfunction and Accidents for further detail on the accidents and malfunctions, their potential effects, and risk ratings. EAO's recommended federal Key Mitigation Measures for malfunctions and accidents are described in full in Appendix 2: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

Table 48 Potential Risks Related to Accidents and Malfunctions on CULRTP and Cultural Heritage

Accident/Malfunction	CULRTP Sub-component			
	Quality and quantity of resources	Access	Opportunities to engage in CULRTP	Cultural continuity
Spill or Accidental Release of Hazardous Materials Onsite	Moderate	Low	Low	Low
Leakage or Spill during Transportation	Moderate	Moderate	Moderate	Critical
Motor Vehicle and Trucking Accidents	Moderate	Moderate	Critical	Critical
Accidental Release of Contaminants from Ore/Waste Rock Stockpiles	Major	Moderate	Major	Major

Breach or Failure of Tailings Storage Facility and Other Containment Structures	Moderate	Moderate	Moderate	Moderate
Fires or Explosions	Moderate	Moderate	High	High
Prologued Power Failure (Transmission Lines or Transformer)	Moderate	Moderate	Moderate	Moderate
Unauthorized Use of the Mine Site	Low	Low	Moderate	Low
Fly Rock or Excessive Noise from Blasting	Low	Moderate	Low	Low
Failure of Underground Mine Stability and Ground Instability or Failure	Moderate	Low	Moderate	High

24.6.2.4 GBA Plus Considerations

The ECRP has the potential to cause disproportionate adverse federal effects to Indigenous women, Elders, and youth with respect to CULRTP and cultural heritage. The following describes the disproportionate effects and provides a characterization of those effects.

- Indigenous women are less likely than Indigenous men to gain employment with the ECRP because they are disproportionately responsible for domestic and caregiving duties, in particular if their partner gains employment with the ECRP. This can also interact cumulatively with existing disproportionate caregiving responsibilities. Due to these increased responsibilities, Indigenous women may have fewer chances to participate in CULRTP.
    - The associated risk of these disproportionate effects is considered low as potential effects are anticipated to be reversible in the short term, medium term in duration, and moderate in magnitude.
- Indigenous Elders face existing barriers to accessing lands and resources for traditional purposes due to reliance on other community members for transportation to/from CULRTP areas. Mine site employment may reduce the ability of community members to facilitate this travel. Due to heightened perceptions of risk from industrialization, Elders may avoid CULRTP sites, limiting their access and disproportionately affecting their CULRTP.
    - The associated risk of these disproportionate effects is considered to be medium as potential effects are anticipated to be irreversible and continuous with a moderate magnitude. Furthermore, these effects are identified as having a high importance to Indigenous communities.
- Indigenous youth may depend on community members for transportation to CULRTP sites. Increased employment at the mine site could reduce available support, disproportionately affecting their ability to engage in CULRTP.
    - The associated risk of these disproportionate effects is considered to be medium as potential effects are anticipated to be irreversible and extending into the far-future with a moderate magnitude. Furthermore, these effects are identified as having a high importance to Indigenous communities.

- Indigenous Elders, seniors, and young children are at higher risk of increased morbidity and mortality from infectious diseases and face disproportionate health disparities that impact their ability to engage in land-based activities and Indigenous Knowledge transmission.

These disproportionate effects may directly impact Indigenous communities' ability to engage in CULRTP practices and participate in, and maintain, cultural heritage.

24.6.2.5 Cumulative Effects

The assessment of potential cumulative effects in the area are described in *Section 3.4.4* Other Projects in the Region and are further analyzed throughout *Appendix 5*: Detailed First Nation Assessments and Appendix 6: Valued Component Assessments. There are 34 past, present, and reasonably foreseeable future projects and activities in the region that have the potential to interact cumulatively with the effects of the ECRP. These projects and activities are geographically depicted in the maps included in *Section 3.4.4* Other Projects in the Region. The following list identifies potential cumulative effects on the CULRTP and cultural heritage:

Quantity and Quality of Resources

- Potential for the effects of the ECRP to interact cumulatively with the effects of other projects (*Section 3.4.4* Other Projects in the Region, *Appendix 5*: Detailed First Nation Assessments, and Appendix 6: Valued Component Assessments).
    - May result in changes in quality or abundance of country foods of Nations whose territories overlap the Cumulative Effects Assessment Area.
- Potential for cumulative loss of vegetation and culturally valued plants
    - May have a direct impact on the abundance of plants that are gathered for foods or medicines.
- Potential for cumulative effects on the abundance and availability of wildlife species that are hunted and trapped.
    - May have a direct impact on the abundance of country foods.
    - May arise due to increased mortality, and/or effects to habitat and wildlife movements.

Access (Avoidance)

- Potential for avoidance of ECRP-affected areas combined with avoidance of areas in the Cumulative Effects Assessment Area due to past, present and foreseeable future projects.
    - May result in adverse cumulative effects to accessing areas for hunting, trapping, fishing, gathering plants, and using areas for other cultural purposes.
- Potential cumulative effects from the removal of habitat for wildlife, removal of plant species, and increased human presence which could disrupt the movements of wildlife.
    - May result in cumulative effects to accessing areas for hunting, trapping, fishing, gathering plants, and using areas for other cultural purposes.

Malfunctions and Accidents

- Potential for cumulative effects related to traffic increase along Highway 37 and Highway 37A and incidents that result in motor vehicle accidents causing a facility or containment releases with the potential to extend to regional and international waterways (i.e., the Unuk River)

Health Conditions

- Cumulative effects to mental and physical health due worker in-migration in the area.

24.6.2.6 Summary of Residual Effects Characterization for Indigenous Peoples' Current Use of Lands and Resources for Traditional Purposes and Cultural Heritage

The following table provides a summary of residual effects characterizations for subcomponents of IAA Section 2(e) assessment to Indigenous peoples' current use of lands and resources for traditional purposes and cultural heritage (including physical and cultural heritage and any structure, site, or thing that is of historical, archaeological, paleontological or architectural significance).

Table 49 Summary of Residual Effects Characterization for Indigenous Peoples' Current Use of Lands and Resources for Traditional Purposes and Cultural Heritage

Residual Effects Characterization[33]	Current Use of Lands and Resources for Traditional Purposes					Cultural Heritage	
	Quantity and Quality of Species of Importance	Quantity and Quality of Fish and Freshwater Resources	Quantity and Quality of Vegetation and Plant Harvesting Resources	Access to Lands and Resources for Traditional Purposes	Opportunities to Engage in CULRTP	Tangible Cultural Heritage	Cultural Continuity
Magnitude	Medium	Medium	Medium	Medium	Low	Medium	Low to Medium
Duration	Long-term	Medium-term	Long-term	Far-future	Medium-term	Long-term	Long-term
Frequency	Continuous	Regular	Continuous	Continuous	Continuous	Once to Continuous	Irregular to Continuous
Reversibility	Partially Reversible	Fully Reversible	Partially Reversible	Partially Reversible	Partially Reversible	Irreversible	Partially Reversible
Resilience	Moderate	Low	Moderate	Moderate	Low to Moderate	Moderate	Moderate
Importance	High	High	Moderate to High	High	High	Moderate	Moderate to High
Uncertainty	Moderate	Moderate	Moderate	Moderate	Moderate	Low to Moderate	Moderate
Risk	Medium	Low to Medium	Medium	Low to Medium	Medium	Low	Low to Medium

[33] For further detail on the residual effects characterization, see Appendix 3: Residual Effects Characterization Definition.

24.6.2.7 Key Federal Mitigation Measures and Follow-Up Programs

EAO has recommended federal Key Mitigation Measures to IAAC to reduce potential effects of the ECRP on CULRTP and cultural heritage. These Key Mitigation Measures are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA. In summary:

- 11: Conduct pre-construction surveys to identify active dens of furbearers of importance to Indigenous groups and implement measures such as no work buffer zones for active dens.
    - Relevant effect pathways: alterations to movement patterns, sensory disturbance, and changes to quality and quantity of resources.
    - Relevant non-negligible adverse effects: wildlife mortality (denning fur-bearers), wildlife relocation (denning fur-bearers), and wildlife breeding (denning fur-bearers).
- 12: Prohibit ECRP employees and contractors from fishing, hunting, trapping, plant gathering and using off-road vehicles for recreation purposes within the Designated Project areas unless provided access for the exercise of Aboriginal rights.
    - Relevant effect pathways: reduced access to CULRTP, reduced ability to access sites and items of cultural heritage significance, and increased potential for violence and racism.
    - Relevant non-negligible adverse effects: reduced access to country foods, disconnection from land, safety.
- 13: Develop and implement a protocol for receiving and addressing complaints related to Designated Project Activities on the current use of lands and resources for traditional purposes.
    - Relevant effect pathways: sensory disturbance, and changes to quantity and quality of lands and resources.
    - Relevant non-negligible adverse effects: wildlife mortality, wildlife relocation, wildlife breeding, direct loss of access to lands and resources, and functional loss of access to lands and resources.
- 14: Develop and implement, through consultation with Indigenous groups, a communication plan to share information with Indigenous groups on adverse federal effects of Designated Project Activities as they are related to impacts on Indigenous traditional activities.
    - Relevant effect pathways: physical barriers to access, perceived reduction in the quantity and quality of lands and resources.
    - Relevant non-negligible adverse effects: direct loss of access to lands and resources, and functional loss of access to lands and resources.
- 15: Implement measures to mitigate impacts to ungulates and bears from Designated Project–related vehicle traffic within Skeena's care and control on the Eskay Creek Mine Access Road and Highway 37 and 37A.
    - Relevant effect pathways: sensory conditions, vehicle strikes, changes to wildlife movement patterns, and changes to the quality and quantity of resources.
    - Relevant non-negligible adverse effects: wildlife mortality, wildlife relocation, wildlife breeding, direct access to lands and resources, and functional access to lands and resources.

- 16: Plow gaps in snowbanks in areas where ungulates are known to overwinter along the Eskay Creek Mine Access Road every 500 metres on alternating sides between the mine site and kilometre 41.
    - Relevant effect pathways: vehicle strikes, changes to wildlife movement patterns, changes to the quality and quantity of resources, and access barriers.
    - Relevant non-negligible adverse effects: wildlife mortality, wildlife breeding, and direct access to lands and resources.
- 17: Require all helicopters associated with the Designated Project to fly at altitudes greater than 500 metres above ground level over high elevation mountain goat winter and sensitive life stage habitat except for approach, take-off and landing maneuvers for the purpose of constructing or accessing mine infrastructure or for safety reasons.
    - Relevant effect pathways: sensory disturbance.
    - Relevant non-negligible adverse effects: wildlife mortality, wildlife relocation, wildlife breeding, direct loss of access to lands and resources, and functional loss of access to lands and resources.
- 18: Develop and implement measures to mitigate fugitive dust emissions attributable to the Designated Project.
    - Relevant effect pathways: emissions, and reduced ability to engage in CULRTP.
    - Relevant non-negligible adverse effects: increased prevalence of disease, reduced access to country foods, disconnection from lands, increased stress and anxiety, and loss of security.
- 19: Undertake, in consultation with Indigenous groups and relevant authorities, progressive Reclamation, including final Reclamation, of areas disturbed by the Designated Project.
    - Relevant effect pathways: wildlife movement, barriers to access, changes in the quantity and quality of lands and resources, and vegetation and plant resource clearing.
    - Relevant non-negligible adverse effects: wildlife relocation, wildlife breeding, and direct loss of access to lands and resources.
- 20: Develop, prior to decommissioning, a follow-up program to verify the effectiveness of final Reclamation measures and implement the program during Decommissioning and Post-Closure.
    - Relevant effect pathways: wildlife movement, barriers to access, changes in the quantity and quality of lands and resources, and vegetation and plant resource clearing.
    - Relevant non-negligible adverse effects: wildlife relocation, wildlife breeding, and direct loss of access to lands and resources.
- 21: Develop and implement through consultation with Tahltan Nation and Tsetsaut Skii km Lax Ha Nation, a Chance Find Procedure to implement in the event that suspect physical and cultural heritage resources are discovered by or brought to the attention of Skeena.
    - Relevant effect pathways: destruction of artifacts/features of cultural heritage significance; and reduced access to lands, resources and sites necessary for Knowledge transmission.
    - Relevant non-negligible adverse effects**:** direct tangible loss of sites and artifacts/features of cultural heritage; and loss of ability to transmit Indigenous Knowledge.

Due to the holistic nature of CULRTP and cultural heritage, mitigation measures and Follow-Up Programs designed to reduce potential effects to the valued components such as fish and migratory birds will also serve to reduce the potential for adverse federal effects and serve as additional protections to CULRTP and cultural heritage more broadly, even when a specific adverse effect to CULRTP or cultural heritage is not identified.

Further information on Key Mitigation Measures, potential federal and provincial conditions, and Follow-Up Programs is provided in Section 17.5: Fish and Fish Habitat, Section 17.6: Vegetation, Ecosystems, Wildlife and Wildlife Habitat, and *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

24.6.2.8 EAO Overall Conclusions on Indigenous Peoples' Current Use of Lands and Resources for Traditional Purposes and Cultural Heritage

As described in *Section 24.1* — Overview, the Report concludes as to whether adverse federal effects, including cumulative effects, are likely to be to some extent significant, and if so, to what extent. The criteria for characterizing extent of significance for non-negligible adverse federal effects is defined in *Section 24.1.3*— Assessing Effects Within Federal Jurisdiction.

Based on the predicted effects to Indigenous Peoples' current use of lands and resources for traditional purposes (Section 2(e)(ii) of the IAA) and cultural heritage, including physical and cultural heritage (Section 2(e)(i)) and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance (Section 2(e)(iii)), including consideration of the proposed Key Mitigation Measures, EAO concludes that potential residual adverse effects are Non-negligible – Significant to a Low extent for all three aspects of these definitions under the IAA. EAO concludes that potential cumulative residual adverse effects to Indigenous Peoples for these three effects are Non-negligible – Significant to a Low extent. EAO continues to work together with Tahltan Central Government to evaluate the potential adverse effects of the project, and to consider the draft Tahltan Risk Assessment, which may influence these conclusions.

Table 50 Current Use of Lands and Resources for Traditional Purposes and Cultural Heritage Significance Determination

Extent of Significance Determination for Residual Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

Extent of Significance Determination for Residual Cumulative Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

24.6.3 Health, Social or Economic Conditions of the Indigenous Peoples of Canada

Section 2(f) of the IAA requires the assessment of non-negligible adverse changes to the health, social, or economic conditions of the Indigenous peoples of Canada. Canada has also committed to fully implementing the *United Nations Declaration on the Rights of Indigenous Peoples* ("the UN Declaration"; UNDRIP), as articulated in the preamble of the IAA and affirmed in the *United Nations Declaration Act* (UNDA; 2021).

As worker health is assessed in *Section 17.8*: Human Health, this section focuses on Indigenous health outside of the workplace. This includes the health of community members living and using the land outside of the ECRP footprint, community health, and health impacts associated with the CULRTP.

In the assessment of the health, social, and economic conditions of Indigenous peoples, EAO organized data according to four identified subcomponents:

- physical health conditions;
- mental health conditions;
- employment and economy; and
- infrastructure and services.

Information from across valued component and Nation chapters was gathered and synthesized to assess these potential non-negligible adverse changes to Indigenous health and wellbeing according to a holistic framework presented in Figure 17 below.

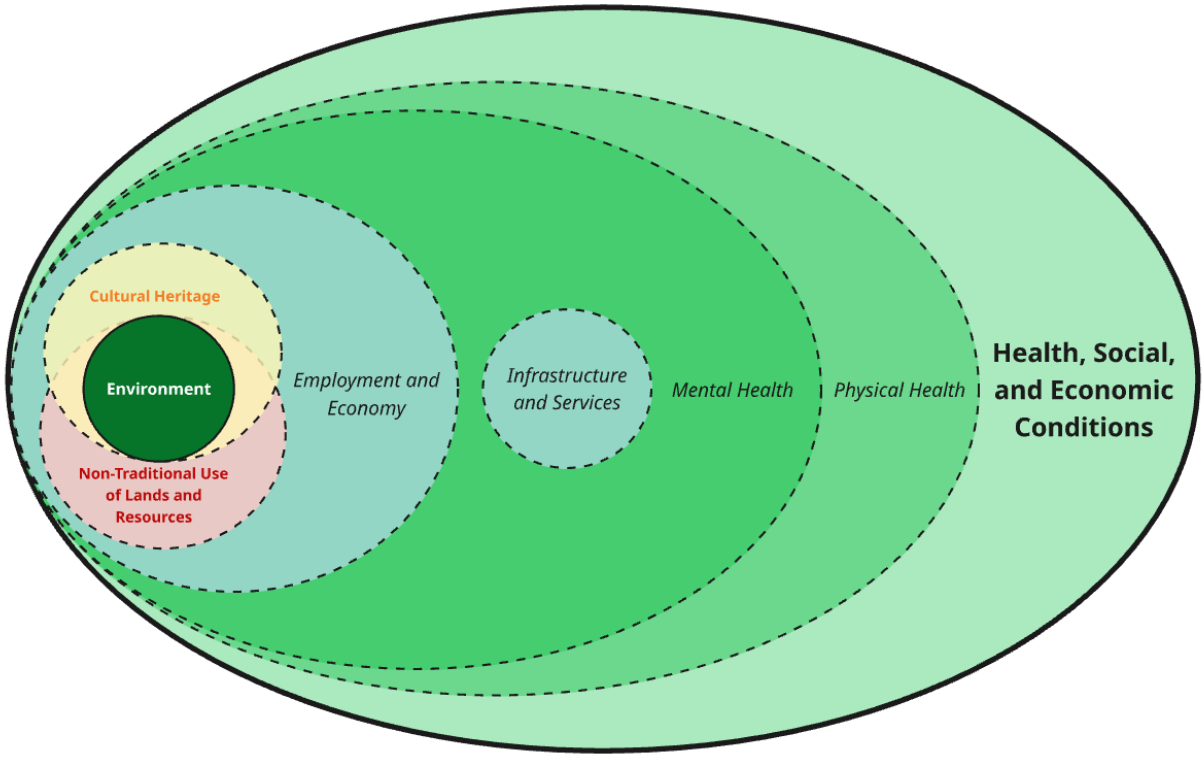

Figure 17 The Nested Circle Methodological Approach to Assessing Effects to the Health, Social, or Economic Conditions of Indigenous Peoples

As illustrated in Figure 17, the assessment of changes to the health conditions of Indigenous peoples includes the analysis of four subcomponents: (1) physical health, (2) mental health, (3) infrastructure and services, and (4) employment and economy; and the consideration of cultural heritage and non-traditional use of lands and resources for traditional purposes. The nested circle imagery presented in Figure 17 illustrates the way in which the subcomponents and their sub-factors rely on one another. Like Figure 16, this diagram illustrates the foundational importance of the environment to the health, social, and economic conditions of Indigenous peoples.

The assessment of potential effects to Indigenous health, social, and economic conditions necessitates a comprehensive approach that honors and integrates Indigenous knowledge, values, and traditions. Health, social, and economic conditions are holistic, encompassing spiritual, environmental, cultural, and community dimensions. This perspective underscores the interconnectedness of all aspects of life.

As such, the assessment of potential adverse health, social, and economic effects of a project on Indigenous peoples must include consideration of both biophysical changes, as well as the broader social and economic environments in which people exist. Potential effects must be considered at both a community and Nation-level (e.g., political and economic shifts, and structural factors) and changes occurring at a more individual level (e.g., living, working, and material conditions).

As it relates to Indigenous communities, it is important to recognize the ways in which factors such as the quantity, quality, and access to land, and impacts of colonization intersect with determinants of health, social, and economic conditions in ways that are distinct from non-Indigenous peoples. Indigenous determinants of health often emphasize the interconnections between the land and the spiritual and cultural determinants of health, social, and economic wellbeing.

In assessing potential effects of the ECRP on the health, social, and economic conditions of Indigenous peoples, EAO has considered potential non-negligible adverse changes associated with physical and mental health, employment, the local economy, infrastructure, and community services. Where available, quantifiable information such as economics, employment standards, and census data has been used as a foundation on which conclusions are drawn.

24.6.3.1 Physical Health Conditions

The assessment of potential effects on Indigenous physical health includes the consideration of both physical (i.e., biophysical changes) and social (e.g., reduced access to country foods as a diet staple) determinants of health.

While not included as a potential effect pathway below, it is important to note the way in which mental health may be directly connected to physical health. Changes in mental heath may result in alterations to behaviour, routine, activity levels, and consumption of foods, alcohol, and other substances. These behavioural changes may directly result in shifts in physical health. Therefore, conclusions and effect pathways identified in the assessment of effects to mental health (Section 24.6.3.2) should be considered alongside assessment of changes to Indigenous physical health. These connections are further discussed in Section 24.6.3.7 Cumulative Effects.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40in Section 24.6.1 — Assessment Methodology) may result in potential effects to the physical health conditions of Indigenous peoples, via the key effect pathways identified.

Table 51 Potential ECRP Effect Pathways on Physical Health

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Reduction in CULRTP due to direct loss of access to lands and resources due to vegetation clearing, sensory disturbances, and reduction in the quality and quantity of resources	Reduced access to country foods
	Reduction in CULRTP due to functional loss of access to lands and resources necessary as a result of sensory disturbances	Reduced access to country foods
Mining Infrastructure and Operations	Increased burden on existing infrastructure and services due to increased accidents and injuries	Increased burden on, and reduced availability of, health and

ECRP Activity	Effect Pathway	Effect
(Construction, Operations phases)	associated with increased workforce presence in the area	emergency infrastructure and services
Workforce activities (Construction, Operations, Reclamation/Closure)	Increased workforce presence in the area due to ECRP employment	Increased prevalence of infectious disease
	Rotational work schedule due to ECRP employment	Increased prevalence of infectious disease
	Increased regional inflation due to increased workforce presence in the area	Reduced access to store-bought healthy foods due to inflation and associated increases in food costs and access
	Reduced in CULRTP due to reduced time available as a result of rotational work	Reduced access to country foods
	Increased workforce presence in the area due to ECRP employment	Reduced access to health and emergency infrastructure and services
Transportation of materials and use of roads (Construction, Operations phases)	Reduction in CULRTP due to direct loss in access to lands and resources as a result of reduction in the quantity and quality of resources and physical barriers to access	Reduced access to country foods
	Increased burden on existing infrastructure and services due to increased accidents and injuries associated with increased workforce presence in the area	Reduced access to health and emergency infrastructure and services
Emissions (including tailings, waste rock, etc.; Construction, Operations phases)	Reduction in CULRTP due to functional loss in the ability to access lands and resources as a result of perceived reductions in the quality of lands and resources, and dust, noise, and vibration emissions	Reduced access to country foods
	Increased exposure to particulates of concern due to air and/or water emissions	Increased prevalence of chronic disease
Reclamation activities (Reclamation/Closure phases)	Reduction in CULRTP due to direct loss in access to lands and resources as a result of destruction of lands and	Reduced access to country foods

ECRP Activity	Effect Pathway	Effect
	resources from ECRP Reclamation activities	

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in Section 24.1.3— Assessing Effects Within Federal Jurisdiction, the characterization of the adverse residual effects to the physical health conditions of Indigenous peoples is as follows: Magnitude: Medium, Duration: Medium to Long-term, Frequency: Irregular to Continuous, Reversibility: Partially Reversible, Resilience: Low to Moderate, and Importance: Moderate. Characterization uncertainty is Moderate, and the overall risk is considered Low to Medium.

24.6.3.2 Mental Health Conditions

The assessment of potential effects from the ECRP to Indigenous mental health includes consideration of factors such as safety, stress, and anxiety because they contribute to overall mental health. It also recognizes the importance of land-based practices and community cohesion to Indigenous mental health.

As a result of the importance of land-based activities to Indigenous mental health, conclusions relating to CULRTP and cultural heritage are drawn forward to the characterization of significance. Similarly, high-level conclusions relating to socio-economic conditions are discussed due to their importance in ensuring the safety and security of Indigenous peoples. Mental health therefore encapsulates both physical factors such as safety and ability to be on the land, and social factors such as steady and secure employment, adequate housing, and access to services.

Mental health is further related to broader community wellbeing. As assessed in Section 17.8: Human Health, human and community wellbeing effects describe changes to the way people live, work, play, practice their culture, and/or organize themselves. To reflect these considerations, the assessment of potential effects from the ECRP to Indigenous mental health includes factors such as potential changes to CULRTP activities and community cohesion, among others. Further information on human and community wellbeing is provided in Section 10 Contribution of ECRP to Sustainability in B.C., Appendix 5: Detailed First Nation Assessments, Appendix 9: Effects on Current and Future Generations, and in Section 24.8 Considering the Extent to which the Project is Likely Effects Contribute to Sustainability of Appendix 13: Requirements of the Impact Assessment Act.

As highlighted in Section 24.6.3.1 — Physical Health Conditions, mental and physical health have a mutually reinforcing relationship whereby changes in physical health may have a direct impact on mental health. Changes in physical health may serve as a barrier to participating in community, cultural, spiritual, and land-based activities thereby negatively affecting mental health. Therefore, conclusions and effect pathways identified in Section 24.6.3.1 — Physical Health Conditions should be considered alongside assessment of changes to Indigenous mental health. These connections are further discussed in section 24.6.3.7 — Cumulative Effects.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section X.6.0- Assessment Methodology) may result in potential effects to the mental health conditions of Indigenous peoples, via the key effect pathways identified.

Table 52 Potential ECRP Effect Pathways on Mental Health

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Reduced ability to engage in CULRTP due to direct and functional loss of access to lands and resources necessary to support CULRTP (disconnection from land)	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Loss of food security due to reduction in access to country foods
	Reduced ability to access sites and items of cultural heritage significance	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Reduced community cohesion and community-based activities
Workforce activities (Construction, Operations, Reclamation/Closure phases)	Increased potential for violence and racism as a result of immigration of non-Indigenous population	Reduced feelings of safety
		Reduced feelings of community cohesion
	Increased potential for substance abuse as a result of earnings associated with ECRP employment	Reduced feelings of safety
		Increased stress and anxiety as a result of increased presence of substance abuse in the community and home
		Reduced feelings of community cohesion
	Reduced ability to engage in CULRTP due to reduction in time available associated with rotational work	Disconnection from land
		Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Loss of food security due to reduction in access to country foods
	Participation in rotational work associated with ECRP employment	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Reduced feelings of community cohesion due to inability to engage in community activities

ECRP Activity	Effect Pathway	Effect
	Increased costs of living as a result of ECRP expenditures and workforce in-migration	Reduced financial security
Transportation of materials and use of roads (Construction, Operation phases)	Reduced ability to engage in CULRTP due to disconnection from the land	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Loss of food security due to reduction in access to country foods
	Reduced ability to access sites and items of cultural heritage significance	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Reduced community cohesion and community-based activities
Emissions (including dust, air contaminants, noise, etc.; Construction, Operation phases)	Reduced ability to engage in CULRTP due to disconnection from the land	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Loss of food security due to reduction in access to country foods
	Reduced ability to access sites and items of cultural heritage significance	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Reduced community cohesion and community-based activities
Reclamation activities (Reclamation/Closure phases)	Reduced ability to engage in CULRTP due to direct loss of access to lands and resources necessary to support CULRTP	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Loss of food security due to reduction in access to country foods
	Reduced ability to access sites and items of cultural heritage significance	Increased stress and anxiety and reduced ability to relieve stress and anxiety
		Reduced community cohesion and community-based activities
	Loss of employment as a result of closure activities	Reduced financial security

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in Section 24.1.3— Assessing Effects Within Federal Jurisdiction, the characterization of the adverse residual effects on the mental health conditions of Indigenous peoples is as follows: Magnitude: Low, Duration: Medium-term, Frequency: Irregular to Continuous, Reversibility: Partially Reversible, Resilience: Low to Moderate, and Importance: Moderate. Characterization uncertainty is Moderate, and the overall risk is considered Medium.

24.6.3.3 Employment and Economy

The assessment of potential effects of the ECRP on employment and economy includes the consideration of jobs, training, local business revenue, employment and economic conditions for Indigenous women and girls, changes to the cost of living, the associated implications to CULRTP and non-traditional use of lands and resources (NTULR). EAO has applied a holistic methodology whereby effects to employment and economy take into consideration subsequent changes to culture and health. This reflects the complex nature of health, social, and economic conditions as being intrinsically connected to other valued components. These connections are further discussed in Section 24.6.3.7 — Cumulative Effects.

Characterizations of existing employment and economy conditions can be found in Section 17.12 Employment and Economy.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 - Assessment Methodology) may result in potential effects to the employment and economy of Indigenous peoples, via the key effect pathways.

Table 53 Potential ECRP Effect Pathways on Employment and Economy

ECRP Activity	Effect Pathway	Effect
Land clearing and preparation (Construction phase)	Reduction in availability of country foods due to reduction in the quality and quantity of lands resources and loss of access to lands and resources	Increased cost of living due to inability to rely on country foods to subsidize costs
		Loss of resource-based income due to reduction in availability of country foods
Workforce activities (Construction, Operations, Reclamation/Closure phases)	Increased housing, gas, food, and inflationary costs due to increased workforce presence in the area	Increased cost of living due to increased housing, gas, and food costs
	Reduction in the availability of country foods due to reduction in opportunities to engage in CULRTP as a result of rotational work associated with ECRP employment	Increased cost of living due to inability to rely on country foods to subsidize costs
		Loss of resource-based income due to reduction in availability of country foods

ECRP Activity	Effect Pathway	Effect
Transportation of materials and use of roads (Construction, Operations phases)	Reduction in availability of country foods due to reduction in the quality and quantity of lands resources and loss of access to lands and resources	Increased cost of living due to inability to rely on country foods to subsidize costs
		Loss of resource-based income due to reduction in availability of country foods
Emissions (including tailings, waste rock, etc.; Construction, Operations phases)	Reduction in availability of country foods due to reduction in the quality and quantity of lands resources and loss of access to lands and resources	Increased cost of living due to inability to rely on country foods to subsidize costs
		Loss of resource-based income due to reduction in availability of country foods
Reclamation and Closure Activities (Reclamation/Closure phases)	Reduction in ECRP expenditures in the area as a result of ECRP closure processes	Economic shifts in community due to changes of spending and money flow
	Downscaling of workforce due to ECRP closure processes	Reduction in employment opportunities

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in *Section 24.1.3*— Assessing Effects Within Federal Jurisdiction, the characterization of the adverse residual effects on the employment and economy of Indigenous peoples is as follows: Magnitude: Low to Medium, Duration: Medium-term, Frequency: Irregular to Continuous, Reversibility: Partially Reversible, Resilience: Moderate, and Importance: Moderate to High. Characterization uncertainty is Moderate, and the overall risk is considered Medium.

24.6.3.4 Infrastructure and Services

The assessment of potential effects of the ECRP on infrastructure and services includes the consideration of health care and social services, waste management services, education and daycare services and facilities, transportation infrastructure and traffic, housing and accommodations, emergency response services and facilities, and community recreation services and facilities. Potential effects to infrastructure and services are linked to potential physical and mental health effects, changes to employment and the economy, and broader categories such as CULRTP. EAO has applied a holistic methodology whereby the assessment of effects to employment and economy takes into consideration conclusions drawn in Sections 24.6.2 — Indigenous peoples' Current Use and Cultural Heritage and Section 24.6.3 — Changes to Health, Social, and Economic Conditions. This reflects the complex nature of wellbeing as being intrinsically connected to other valued components. These connections are further discussed in Section 24.6.3.7 — Cumulative Effects.

Characterizations of existing infrastructure and services conditions can be found in Section 17.9 Infrastructure and Services.

Effect Pathways

The following table provides a high-level summary of how ECRP activities (Table 40 in Section 24.6.1 - Assessment Methodology) may result in potential effects to the infrastructure and services of Indigenous peoples, via the key effect pathways identified.

Table 54 Potential ECRP Effect Pathways on Infrastructure and Services

ECRP Activity	Effect Pathway	Effect
Mine Infrastructure (Construction; Operations phases)	Increased health-related incidents due to ECRP-related accidents and injuries	Increased burden on healthcare services and facilities
	Increased waste production due to mining operation	Increased burden on waste facilities
Workforce activities (Construction, Operations phases)	Increased regional population due to in-migration of workers associated with ECRP employment	Increased burden on healthcare services and facilities
		Increased burden on education and daycare services and facilities
		Increased burden on transportation infrastructure (including airports)
		Increased burden on available housing
		Increased burden on emergency and law enforcement services and facilities
	Increased prevalence of chronic and infectious diseases due to worker in-migration	Increased burden on healthcare services and facilities
Transportation of materials and use of roads (Construction, Operations phases)	Increased health-related incidents due to ECRP-related accidents and injuries	Increased burden on healthcare services and facilities
		Increased burden on emergency and law enforcement services and facilities
	Increased use of wear on transportation infrastructure (roads) due to increased vehicle traffic along roads	Increased burden on transportation infrastructure (i.e., roads)
Air contaminant emissions (Construction, Operations phases)	Increased prevalence of chronic diseases due to worker in-migration	Increased burden on healthcare services and facilities

Characterization of Residual Non-Negligible Adverse Effects

Based on the information and considerations outlined in the section above and the methodology described in Section 24.1.3— Assessing Effects Within Federal Jurisdiction, the characterization of the adverse residual effects on infrastructure and services is as follows: Magnitude: Medium, Duration: Medium-term, Frequency: Irregular to Continuous, Reversibility: Partially Reversible, Resilience: Low to Moderate, and Importance: Moderate. Characterization uncertainty is Moderate, and the overall risk is considered Medium.

24.6.3.5 Malfunctions and Accidents

EAO assessed the effects of potential accidents and malfunctions on the health, social, and economic conditions of Indigenous peoples (Section 2(f) factors) in Appendix 7: Risks of Malfunction and Accidents

Potential of this Report and is outlined in Table 55 below. See Appendix 7: Risks of Malfunction and Accidents of this Report for further detail on the accidents and malfunctions, their potential effects, and risk ratings. EAO's recommended federal Key Mitigation Measures for malfunctions and accidents are described in full in Appendix 2: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA.

Table 55 Potential Risks in Relation to Accidents and Malfunctions on Indigenous Health Conditions

Accident/Malfunction	Health, Social or Economic Sub-component			
	Physical Health	Mental Health	Employment and Economy	Infrastructure and Services
Spill or Accidental Release of Hazardous Materials Onsite	Low	Moderate	Low	Low
Leakage or Spill during Transportation	Moderate	Moderate	Low	Moderate
Motor Vehicle and Trucking Accidents	Critical	High	Low	Moderate
Accidental Release of Contaminants from Ore/Waste Rock Stockpiles	Moderate	Major	Low	Low
Breach or Failure of Tailings Storage Facility and Other Containment Structures	Moderate	Moderate	Moderate	Moderate
Fires or Explosions	High	Moderate	Moderate	Moderate
Prologued Power Failure (Transmission Lines or Transformer)	Low	Moderate	Moderate	High
Unauthorized Use of the Mine Site	Moderate	Low	Low	Low
Fly Rock or Excessive Noise from Blasting	Moderate	Low	Low	Moderate

Failure of Underground Mine Stability and Ground Instability or Failure	Moderate	Moderate	Moderate	Low

24.6.3.6 GBA Plus Considerations

The ECRP has the potential to cause disproportionate adverse federal effects to Indigenous women, Elders, youth, and 2SLGBTQQIA+ individuals with respect to wellbeing. The disproportionate effects, and characterization of those effects is provided below:

- Indigenous women may face disproportionate physical and mental health effects, including increased stress, anxiety, and a reduced sense of safety. In addition, Indigenous women are more likely to face gender-based violence, with increased risk resulting from in-migration of workers to support the ECRP. These impacts to health and social conditions are exacerbated by pre-existing vulnerabilities and persistent socio-economic disparities.
    - The associated risk of these disproportionate effects is considered low because the in-migration population is anticipated to be small and violence towards Indigenous women and girls has not been noted as an issue of community concern.
- Indigenous women serving as sole caregivers and Elders on public pensions may face disproportionate effects from rising market food prices, directly impacting their physical and mental health.
    - The associated risk of these disproportionate effects is considered low because the ECRP's influence on costs is anticipated to be low and within the average value for existing conditions.
- Indigenous women and youth face challenges accessing employment opportunities related to the ECRP due to training difficulties and lack of skills. Indigenous women may also experience family responsibility disparities, risk of workplace violence, and cultural barriers. Indigenous youth may experience accessibly barriers with transportation and lack of education or skills.
    - The associated risks of these disproportionate effects are considered low as policies will be put in place to promote the inclusion of Indigenous women in the workforce and ensure workplace safety and develop accessible training programs for women and youth.
- Indigenous women serving as lone parents and Elders relying on public pensions may face disproportionate effects of increased costs of living due to inflation.
    - The associated risk of these disproportionate effects is considered low because the ECRP's influence on costs is anticipated to be low and within the average value for existing conditions.
- Indigenous women may face more limited employment opportunities due to reduced daycare availability due to increased demand causing financial stress and negatively impacting mental health.
    - The associated risks of disproportionate effects are considered low as demand on local daycare services is expected to not exceed existing conditions.
- Indigenous 2SLGBTQQIA+ individuals often face societal discrimination, resulting in unequal opportunities, exclusion, and economic disparities, which hinder their access to employment opportunities related to the ECRP.

    - The associated risk of these disproportionate effects is considered medium as while policies will be put in place to reduce workplace violence and harassment and eliminate hiring discrimination, harassment and discrimination can erode trust, inclusion, and psychological safety in the workplace.

- Indigenous Elders, seniors and young children are more sensitive to infectious diseases and therefore may face disproportionate effects to increases in the incidence of infectious disease.
    - The associated risk of these disproportionate effects is considered medium as vulnerable populations are more likely to catch infectious diseases as well as be more likely to become sicker, however the transmission of infectious diseases is expected to be low.

24.6.3.7 Cumulative Effects

The assessment of potential cumulative effects in the area are described in Appendix 17 Valued Component Assessment and include consideration of past, present, and reasonably foreseeable activities. The following list identifies potential cumulative effects on the health, social, and economic conditions of Indigenous peoples:

Physical and Mental Health

- Physical and mental health has the potential to be affected by the cumulative in-migration of workers to the area.
    - Increased populations of a non-Indigenous workforce are linked to increased racism and violence towards Indigenous women and girls, reductions in community cohesion and feelings of safety, and increased substance misuse.
- Possibility of a cumulative effect of fly-in-fly-out rotational work on mental health due to employment opportunities.
    - Fly-in-fly-out schedules have been associated with mental health decline, loss of community cohesion, gender-based violence, and increased substance misuse.
- Potential for cumulative effects to the incidence of infectious disease.
    - Rotational work schedules will increase transmission opportunities in communities and at the camp sites, and worker in-migration may further compound cumulative effects.

Employment and Economy

- If projects have coinciding closures or multiple closures take place over a specific timeframe, unemployment rates will be cumulatively impacted;
- If multiple projects have coinciding closures, there may be a cumulative economic slowdown in the Regional Assessment Area resulting in a diminishment of spending and procurement affecting the local economy;
- Multiple projects in the Local Assessment Area may have a cumulative impact on spending resulting in a higher cost of living and higher demand for, and cost of, housing.

Infrastructure and Services

- Numerous projects in the Regional Assessment Area will cumulatively result in increased demand for healthcare services and facilities, leading to a reduction of health care available for local populations.

24.6.3.8 Summary of Residual Effects Characterization for Health, Social, and Economic Conditions of Indigenous Peoples

The following table provides a summary of residual effects characterizations for components of IAA Section 2(f) assessment to the health, social, and economic conditions of Indigenous peoples.

Table 56 Summary of Residual Effects Characterization for Health, Social or Economic Conditions of Indigenous Peoples

Residual Effects Characterization[34]	Physical Health Conditions	Mental Health Conditions	Employment and Economy	Infrastructure and Services
Magnitude	Medium	Low	Low to Medium	Medium
Duration	Medium to Long-term	Medium-term	Medium-term	Medium-term
Frequency	Irregular to Continuous	Irregular to Continuous	Irregular to Continuous	Irregular to Continuous
Reversibility	Partially Reversible	Partially Reversible	Partially Reversible	Partially Reversible
Resilience	Low to Moderate	Moderate	Moderate	Low to Moderate
Importance	Moderate	Low to Moderate	Moderate to High	Moderate
Uncertainty	Moderate	Moderate	Moderate	Moderate
Risk	Low to Medium	Medium	Medium	Medium

24.6.3.9 Key Federal Mitigation Measures and Follow Up Programs

EAO has recommended federal Key Mitigation Measures to IAAC to reduce potential effects of the ECRP on the health, social and economic conditions of Indigenous peoples. These are described in full in *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA and are in addition to key mitigation measures and Follow-Up Programs proposed specifically for Fish and Fish Habitat, CULRTP, Health Conditions, and Accidents and Malfunctions. This reflects the holistic nature of Indigenous wellbeing which requires the ability to engage in the CULRTP and participate in cultural heritage activities and adequate health, social, and economic conditions. Mitigation measures designed to support these activities, and the overall physical and mental health of Indigenous communities, will therefore support Indigenous wellbeing.

- 22: Develop, prior to construction, and implement during all phases of the Designated Project measures to promote safe, respectful and inclusive conduct in the workplace and community.
    - Relevant effect pathways: substance misuse, and violence and racism.

[34] For further detail on the residual effects characterization, see *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA of this Report.

- Relevant non-negligible adverse effects: increased stress and anxiety, loss of community cohesion, reduction in safety.

- 23: Have a qualified individual with experience in recruiting Indigenous Peoples develop, prior to Construction and in consultation with Indigenous groups and other relevant authorities, and implement, during construction and operation, measures to create and enhance opportunities for Indigenous peoples, including Indigenous women and Indigenous businesses, to obtain and retain employment, procurement or contracting opportunities related to the Designated Project.
  - Relevant effect pathways: downscaling of workforce, GBA Plus considerations.
  - Relevant non-negligible adverse effects: reduction in employment opportunities, disproportionate effects.
- 24: Develop, prior to the end of year 3 of operations and in consultation with Indigenous groups, and implement during operations and decommissioning, nation-specific measures to minimize the impacts to Indigenous employees and their communities resulting from the decline in employment and contracting opportunities during operations and decommissioning.
  - Relevant effect pathways: downscaling of workforce; reduction in ECRP expenditures; and loss of control over health, social, and economic conditions of Indigenous communities.
  - Relevant non-negligible adverse effects: reduction in employment opportunities, shifts in the local economy, and stewardship and governance.
- 25: Develop, prior to construction and in consultation with Indigenous groups, Health Canada, Environment and Climate Change Canada and any other relevant authorities, and implement a follow-up program with respect to adverse federal effects from the Designated Project on air quality, soil, surface water and country foods as it relates to the health of Indigenous peoples, taking into account available Indigenous knowledge provided by Indigenous groups related to current use of lands and resources for traditional purposes.
  - Relevant effect pathways: loss of control over lands, resources, and cultural heritage sites; and loss of control over health, social, and economic conditions of Indigenous communities.
  - Relevant non-negligible adverse effects: reduction in stewardship and governance.

24.6.3.10 EAO Overall Conclusions on the Health and Socio-Economic Conditions of Indigenous Peoples

Based on the predicted effects to the health, social, and economic conditions of Indigenous Peoples, which include consideration of the proposed Key Mitigation Measures, EAO has concluded that potential residual adverse effects are non-negligible – significant to a low extent. EAO has concluded that potential cumulative residual adverse effects to the health, social, and economic conditions of Indigenous Peoples' are non-negligible – significant to a low to moderate extent. The EAO continues to work together with Tahltan Central Government to evaluate the potential adverse effects of the project, and to consider the draft Tahltan Risk Assessment, which may influence these conclusions.

Table 57 Health, Social, and Economic Conditions of Indigenous People of Canada Significance Determination

Extent of Significance Determination for Residual Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

Extent of Significance Determination for Residual Cumulative Effects

Non-Negligible (Level of Significance)			
Not significant	Significant: Low	Significant: Moderate	Significant: High

24.7 Indigenous Knowledge Provided with Respect to the Designated Project

The IAA requires the assessment to consider Indigenous Knowledge provided about the ECRP and to identify how Indigenous Knowledge was incorporated into the assessment.[35] EAO worked together with IAAC and Indigenous Nations, as outlined in the *Impact Assessment Cooperation Agreement Between Canada and British Columbia* and the *Eskay Creek Substitution Agreement*, to support the collection, sharing, and protection of Indigenous Knowledge. Where available and shared by Indigenous Nations, EAO described key concerns expressed by Indigenous Nations in the assessment of valued components in Appendix 6: Valued Component Assessments and *Appendix 5*: Detailed First Nation Assessments. Examples of Indigenous Knowledge that were provided to inform the assessment include, but are not limited to:

- characterization of existing conditions and potential ECRP effects;
- identification of species and sites of importance for culture, spirituality, and traditional use;
- technical review of the ECRP information through an Indigenous Knowledge lens;
- detailed First Nation assessments;
- recommendations for mitigation measures; and
- review and co-development of draft potential provincial and federal conditions.

Throughout the assessment, EAO sought regular feedback from Indigenous Nations to ensure the proper characterization and inclusion of Indigenous Knowledge and representation of Indigenous interests and concerns. This Indigenous Knowledge was used to inform ECRP design, the Revised Application, and the Report.

24.7.1 Indigenous Knowledge in Impact Assessment

Indigenous Knowledge is a dynamic, holistic, and intergenerational system rooted in the deep, reciprocal relationships Indigenous peoples maintain with the land, waters, animals, and ecosystems. Indigenous Knowledge is often directly tied to the exercise of Aboriginal and treaty rights, including land use for hunting, fishing, gathering, ceremonial purposes, and other cultural practices. These rights are recognized and affirmed by Section 35 of the *Constitution Act,* 1982 and form a legal foundation for the protection of Indigenous ways of life in Canada. Unlike Western scientific paradigms, it

[35] See Section 22(1)(g) and 28(3.1) of the *Impact Assessment Act.*

emphasizes interconnectedness, oral transmission, stewardship, and relationality. The IAA recognizes Indigenous Knowledge not as static or solely traditional, but as a living system that evolves in response to environmental, social, political, and economic change. By explicitly naming it "Indigenous Knowledge," the IAA affirms its contemporary relevance and central role in Indigenous identities, governance, and wellbeing. Respectful engagement with Indigenous Knowledge holders must begin early in project planning and continue through decision-making, with recognition that such knowledge is often inseparable from constitutionally protected Aboriginal and treaty rights related to land, culture, and sustenance.

Canada's adoption of the *United Nations Declaration on the Rights of Indigenous Peoples* (UN Declaration) in 2021 further reinforces the legal and ethical obligation to integrate Indigenous Knowledge into impact assessments. The UN Declaration upholds Indigenous rights to protect and sustain their cultural heritage, knowledge systems, and spiritual practices, and affirms the principle of free, prior, and informed consent (The UN Declaration, Articles 18, 19, 25, 32). Aligning the IAA with the UN Declaration calls for a fundamental shift in regulatory approaches—one that respects Indigenous self-determination, co-governance, and legal traditions. Incorporating Indigenous Knowledge is not only a legal requirement but a cultural and environmental necessity that enriches impact assessments through a holistic lens of cumulative impacts and intergenerational responsibility. This integration is vital for advancing reconciliation and creating more just, inclusive, and sustainable environmental decision-making processes.

24.7.2 Sources of Indigenous Knowledge

While EAO has described Indigenous Knowledge made available during the assessment in this Report, EAO recognizes that knowledge-holders are the only people who can truly define Indigenous Knowledge for their communities. Throughout the assessment process, EAO and IAAC regularly sought feedback and confirmation from Indigenous nations on the adequacy of the characterization and consideration of Indigenous Knowledge within the Report. Similarly, Skeena worked directly with Indigenous nations to meaningfully include Indigenous Knowledge into the ECRP design and the Revised Application. Indigenous Knowledge was provided in a variety of forms, including:

- Indigenous Knowledge Studies and Reports;
- Indigenous Engagement (including technical review); and
- Indigenous-led Assessments.

24.7.2.1 Indigenous Knowledge Studies and Reports

Skeena engaged with Indigenous peoples to complete Indigenous Knowledge studies and reports specific to ECRP, including:

- Tahltan Nation Country Food Baseline Project
- Tahltan Nation Regional Socio-Economic Baseline Project

Furthermore, the following non-exhaustive list of studies and plans were reviewed and used by Skeena as supporting material to understand Indigenous Knowledge relevant to the ECRP:

- Tahltan Nation
    - Tahltan Ancestral Study
    - Tahltan Land Use and Occupancy Study (2020)
    - Tahltan Stewardship Plan
    - Tahltan Risk Assessment Factors and Sustainability Principles

    - Tahltan Resource Development Policy
    - Klappan Strategic Initiative (2015)

- Nisga'a Nation
    - Nisga'a Employment, Skills, and Training (NEST) Labour Market Study
    - The Stewart Area Aquatic Ecosystems Cumulative Effects Assessment (2018)
    - Report on Food Security Indicators for the Nisga'a Nation – Data Sources, Indicators, and Monitoring the State of Food Security in British Columbia (2019)
    - Quality of Life Census (2021)
    - Nass South Sustainable Resource Management Plan Socio-Economic Assessment (2008)
    - Nisga'a Nation Health Plan 2015-2020 (2015)
    - Nisga'a Nation Valley Health Authority Strategic Plan (2022-2026)
    - Nass River Salmon Stock Assessment Update (2023)
    - Nisga'a Lisims Government Housing Needs Report (2022)

- Gitanyow Nation
    - Wilp Wii Litsxw Meziadin Indigenous Projected Area (2022)
    - Gitanyow Aks Ayookxw (Water Policy; 2023)
    - Gitanyow Strategic Direction
    - Gitanyow Cultural Heritage Resource Management Policy (2009)
    - Gitanyow Lax'yip Land Use Plan (2012)
    - Gitanyow Wilp-Based Socio-Cultural Needs Assessment (2015)
    - Gitanyow Ayookxw for Wilp Sustainability Assessment (2020)

- Tsetsaut Skii km Lax Ha Nation
    - Skii km Lax ha Traditional Use and Knowledge Report (2010)
    - Skii km Lax Ha Traditional Knowledge and Use Research Report (2013)
    - Tsetsaut/Skii km Lax Ha Nation Traditional Knowledge and Traditional Use Report (2014)
    - Tsetsaut Skii km Lax Ha Review of Ethnographic and Historical Sources (2021)

- Métis Nation British Columbia (MNBC)
    - 2014-2020 Use and Occupancy Map Survey with Legacy Map Survey Data: Hodgepodge map (2020)
    - Taanshi Kiiya? Miiyayow Métis Saantii Pi Miyooayaan Didaan BC / MPHS Program – Baseline Report (2021)

Additional publicly available ethnographic and historical studies, academic and legal sources, and information relating to the history, ethnography, and language of each Indigenous nation were used to complete the assessment of potential ECRP effects on Indigenous Interests. Previous studies for projects in northwest B.C., such as the Northwest Transmission Line Project, the Kerr-Sulphurets-Mitchell Project, and the Brucejack Gold Mine Project, were also reviewed.

24.7.2.2 Indigenous Engagement

Throughout the assessment, EAO and IAAC consulted with Tahltan Nation, Nisga'a Nation, Gitanyow Nation, Tsetsaut Skii km Lax Ha Nation, and MNBC, and engaged with the Southeast Alaskan Indigenous Transboundary Commission (SEITC).

Collaboration with Skeena

Tahltan Nation, Nisga'a Nation, Gitanyow Nation, and Tsetsaut Skii km Lax Ha Nation worked directly with Skeena throughout the development of the Revised Application to include and verify the application of Indigenous Knowledge. This included direct engagement with Skeena, review of draft Application chapters, and the conducting of specific studies related to Indigenous Knowledge. Tahltan Nation and Gitanyow Nation further provided self-drafted assessments for inclusion in the Revised Application.

Technical Advisory Committee (TAC)

The Technical Advisory Committee (TAC)[36] was established to advise EAO and Tahltan Central Government on technical matters related to the assessment and to facilitate review of documents such as the Revised Application and the Report. As described in *Section 3.0*: Regional and Regulatory Context, 4.0: The Environmental Assessment Process, 5.0: Stakeholder Engagement, and 6.0: Indigenous Nation Engagement and Summary of Effects, Indigenous nations were given the opportunity to identify as a Participating Indigenous Nation (PIN), which includes membership in the TAC. Tahltan Nation[37] was the only identified PIN. However, Nisga'a Nation also participated on the TAC in their role as a Treaty partner through the *Nisga'a Final Agreement*. Tahltan Nation and Nisga'a Nation applied Indigenous knowledge through technical feedback on documents, and co-development of components of the Report. The TAC's draft Application review comments are captured in the *Application Review Issues Tracking Table*.

Alaska Tribal Transboundary Advisory Committee (ATTAC)

The Alaska Tribal Transboundary Advisory Committee (ATTAC)[38] was established under Section 22 of the *Environmental Assessment Act*. Its purpose is to advise EAO on the potential transboundary effects of the ECRP on seven United States Tribes (represented by the Southeast Alaska Indigenous Transboundary Commission (SEITC)) who have the potential to be affected by ECRP based on their proximity to the Unuk River watershed. The ATTAC was used by EAO to provide updates on key milestones, schedule meetings, and provide the opportunity to review and comment on documents. SEITC's draft Application review comments are captured in the *Application Review Issues Tracking Table*.

24.7.2.3 Indigenous-led Assessments

Tahltan Nation and Gitanyow Nation completed their own assessment of the impacts of the ECRP on their rights, interests, and values using their own methodologies. EAO collaborated with Nisga'a Nation to assess the impacts of ECRP using the requirements outlined in the *Nisga'a Final Agreement*. Where Indigenous groups did not complete their own assessment, EAO collaborated with Indigenous nations on the assessment of their Indigenous interests and incorporated Indigenous Knowledge into these assessments. Opportunities for the verification of Indigenous Knowledge was provided to ensure the adequacy of the effects assessment.

Tahltan Nation Risk Assessment

Tahltan Nation carried out an assessment under Section 41 of the *Environmental Assessment Act* with respect to the potential effects of the ECRP on Tahltan Nation and its Rights recognized and affirmed by Section 35 of the *Constitution Act*, 1982. In doing so, Tahltan Nation undertook a Tahltan Risk Assessment and prepared a Tahltan Risk Assessment Report that sets out Tahltan Nation's conclusions on whether the ECRP is likely to cause significant residual and/or cumulative effects to Tahltan Nation's Values in accordance with the Tahltan Nation Significance Factors. This ensured

[36] Technical Advisory Committee (TAC) Terms of Reference

[37] Represented by Tahltan Central Government

[38] Alaska Tribal Transboundary Advisory Committee (ATTAC) Terms of Reference

that the Tahltan Nation's Section 19(4) Assessment was informed by the principles identified in part three of the Consent Agreement. The Consent Agreement further provided Tahltan Nation with the ability to ensure the quality and adequacy of Indigenous Knowledge in the Report, and the Tahltan Nation-authored 19(4) Assessment served as a means of directly including Indigenous Knowledge into the effects assessment.

Nisga'a 8(e) and 8(f) Assessment

Skeena was required to include an assessment of effects to Nisga'a using the Section 8(e) and 8(f) assessment framework outlined in Chapter 10 of the *Nisga'a Final Agreement*. EAO and IAAC worked directly with Nisga'a Nation to ensure Skeena provided adequate information to meet the requirements. Subsequently, EAO and IAAC worked with Nisga'a Nation to assess whether the ECRP can reasonably be expected to have adverse environmental effects on Nisga'a lands, residents, or interests, and to assess the effects of the ECRP on the existing and future economic, social, and cultural wellbeing of Nisga'a citizens who may be affected by the ECRP. The assessment drew directly on values and interests identified by Nisga'a Nation. Direct engagement with Nisga'a Nation and their review of the Revised Application and the Report ensured the adequacy of Indigenous Knowledge included in the effects assessment.

Gitanyow WILP Sustainability Assessment Process

Gitanyow Nation identified the ECRP as reviewable under Section 16 of the Gitanyow Wilp Sustainability Assessment Process (WSAP) and completed a Gitanyow Wilp Sustainability Assessment Report (WSAP Report) under Section 41 of the EAA. The WSAP Report was designed to inform the assessment process as it relates to the Crown's duty to consult and accommodate affected First Nations. It documents key outcomes of the WSAP, including Wilp Sustainability Test results. Gitanyow Nation's implementation of the WSAP, completion of the Wilp Sustainability Test, and drafting of the WSAP Report served as a means of directly including Indigenous Knowledge into the effects assessment.

24.7.3 EAO Analysis and Conclusion

Indigenous Knowledge was incorporated in the assessment through a variety of sources such as Indigenous Knowledge studies and reports, direct engagement with Indigenous nations, and the submission of Indigenous-led assessments. This Indigenous Knowledge was used to inform ECRP design, the Revised Application, and the Report. Throughout the assessment, EAO engaged with Indigenous nations to ensure the meaningful application of Indigenous Knowledge and sought feedback and confirmation on the adequacy of the characterization of Indigenous Knowledge, and the representation of Indigenous interests and concerns.

24.8 Considering the Extent to which the Project's Likely Effects Contribute to Sustainability

24.8.1 Regulatory Context

This section assesses the extent to which the ECRP's likely effects contribute to sustainability.[39] Under the IAA, sustainability is defined as "the ability to protect the environment, contribute to the social and economic wellbeing of the people of Canada and preserve their health in a manner that benefits present and future generations."

As per Section 22(1)(h) of the IAA, the assessment must take into account the extent to which the ECRP contributes to sustainability. The extent to which the likely effects of the ECRP contribute to sustainability is also one of the three public interest factors considered in decision-making.

The sustainability analysis considers the balance of positive effects and adverse federal effects. If a project's effects are likely to result in net positive contributions to sustainability, that means the ECRP is likely to result in positive and lasting equitable effects for present and future generations, and that positive effects include improvements over adverse

[39] See Section 22(1)(h) and 63(c) of the *Impact Assessment Act.*

environmental and socio-economic conditions or trends. If a project's effects are likely to result in net negative contributions to sustainability (net sustainability losses rather than sustainability gains), that means the ECRP's adverse federal effects or risk of irreversible harm outweigh a project's lasting contributions to sustainability.

24.8.2 Valued Component Selection

Valued components included in the sustainability analysis were selected based on their importance to long-term community wellbeing. EAO considered Indigenous Knowledge and the values, concerns, and perceptions of risk described by Indigenous peoples, the public, and other Knowledge Holders affected by the ECRP.[40] EAO also considered whether the valued components would experience long-term effects, interactions with other valued components, and the ECRP's likely effects. Finally, EAO also considered how impacts may be experienced differently across populations and generations, consistent with a GBA Plus approach.

The following valued components were selected based on the considerations above:

- Fish and Fish Habitat: Fish, especially salmon, are protected by federal law and are deeply connected to Indigenous culture, identity, and history. Indigenous peoples also value the quiet enjoyment of land and traditional land use, both of which are vital to fishing practices and habitat conservation efforts.
- Groundwater and Surface Water (Quantity and Quality): ECRP activities could affect the amount and quality of groundwater and surface water in nearby watersheds. These waters are important to Indigenous peoples and are protected by federal water laws.
- Employment and Economy: The ECRP could affect the economic wellbeing of Indigenous peoples, which must be considered under the IAA. Economic opportunities and impacts are important for long-term community sustainability.
- Current Use of Lands and Resources for Traditional Purposes: The ECRP may interfere with rights of Indigenous Nations and reduce access to lands and resources used for traditional practices. Indigenous Nations have identified specific areas, resources and practices of importance for current use. This includes the quantity and quality of resources, access to lands and resources, and opportunities to engage in current use practices to support cultural survival, food security, and maintaining their way of life.
- Human Health, Human and Community Wellbeing: The ECRP could affect health through changes in air, water, soil, noise, and country foods. These are all linked to health, mental health and wellbeing. Indigenous peoples in the RAA have identified health and wellbeing as key concerns for both their community and others.

24.8.3 Temporal Boundaries

From the start of Construction, mine-related activities at ECRP are expected to continue for approximately 75 years, with water treatment possibly continuing longer.[41] To account for effects caused by ECRP, and to recognize that impacts to individuals can persist after ECRP activities cease, the temporal boundary for the sustainability analysis was set to 100 years. This timeframe reflects the 18-year mine life (Construction: 2 years, Operations: 13 years, and Reclamation and

[40] "Indigenous Knowledge" is a term that refers to a set of complex knowledge systems based on the worldviews of Indigenous Peoples. See Indigenous Knowledge for more information.

[41] Timeframe will be in accordance with permit conditions. See Section 2.2 Project Description for additional detail on the Post-closure phase.

Closure: 3 years), a Post-closure period that spans a 57-year timeframe (based on modelling undertaken by Skeena), plus a 25 year period that reflects one generation of time following the ceasing of activities relating to ECRP.[42]

This timeframe considers that – from a sustainability perspective – individuals may continue to experience impacts of the ECRP even after ECRP activities cease and assumes that those impacts could persist for one generation. The longest-lasting impacts to individuals are largely expected to result from ECRP-related changes to water resources. While not all valued components will experience long-term effects, the potential for long-term or possibly perpetual water treatment remains a consideration. ECRP-related disruptions could have enduring impacts on Indigenous Knowledge sharing, culturally significant components, the health of individuals, and the long-term availability and health of water systems, impacting future generations. This perspective also aligns with the Tahltan Continuum which considers historic to current conditions spanning one to seven generations (28 to 200 years), as well as Tsetsaut/ Skii Km Lax Ha's understanding of environmental effects which also span one to seven generations (31 to 210 years).

24.8.4 Applying the Sustainability Principles

This section summarizes how EAO characterized effects on valued components in relation to the sustainability principles, which are the basis for conclusions on the extent to which the ECRP's likely effects contribute to sustainability (Net Positive or Net Negative). The sustainability analysis follows the four principles outlined below:

- Principle 1: Consider the interconnectedness and interdependence of human-ecological systems.
- Principle 2: Consider the wellbeing of present and future generations.
- Principle 3: Consider positive effects and reduce adverse effects of a designated project.
- Principle 4: Apply the precautionary principle and consider uncertainty and risk of irreversible harm.

Table 58 outlines the sustainability principles, analysis, and conclusions.

Table 58 Federal Sustainability Principles, Analysis and Conclusions

	Summary of Analysis	Conclusion
Principle 1: Consider the interconnectedness and interdependence of human-ecological systems The analysis considered changes to system components, function and connectivity that could affect environmental, health, social and economic conditions. These changes occur through a series of interactions.	The ECRP is located within the territories of Tahltan Nation and Tsetsaut/Skii km Lax Ha Nation and is linked to their health and wellbeing, and that of bordering Indigenous Nations. Within the ECRP's Local Assessment Area / Regional Assessment Area, there is complex interconnection and interdependence between human and natural environments where each influence and depend on the other for long-term sustainability (see Diagrams 1 and 2 in Section X.6 above). These regions are geographically remote with unique connections between communities and their surrounding ecosystems. The analysis below examined how ECRP activities may influence these interconnected systems. ECRP activities are expected to alter water quantity and quality, with potentially irreversible changes to surface water flows that may impact fish and fish habitat. ECRP's potential release of COPCs including selenium may affect water quality and adversely impact overall ecosystem health. These impacts may result in residual effects that persist long after the ECRP's Operational phase has ended. The analysis also considered if the ECRP's effects threaten the persistence or viability of species of cultural or traditional importance. In addition, the ECRP may restrict access to areas traditionally used for hunting, fishing, trapping, and gathering activities that are vital to Indigenous cultural practices and food security. These disruptions can contribute to broader adverse effects, including cumulative impacts on key human-ecological systems such as fish populations, aquatic habitats, and water resources. Over time, these intersecting pressures may significantly affect Indigenous peoples' health, cultural continuity, land use, and overall wellbeing across generations. In parallel, the ECRP introduces potential pathways for socio-economic advancement. Increased employment and income—particularly within the Local Assessment Area / Regional Assessment Area, and may significantly stimulate the economy, build local capacity, and contribute to improved health, wellbeing, and quality of life.	The ECRP is expected to result in lasting environmental and socio-cultural interactions - extending throughout the temporal boundaries of the sustainability assessment, including those linked to water systems and land access that may affect Indigenous Nations' ability to practice Current Use of Lands and Resources for Traditional Purposes. These impacts extend beyond the physical environment, affecting the spiritual significance of the land and the cultural identity of Indigenous communities. These changes can have enduring consequences for health, mental wellbeing, and the overall resilience of local populations. These challenges are further compounded by the region's remoteness, characterized by low population density and significant distances between communities. Such geographic isolation limits access to essential infrastructure and services, including healthcare. As a result, the ECRP's impacts are likely to place additional strain on already stretched health and social support systems, increasing the vulnerability of affected populations. While these impacts present notable challenges, the implementation of federal Key Mitigation Measures could significantly reduce their severity and duration. Increased employment and long-term income growth from the ECRP can improve public infrastructure through higher tax revenues and enhanced access via roadway corridor improvements, support better health outcomes, offer sustained economic opportunities for Indigenous communities, contribute to the Canadian economy through expanded mineral production and infrastructure development, strengthen Indigenous skills training programs such as the Indigenous Skills and Employment Training Strategy, and positively influence long-term

	Summary of Analysis	Conclusion
		economic resilience. Overall, the ECRP presents a strong opportunity to deliver meaningful and lasting socio-economic benefits—such as increased employment and long-term income growth—that can strengthen traditional economies, enhance community infrastructure, and contribute to the long-term health, well-being, and prosperity of Indigenous peoples and local communities.
For Principle 1, the extent to which the project's likely effects contribute to sustainability points to Low[43].		
Principle 2: Consider the wellbeing of present and future generations The analysis considered how the project's likely effects on wellbeing could change over time, and how future generations could be affected beyond the lifecycle of the project.	Indigenous Peoples have identified a range of interconnected elements as essential to their wellbeing, emphasizing the deep relationship between people, the environment, cultural practices, and resource use: • Tahltan Nation highlights the importance of maintaining the health of the land and water, preserving the Tahltan Nation way of life, and upholding Tahltan Nation's Rights. • Nisga'a Nation emphasizes connection to the land, the practice of traditional ceremonies guided by the Ayuukhl, and the revitalization of language and oral culture. • Tsetsaut Skii km Lax Ha Nation values hunting, trapping, and traditional land use as central to their identity. • Gitanyow Nation underscores the importance of Wilp and community connection, cultural practices, peaceful relations, and economic diversification to avoid boom-and-bust cycles. • Métis Nation of British Columbia focuses on fostering pride in their identity, maintaining strong ties to the land and heritage, and supporting holistic wellbeing across physical, mental, emotional, spiritual, and cultural dimensions. <u>Positive Effects on the Wellbeing of Indigenous Peoples and Local Communities:</u> • Economy and Employment: o Strong economic benefits are expected—such as increased GDP and tax revenue, more business opportunities, and higher spending— in the Local	The ECRP is expected to deliver long-term benefits for Indigenous peoples and local communities by promoting economic growth, employment, and skill development. These opportunities may enhance financial independence, education, and inclusive workforce participation, contributing to stronger community resilience with lasting positive effects across generations. However, several adverse effects are likely to extend beyond the ECRP's Operational life. Permanent changes to groundwater and aquatic ecosystems may disrupt traditional use of lands and may pose risks to community health. Social and health challenges—such as reduced community cohesion, increased mental health concerns, and heightened disease risks—may disproportionately affect vulnerable groups and persist over time. Rising housing costs and living expenses during the Operations phase could strain local infrastructure, with Indigenous women facing employment barriers due to caregiving demands and overall safety concerns for Indigenous women and girls. Additionally, lasting impacts

[43] A low extent means that the Project is likely to produce both sustainability gains and losses with uneven benefits across sub-populations, including risk of irreversible harm. The Project can contribute to overall sustainability, though achieving a balance between gains and losses will rely heavily on effective mitigation measures and continuous monitoring.

	Summary of Analysis	Conclusion
	Assessment Area / Regional Assessment Area during the Construction and Operations phases. ○ The ECRP is anticipated to create economic opportunities through employment, training, and youth internships, with a focus on inclusive hiring and mentorship to support workforce entry and skill development for Indigenous and underrepresented groups. • Human Health, Health and Community Wellbeing: ○ The ECRP is expected to enhance financial independence and wellbeing by improving access to resources, education, and training—supporting Indigenous Peoples and underrepresented groups in employment and skill development. <u>Adverse Effects on the Wellbeing of Indigenous Peoples and Local Communities:</u> • Groundwater and Surface Water: ○ ECRP activities may alter quantity and quality of water resources. These changes may include the introduction of COPCs, be potentially irreversible and require long-term management. • Fish and Fish Habitat: ○ Changes in water flow and quality may negatively affect fish populations and aquatic habitats. These impacts could disrupt ecosystem balance and may result in residual effects that persist well beyond the Operational life of the ECRP. • Human Health, Health and Community Wellbeing: ○ In-migration of non-local workers, fly-in/fly-out schedules, increased traffic, and sensory disturbances may reduce community cohesion, sense of safety, and mental health for the current generation. ○ There may be increased risks of infectious, respiratory, and chronic diseases, and exposure to metal COPCs, especially for vulnerable groups, with some effects lasting into future generations. ○ Workers may experience higher rates of chronic disease and reduced nutrition quality due to increased food costs.	on traditional land use, including reduced access to country foods and culturally significant areas, may undermine food security and cultural continuity, particularly for Elders and youth. The analysis found that the ECRP's effects are likely to create opportunities for positive contributions to the wellbeing of present and future generations. These positive outcomes will depend on the successful implementation of federal Key Mitigation Measures, supported by ongoing monitoring and follow-up to minimize potential harms. While adverse effects for current and future generations may not be fully offset by the benefits of employment and economic growth, the importance of the community benefiting from opportunities for economic self-determination and the use of revenues to support current and future Indigenous and local social, educational, and health programs is underscored. These benefits, along with employment and increased household incomes, are significant and represent opportunities for positive effects lasting beyond the current generation.

	Summary of Analysis	Conclusion
	○ Housing availability and affordability pressures are expected during Operations due to increased employment and spending in the Local Assessment Area / Regional Assessment Area.	
For Principle 2, the extent to which the project's likely effects contribute to sustainability points to Low[44].		
Principle 3: Consider the positive effects and reduce adverse effects of a designated project The analysis considered whether the project's positive effects would be maximized, and adverse federal effects reduced to ensure lasting contributions to present and future generations.	The ECRP is likely to impact human health and community wellbeing through various social, economic, health, and cultural outcomes, with both positive and negative effects. Potential adverse effects include increased cost of living, in-migration creating pressure on health care services, potential negative impacts on food security, increases to disease incidence, environmental contaminants, limitations to use of lands for traditional purposes, negative impacts to mental health, wellbeing, and safety—particularly to Indigenous girls and women. Potential positive effects include increased income, business opportunities, GDP benefits, and tax revenue, and enhanced access to resources, education, and training, promoting financial independence and improved wellbeing. The ECRP is also expected to generate local employment opportunities that can improve health and wellbeing, particularly for unemployed or underemployed individuals, by increasing income and supporting social, health, and educational programs. These benefits are anticipated to contribute to long-term economic reconciliation and self-determination, especially for Indigenous communities and youth. Mitigation measures are designed to reduce the ECRP's negative impacts while promoting environmental, health, and community benefits for both current and future generations. This comprehensive approach reflects a commitment to sustainability and wellbeing. The analysis considered both the positive and residual (following the application of mitigation measures) adverse effects, evaluating how benefits could be maximized and adverse federal effects minimized to ensure lasting contributions over time.	The analysis highlighted variability in income disparity and employment inequity. While economic benefits may be significant, they may not be evenly distributed—Indigenous women and girls may face barriers such as limited childcare, safety concerns, and underrepresentation in employment. Prioritizing local hiring and procurement could help reduce reliance on external workers and mitigate associated community safety risks, including crime and gender-based violence. Concerns also remain around food security, housing availability and affordability. Increased income may improve household finances, but additional measures are needed to protect CFULRTP and access to country foods and culturally important species. The analysis concluded that the ECRP's measures demonstrate a proactive and inclusive approach to mitigating adverse federal effects and enhancing positive outcomes that would positively contribute to present and future generations, this is particularly evident in efforts to create and strengthen employment opportunities for Indigenous Peoples—including Indigenous women—while addressing potential challenges such as workforce downscaling, reduced ECRP expenditures, and health, social, and economic conditions in Indigenous communities.

[44] A low extent means that the Project is likely to produce both sustainability gains and losses with uneven benefits across sub-populations, including risk of irreversible harm. The Project can contribute to overall sustainability, though achieving a balance between gains and losses will rely heavily on effective mitigation measures and continuous monitoring.

	Summary of Analysis	Conclusion
		Skeena's GBA Plus considerations further supports efforts to attain equitable and culturally responsive outcomes.
For Principle 3, the extent to which the project's likely effects contribute to sustainability points to Low[45].		
Principle 4: Apply the precautionary principle and consider uncertainty and risk of irreversible harm The analysis considered whether gaps in knowledge and understanding related to key issues and conclusions for the sustainability analysis, and the steps taken to address these gaps, had been identified.	The analysis considered ECRP effects with potential for irreversible harm to the wellbeing of Indigenous peoples, these are: • Restricted access to land and the resulting loss of tangible heritage and intergenerational knowledge may cause permanent disruptions to cultural identity, continuity, and community wellbeing. • Effects on the health and safety of Indigenous women and girls, driven by population change and in-migration, may have lasting and compounding consequences. • Impeded access to land for sustenance and spiritual connection risks severing essential relationships with the land that may not be recoverable. The analysis identified gaps in knowledge and understanding related to sustainability, key areas of uncertainty are: • Potential impacts on Indigenous territories, including surface water and groundwater, and fish and fish habitats, though the extent of harm remains uncertain. • Possible disruptions to cultural continuity, such as knowledge transmission, stewardship, and governance, with unclear long-term consequences. • Increased risk of food insecurity, though the severity and duration may vary across subpopulations. • Potential negative effects on mental health, which may be difficult to fully predict or quantify. • Concerns about the health and safety of Indigenous women and girls, with uncertain but potentially serious implications.	The analysis concluded Skeena has generally adopted a precautionary approach and incorporated mitigation and enhancement measures, while also acknowledging risks that may disproportionately affect certain populations as identified through GBA Plus considerations. However, cumulative effects are expected to persist—particularly for Indigenous youth, women, and Elders. With respect to the risks to the health and safety of Indigenous women and girls, federal Key Mitigation Measures to promote safe, respectful and inclusive conduct in the workplace and the community include actions to respond to call to justice 13.1 in *Reclaiming Power and Place: The Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls*. The analysis also identified instances where Skeena has not fully acknowledged the irreversible nature of possible impacts related to potential harm. The analysis concluded that the ECRP is expected to contribute to sustainability for present and future generations, however persistent uncertainties—driven by the unpredictability of potential harms and the complexity of system interactions, underscore the critical importance of federal Key Mitigation Measures to reduce adverse impacts.

[45] A low extent means that the Project is likely to produce both sustainability gains and losses with uneven benefits across sub-populations, including risk of irreversible harm. The Project can contribute to overall sustainability, though achieving a balance between gains and losses will rely heavily on effective mitigation measures and continuous monitoring.

	Summary of Analysis	Conclusion
	• Cumulative effects on health, social and economic conditions, which may be adverse but are not yet fully understood. Such as strain on healthcare infrastructure, income disparity, employment inequity, barriers to employment opportunities, housing availability and affordability, increases in the cost of living, security and safety.	
For Principle 4, the extent to which the project's likely effects contribute to sustainability points to Low[46].		

[46] A low extent means that the Project is likely to produce both sustainability gains and losses with uneven benefits across sub-populations, including risk of irreversible harm. The Project can contribute to overall sustainability, though achieving a balance between gains and losses will rely heavily on effective mitigation measures and continuous monitoring.

24.8.5 Considering Project Alternatives Through a Sustainability Lens

EAO required Skeena to describe and assess ECRP alternatives. EAO evaluated the following three ECRP alternatives provided by Skeena in the Revised Application:

1. Not undertaking ECRP.
2. Changing the timing of the ECRP; and
3. Changing the location of the ECRP.

The first alternative, not undertaking the ECRP, was assessed as not providing the positive social and economic effects and opportunities for economic reconciliation associated with the ECRP's development, though it would avoid environmental, health, social and cultural impacts and not fulfill the ECRP's purpose.

The second alternative, changing the timing of the project, would delay positive socio-economic effects, but have similar environmental impacts as proceeding with the project as proposed.

The third alternative, changing the location of the project, was deemed unfeasible due to the benefits of the current proposed location at a former mine site with significant advantages, such as proximity to critical infrastructure.

Based on the above considerations, EAO concluded that the ECRP, as proposed, would provide the best sustainability gains for present and future generations. Although the ECRP's positive and adverse effects on health, social, economic, and cultural conditions would be experienced disproportionately by diverse populations and across generations, this would also be true for the first two project alternatives.

24.8.6 Proponent's Analysis and Conclusion

The Tahltan Nation Sustainability Requirements do not directly align with the four principles of IAAC's sustainability guidance. However, Skeena identified commonalities that are implicit in Tahltan Nation Law and Knowledge. For example, the concept of interconnectedness noted in Principle 1 of IAAC's Sustainability Guidance is mirrored in the Tahltan Nation principle of "kinship" between all things, and how everything is interconnected and interdependent (Tahltan Heritage Resources Environmental Assessment Team [THREAT] 2024). Skeena has noted incorporation of these principles in its evaluation of the ECRP's effects, aligning with both IAAC's sustainability guidance and Tahltan Nation Sustainability Requirements.

In addition, Skeena indicated that the Revised Application fulfills the requirements of the 1910 Declaration on Tahltan Nation concerning governance, sovereignty, jurisdiction, and authorities. It adheres to the principles outlined in the Tahltan Nation Resource Development Policy and is consistent with applicable Tahltan Nation lands governance policies. It aligns with fundamental Tahltan Nation land and resource principles, as well as ensures that the land and water can be restored to a level of environmental health that supports Tahltan Nation's Title and Rights and land uses across the Tahltan Nation Continuum, with a focus on future land use by Tahltan Nation. Lastly, the Revised Application contributes to, supports, and assists in creating social, cultural, environmental, and economic legacies for Tahltan Nation.

Skeena also indicated that IAAC's Sustainability Principles and Tahltan Nation Sustainability Requirements have guided the identification and evaluation of potential effects, the design of mitigation measures, and the evaluation of ECRP alternatives. ECRP effects will be mitigated through comprehensive management and monitoring plans that can adapt to emerging risks. ECRP's positive impact extends beyond its Operational phase, with plans for Reclamation and Closure that adhere to Tahltan Nation guidance and laws. These plans aim to maximize community benefits and minimize environmental and social effects. Skeena also noted reduced adverse effects by reusing existing infrastructure and conserving undisturbed land. Additionally, the Revised Application considered linkages to Tahltan Nation Values and Gender-based Analysis Plus to identify disproportionate effects on diverse subgroups.

In the Sustainability chapter of the Revised Application, Skeena concludes that the ECRP demonstrates a high alignment[47] with Principle 1. Its alignment with Principle 2 is moderate,[48] and the ECRP shows high alignment with both Principle 3 and Principle 4.

Skeena concluded that the ECRP is expected to involve significant expenditure and operating costs, most of which will benefit local and Indigenous contractors and employees. By adopting a precautionary approach, documenting uncertainties and assumptions, and implementing robust management and monitoring plans, the ECRP will be developed responsibly and sustainably. The ECRP's alignment with sustainability principles ensures a holistic and interconnected evaluation of potential effects, contributing to the long-term wellbeing of the Tahltan Nation community and the environment. This also includes supporting capacity building, employment, and benefits for the Tahltan Nation and other engaged Indigenous Nations.

24.8.7 Key Mitigation Measures

EAO recommends federal Key Mitigation Measures as described in full in *Appendix 2* EAO's Recommended Key Federal Mitigation Measures and Follow Up Program Under the IAA of this Report. The sustainability analysis considered federal Key Mitigation Measures addressing effects to various valued components, in alignment with the sustainability principles, these included:

- Fish and Fish Habitat;
- Current Use of Lands and Resources for Traditional Purposes; and
- Health and Socio-Economic Conditions of Indigenous Peoples

Key Mitigation Measures were identified to mitigate potential effects to effects on current and future generations related to economic opportunities; opportunities to advance Indigenous reconciliation; effects on socio-economic conditions; and effects on cultural and material connections to land related to social inequity and the health and safety of Indigenous women and girls.

24.8.8 EAO's Analysis and Conclusion

EAO considered the ECRP's context, including key issues of importance to Indigenous Peoples and sub-groups, and how the sustainability principles were applied. Key considerations in determining the extent to which the ECRP's likely effects would contribute to sustainability include:

Positive Effects on Current and Future Generations from Increased Economic Opportunities

The ECRP offers meaningful long-term socio-economic benefits, including increased employment, income generation, and skill development. These opportunities have the potential to support economic self-determination, strengthen traditional economies, and enhance intergenerational well-being for Indigenous peoples and local communities. Improvements to infrastructure, such as roadway corridors can also contribute to broader economic resilience and prosperity.

Positive Effects by Supporting Self-Governance and Self-Determination for Indigenous Peoples

Through employment, income, and capacity-building initiatives such as investments in skills development, the ECRP has the potential to support Indigenous self-governance and self-determination. The ECRP involves inclusive engagement approaches that can facilitate empowerment of Indigenous Peoples to shape their economic futures, participate meaningfully in decision-making, and ensure these processes reflect their cultural values and priorities.

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[47] High - indicates that the project positively aligns with the sustainability principles and Tahltan Nation Sustainability Requirements.

[48] Moderate - indicates that the project partially aligns with the sustainability principles and Tahltan Nation Sustainability Requirements.

Adverse Federal Effects on Socio-Economic Conditions and on Cultural and Material Connections to Land and Waters for Present and Future Generations

The ECRP poses lasting challenges to traditional land use, water systems, and access to culturally significant areas. These impacts may undermine food security, cultural continuity, and community health. Cumulative environmental and socio-cultural effects may threaten the sustainability of Indigenous ways of life and present socio-economic vulnerabilities across generations.

Adverse Federal Effects on Social and Family Cohesion, and the Health and Safety of Indigenous Women and Girls

The ECRP is expected to result in adverse effects on vulnerable populations, in particular – youth, Elders, Indigenous women, and girls. These include increased risks to health and safety, social cohesion, and access to culturally appropriate support systems. Geographic isolation and limited infrastructure may further strain health and social services, with uneven benefit distribution that could exacerbate existing inequalities.

EAO considered that Key Mitigation Measures and enhancement measures outlined by Skeena would reduce risks to Health, Community Well-being, and Use of Lands and Resources for Traditional Purposes, although some uncertainty remains where these benefits are unlikely to be equitably distributed, with Indigenous women, youth, and Elders facing disproportionate risks.

EAO considered Skeena's sustainability analysis, focusing on the extent to which the ECRP's likely effects would result in both positive effects and adverse federal effects. There is certainty that the ECRP would provide economic benefits to Indigenous Peoples and communities (although these benefits would be unevenly distributed) and would support self-governance and self-determination. The ECRP is expected to result in the loss of "use" values due to reduced access to traditional land resources, and loss of cultural values associated with adverse effects on water resources. These represent a generational loss of values of environmental, cultural, and social significance.

Contributions to sustainability are therefore expected for present and future generations, but depend on the effectiveness of future decisions and actions to enhance positive effects (e.g., equitable employment and income opportunities) and to mitigate adverse federal effects (e.g., cumulative adverse effects on the health and well-being of Indigenous Peoples, including adverse effects on cultural continuity and adverse effects on the health and safety of Indigenous women and girls). The implementation of follow-up and monitoring programs will enable adverse effects to be adaptively managed.

Based on conclusions reached through the application of the sustainability principles, EAO has concluded that the ECRP's likely effects would contribute to sustainability to a Low extent. EAO is therefore of the view that the ECRP's likely effects would result in net positive contributions to sustainability.

24.9 Considering Environmental Obligations and Commitments in Respect of Climate Change

This section assesses the extent to which the ECRP may hinder or contribute to Canada's ability to meet its environmental obligations and its commitments in respect of climate change.[49] The extent to which the likely effects of the ECRP contribute to Canada's ability to meet these obligations and commitments is also one of the three public interest factors to be considered in decision making, should there be a determination that residual adverse effects within federal jurisdiction are likely to be, to some extent, significant.

[49] See Section 22(1)(i) of the *Impact Assessment Act.*

The term "environmental obligations" refers to Canada's obligations in domestic and international law in relation to protecting the natural environment. In international law, legally binding international instruments (such as conventions) to which Canada is a party can create environmental obligations. "Commitments in respect of climate change" are set out in legally binding and non-binding domestic and international instruments.[50]

Identification of relevant obligations and commitments took into consideration the specific context of ECRP, including:

- the potential emissions and discharges from the ECRP (GHG emissions); and
- components of the environment (such as species at risk and migratory birds) and potential effects to these components.

Canada's environmental obligations, including those related to species at risk and migratory birds, are discussed in Section 24.9.1, 24.9.2 and 24.9.3, while Canada's climate change commitments are discussed in Section 24.9.4. The assessment considered all Indigenous Knowledge provided in relation to these factors as described in Section 24.7 Indigenous Knowledge Provided with Respect to the Designated Project.

24.9.1 Environmental Obligations

The following environmental obligations were considered relevant to the ECRP:

Table 59 Environmental Obligations identified in the Hybrid Application Information Requirements

Environmental Obligation	Description
Convention on Biological Diversity, including the Kunming-Montreal Global Biodiversity Framework, and Canada's supporting national frameworks: Canadian Biodiversity Strategy, Canada's Biodiversity Outcomes Framework and current Biodiversity Goals and Targets for Canada, and Canada's 2030 Nature Strategy	The *Convention on Biological Diversity* is an international, legally binding treaty with three main goals: Conservation of biodiversity; sustainable use of the components of biological diversity; and fair and equitable sharing of the benefits arising from the utilization of genetic resources. It encourages actions that will lead to a sustainable future. The conservation of biodiversity is a common concern of humankind. The *Convention on Biological Diversity* covers biodiversity at all levels: ecosystems, species, and genetic resources. *This Environmental Obligation is broadly applicable to the species at risk and migratory birds identified during the assessment, and to the consideration of Indigenous Knowledge and the application of Gender-based Analysis Plus.*
Recovery Strategies and Action Plans developed under the *Species at Risk Act* for all species at risk potentially affected by the Project	A Recovery Strategy is a planning document that identifies what needs to be done to stop or reverse the decline of a species. An Action Plan identifies the measures to take to implement the Recovery Strategy for a threatened, endangered or extirpated species. *This Environmental Obligation is applicable to the species at risk identified during the assessment.*

[50] For more information, see *Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act*.

Environmental Obligation	Description
Species at Risk Act (SARA)	SARA provides for the legal protection of wildlife species to prevent wildlife species from becoming extinct and to secure the necessary actions for their recovery. SARA requires, among other things, that an assessment of the environmental effects of a project identifies the adverse effects of the ECRP on all species listed in Schedule 1 or their critical habitat and ensures that measures are taken to avoid or lessen the effects on the listed species and its critical habitat and to monitor the effects. The measures must be taken in a way that is consistent with applicable recovery strategies and action plans. SARA is a result of the implementation of the Canadian Biodiversity Strategy, which is in response to the United Nations *Convention on Biological Diversity*. *This Environmental Obligation is applicable to the species at risk identified during the assessment.*
Canada Wildlife Act	The *Canada Wildlife Act* allows for the creation, management and protection of wildlife areas for wildlife research activities, or for conservation or interpretation of wildlife. The purpose of wildlife areas is to preserve habitats that are critical to migratory birds and other wildlife species, particularly those at risk. *This Environmental Obligation is applicable to the migratory birds identified during the assessment.*
Convention for the Protection of Migratory Birds in the United States and Canada, as implemented in part through the *Migratory Birds Convention Act, 1994,* and supporting guidance on conservation objectives arising from Bird Conservation Region Strategies	This convention is an international agreement with the objective to protect migratory birds, their eggs, and their nests. The requirements of this convention have legislated components embedded in the *Migratory Birds Convention Act*, *1994*, Migratory Birds Regulations and Migratory Bird Sanctuary Regulations. Elements of this convention are also implemented via the North American Waterfowl Management Plan and the *Declaration of Intent for the Conservation of North American Birds and their Habitat*. *This Environmental Obligation is applicable to the migratory birds identified during the assessment.*
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention)	The Ramsar Convention, ratified by Canada in 1981, has the mission of the wise use of all wetlands through local and national actions and international cooperation. Canada has designated 37 Wetlands of International Importance (Ramsar sites) under the Convention. *This Environmental Obligation was considered not to apply because the ECRP is not located near any designated Wetlands of International Importance.*
Article IV of the *Boundary Waters Treaty*	Article IV of the *Boundary Waters Treaty* stipulates that boundary and transboundary waters shall not be polluted in either country to the injury of property or health of the other country, as confirmed and sanctioned in the *International Boundary Waters Treaty Act*. *This Environmental Obligation very broadly applies to the assessment of potential transboundary water pollution from ECRP.*

24.9.2 Considerations for Migratory Birds

Migratory birds identified during the assessment are protected or supported under *the Convention on Biological Diversity*, the *Migratory Birds Convention Act,* 1994, the *Species at Risk Act,* and recovery strategies and action plans.

Numerous species of migratory birds are known or likely to occur within assessment area.[51] Of those identified as likely to occur in the area of the ECRP, none have SARA-defined critical habitat in the Local Assessment Area / Regional Assessment Area. Effects to migratory birds and associated Key Mitigation Measures are discussed in Section 24.3 of Appendix 13. The adverse effects of the ECRP on Migratory Birds are anticipated to be Non-negligible – Not Significant following the application of mitigation measures, which include recovery strategies and action plans. It is therefore expected that the likely effects of the ECRP will hinder Canada's ability to meet its obligations under the *Convention for the Protection of Migratory Birds in the United States and Canada* to a Low extent.

24.9.3 Considerations under the *Species at Risk Act*

Assessment of federally listed species at risk in impact assessments is required under Section 79 of *SARA,* including the identification of measures to avoid or lessen the effects. Table 60 lists the federal species at risk and their status. As these species are known to be found in the Local Assessment Area / Regional Assessment Area, they were considered in the assessment of effects from the ECRP.

The ECRP is located inland, and no impacts are expected to marine environments or the species that reside in them. No *SARA*-defined critical habitat has been identified in the Local Assessment Area / Regional Assessment Area. Furthermore, no listed plant species at risk were observed in the area.

Table 60 Listed Species with the potential to occur within the Regional Assessment Area and their SARA Status

SARA Status	Species
Special concern	Common nighthawk
	Evening grosbeak
	Great blue heron, *fannini ssp.*
	Grizzly bear
	Harlequin duck
	Horned grebe
	Olive-sided flycatcher
	Peregrine falcon, *pealei ssp.*
	Red-necked phalarope
	Rusty blackbird
	Short-eared owl
	Western grebe
	Western toad
	Wolverine

[51] See Section 24.3.2 for a list of Migratory Birds that may be present in the Regional Assessment Area

Threatened	Bank swallow Barn swallow Northern goshawk, laingi ssp. Western screech-owl
Endangered	Black swift Little brown myotis Northern myotis

The assessment of potential adverse effects to wildlife and associated federal Key Mitigation Measures are discussed in detail in Section 17.7 Vegetation, Ecosystems, Wildlife and Wildlife. The potential effects assessed include changes in habitat, changes in movement, and changes in mortality risk. Skeena noted that most project effects to changes in movement and changes in mortality risk would occur approximately for the life of the ECRP (18 years) and cease or reverse once project activities cease. Conversely, effects to habitat wouldn't reverse long-term following site clearing activities, although areas cleared for the ECRP may provide some habitat values for wildlife.

For changes in habitat of birds, furbearers, amphibians, and bats, the magnitude of habitat lost is expected to be low (<5% of habitat loss in the local area), with the exception of Grizzly bear fall habitat and Wolverine growing habitat, which are expected to experience a moderate magnitude effect (6-10% habitat loss in the local area).

Effects to wildlife movement and to wildlife mortality risk are expected to be low (no measurable change) for all listed species, except for amphibians (Western toad), which are expected to experience moderate magnitude changes to mortality risk (measurable in the local area but not in the broader region). The increased mortality risk for Western Toad is primarily expected to result from increased traffic along the transportation corridor that could affect local populations during their mass-dispersal events in the breeding season and summer migration.

During review of the Revised Application, Tsetsaut Skii Km Lax Ha submitted comments seeking further information specific to bats, including Little brown myotis. Skeena responded that baseline surveys indicated that the existing mine isn't used by bats, and that a Qualified Professional would conduct pre-clearing wildlife surveys.

Following the application of the recommended Key Mitigation Measures, residual effects to wildlife overall were characterized as low to moderate magnitude; reversible long-term for mortality risk and change in movement but irreversible for changes in habitat. The probability of mortality and movement effects is considered low, while habitat change is considered high probability. Skeena has a high confidence in the predicted effects for mortality risk and habitat change, and a moderate confidence in predicted effects to movement changes. EAO is satisfied that the ECRP would not have significant adverse residual or significant cumulative effects on wildlife habitat.

In consideration of the above, it is expected that the likely effects of the ECRP will hinder Canada's ability to meet its obligations under the *Species at Risk Act* to a Low extent.

24.9.4 Canada's Climate Change Commitments

The IAA requires that the assessment takes into account the extent to which the likely effects of the ECRP hinder or contribute to Canada's ability to meet its commitments in respect of climate change. [52] This requirement is also one of the three public interest factors to be considered in decision making, should there be a determination that residual adverse

[52] See Section 22(1)(j) of the *Impact Assessment Act*

effects within federal jurisdiction are likely to be, to some extent, significant.[53] EAO has assessed the effects of the ECRP's GHG emissions in Appendix 10: Greenhouse Gas Emissions. This section uses that analysis to assess the contribution of ECRP's likely effects on Canada's ability to meet each of Canada's current climate change commitments relevant to the ECRP. A list of these commitments is provided in Table 61. EAO is of the view that the ECRP may hinder Canada's ability to meet its commitments in respect of climate change to a Low extent, and the likely effects would not contribute to Canada's ability to meet its commitments in respect of climate change.

Table 61 Canada's Current Climate Change Commitments Relevant to The Project

Climate change commitment	Description
Canada's 2030 Emissions Reduction Plan	The target associated with this Plan was established under the *Canadian Net Zero Emissions Accountability Act* (described below). Under this plan, Canada must reduce its emissions by 40 to 45 percent of 2005 levels by 2030. The current emissions target for 2030 is 443,000,000 tonnes CO_2e (representing a 40 percent reduction from the 2050 baseline for Canada's GHG emissions).
Canadian Net Zero Emissions Accountability Act	This legislated commitment requires five-year emissions targets to demonstrate how Canada will reach its longer-term net-zero goal by 2050.
Strategic Assessment of Climate Change (SACC)	The SACC outlines the GHG emissions and climate change information requirements that proponents must provide, with details on calculation protocols provided in the supporting technical guidance documents. The SACC applies to projects assessed under the IAA.
Greenhouse Gas Reporting Program	Facilities that emit more than 10 kilotonnes (kt) CO_2e annually must report their emissions to Environment and Climate Change Canada.

24.9.4.1 Canada's 2030 Emissions Reduction Plan

Skeena anticipates that the ECRP's net GHG emissions in 2030 will be 91,773 tCO_2e. These emissions would be 0.02 percent of Canada's 2030 emission reduction target. Based on this, and in consideration of the IAAC guidance: *Describing Effects and Characterizing Extent of Significance*, the ECRP would hinder Canada's ability to meet its 2030 Emissions Reduction Plan to a low extent. This suggests that the likely effects of the ECRP on Canada's ability to meet this target is low in magnitude (due to the emissions being 0.02 percent of the target), short in duration (due to the 18-year mine life), and likely to generate minor impacts in the ecological context.

24.9.4.2 Canadian Net Zero Emissions Accountability Act

The ECRP is anticipated to begin the closure and Reclamation phase in 2042 and will not be in Operation post-2050. However, the ECRP will continue to generate GHG emissions during the Post-closure phase from land use change[54] (690 tCO_2e/y) and water treatment (139 tCO_2e/y for an indeterminate period) for a total of 829 tCO_2e/y. The GHG emissions associated with water treatment will decrease to zero once water treatment is no longer required.[55] Skeena's net-zero plan states that they will achieve net-zero GHG emissions by 2050 by purchasing offset credits to address the remaining GHG emissions at/after that time. As such, the ECRP will align with Canada's commitment outlined in the *Canadian Net Zero Emissions Accountability Act*.

[53] See Section 63(b) of the *Impact Assessment Act* and Factor 5 in *Policy Context: Public Interest Determination under the Impact Assessment Act*

[54] Land use change can result in GHG emissions from the loss of carbon sinks (i.e. Forest Land and/or Wetlands).

[55] Timeframe will be in accordance with permit conditions. See Section 2.2 Project Description and Schedule of this Report for additional detail on the Post-closure phase.

24.9.4.3 Strategic Assessment of Climate Change

Skeena has provided all required information outlined in the SACC and its associated technical guidance documents, including that related to Climate Change Resilience of the ECRP. EAO has summarized key requirements of the SACC below:

Impacts of the Project on Carbon Sinks:

Skeena stated that the ECRP's impact on carbon sinks primarily relates to land use change emissions. Throughout the Construction, Operations, and Reclamation and Closure phases, land use change emissions contribute to releasing GHGs into the atmosphere. During the Construction phase, land use change emissions start at 690.0 tCO_2e/y and continue at this level throughout the Operations, Reclamation and Closure, and Post-closure phases. This constant emission rate will continue for 100 years, based on guidance from the SACC supporting *Technical Guide*. These GHG emissions were included in the Net GHG calculation. During Reclamation and Closure and Post-closure, there will be some revegetation. Therefore, as a conservative estimate during the Post-closure phase, it was assumed that there would be no net-increase in carbon sinks.

Impacts of the Project on Global GHG emissions:

Skeena estimated that the 2030 (peak Operations) GHG emissions (91,773 tCO_2e) would represent approximately 0.0002% of global GHG emissions (estimated to be 46,121,000,000 tCO_2e).[56]

Skeena also stated that the ECRP provides an opportunity to meet global demand for gold and silver that is produced with lower GHG emission intensity versus other global projects. Skeena provided information on the ECRP's GHG emissions intensity, citing it as 0.24 $tCO_2e/ozAUe$.[57] Skeena indicated that this emissions intensity value is competitive with other gold mines globally.

Analysis of Uncertainty in the GHG emissions Information:

Skeena approached the calculation of GHG emissions conservatively, based on full production and full utilization of equipment. As such, the estimates represent maximum GHG emissions. The largest sources of GHG emissions are due to the combustion of diesel and propane, and therefore these are the key parameters where uncertainty plays the largest role in the final estimate of GHG emissions. The emission factors used to calculate the GHG emissions are constant, therefore the emissions will vary linearly with production, strip ratio, ore grade, and concentrate quality. At this time in the planning and design of ECRP, it is not known how close to actual GHG emissions the estimates are, but the estimates are considered conservative.

24.9.4.4 ECCC's Supplemental Analysis

Environment and Climate Change Canada Supplemental Analysis

Section 6 of the SACC states that IAAC or the lifecycle regulator, with the support of expert federal authorities, will provide supplemental analysis on the ECRP's net GHG emissions in the context of Canada's emissions targets and forecasts.[58] This analysis was prepared by Environment and Climate Change Canada and fulfills this requirement.

Proponent-Estimated Greenhouse Gas Emissions

Table 62 Skeena-Estimated Maximum Annual GHG Emissions for Each Phase of ECRP (t CO2eq.)

[56] *Global Greenhouse Gas Emissions: Canadian Environmental Sustainability Indicators*

[57] Ounces of gold equivalent

[58] Note, because the predicted upstream GHG emissions were below the 500 kt/y threshold outlined in the SACC, an assessment of upstream GHG emissions was not required.

Category	Construction (year 2026)	Operations (year 2030)	Reclamation and Closure (year 2040-2042)	Post-closure[59]
Fuel	30,149.6	88,274.3	5,963.1	0.0
Waste Incineration	24.3	291.7	291.7	0.0
Land Use Change	690.0	690.0	690.0	690.0
Acquired Energy	0.0	2,517.1	138.6	138.6
Net GHG Emissions	**30,863.9**	**91,773.1**	**7,083.4**	**828.6**

Skeena states in the Revised Application that the average GHG emission intensity of the ECRP's Operations phase is 0.24 t CO_2eq./oz-gold eq. Out of a total of 59 open pit gold mines evaluated by Skeena, there are four open pit gold mines identified with a lower emission intensity than ECRP. The Revised Application states that this is lower than the global open pit average (0.73 t CO_2eq./oz-gold eq), as well as the global average emission intensity.

Skeena estimated 69,000 t CO_2eq. of emissions related to impact on carbon sinks in the Revised Application. This estimate was then divided for the assessment period of 100 years and added as 690 t CO_2eq. to the ECRP's annual net emissions.

Environment and Climate Change Canada's Observations

Skeena has considered the anticipated project activities that are within the scope of the impact assessment that have potential for GHG emissions. Skeena's estimated GHG emissions for fuel, waste incineration, and acquired energy are adequately calculated and are supported by information provided in the Revised Application. ECRP's impact on carbon sinks is also estimated and presented in the Revised Application, the values presented are reasonably estimated and supported by the data presented and by the methodology used.

While Skeena's estimated project lifetime does not include the Post-closure phase, when environmental monitoring and water treatment occurs, ECCC expects the GHG emissions during this phase to be relatively low. It is understood that the Post-closure phase will likely extend beyond 2050 but would only include low-emitting activities, such as monitoring, inspections, and maintenance activities.

The Revised Application uses a figure to show that the ECRP has one of the lowest emission intensities of the global gold mines, especially for an open pit mine. If the ECRP achieves the stated Operational GHG emission intensity average of 0.24 t CO_2eq./oz-gold eq., ECCC agrees that it would have one of the lowest GHG emission intensities in the industry.

Proponent's Planned Mitigation Measures

Skeena's mitigation measures are listed in the Net-Zero Plan. Skeena also committed to achieving net emissions reductions through the best available technologies and compliance with federal and provincial regulations, aiming to contribute to Canada's economic development positively and to support Canada in meeting its environmental obligations and climate change commitments. According to Skeena, the following mitigation presented in the ECRP's plan will be implemented by the start of Operations:

[59] Timeframe will be in accordance with permit conditions. See Section 2.2 Project Description and Schedule of this Report for additional detail on the Post-closure phase.

- B.C. Hydro power (secured 30 MW with potential for more in the future);
- slip Energy Recovery drive;
- energy-efficient equipment;
- high-intensity flotation cells and energy-efficient concentrate dryer; and
- design approach that reuses existing infrastructure

Skeena states in Chapter 37 *of* the Revised Application that "these measures aim to minimize emissions and align with federal and provincial emissions reduction efforts. While emissions from equipment and facilities will contribute to overall GHGs, the ECRP's contribution is projected to remain minimal by incorporating the best available technologies and practices." It also states that "Skeena Resources is aligned with Canada's commitment made in the "Paris Agreement" (2016) to reduce GHG emissions to 40% to 45% below 2005 levels by 2030 and achieve net-zero emissions by 2050." Skeena also stated that they will report annually to the GHG Reporting Program.

Environment and Climate Change Canada's Observations

Skeena appropriately considered GHG mitigation technologies and practices, following the Best Available Technologies and Best Environmental Practices (BAT/BEP) Determination process outlined in the SACC Technical Guide. Skeena's commitment to implement the proposed BAT/BEP measures of using renewable energy, increasing efficiency, exploring non-diesel and non-propane engine and machine alternatives, and reducing disturbance to carbon sinks, will contribute to the ECRP being a low GHG emitting open-pit gold mine.

Environment and Climate Change Canada's Conclusion

Skeena followed the SACC, provided a Net-Zero Plan, and has sufficiently considered various options to mitigate GHG emissions in each phase of the ECRP.

Given that Skeena has committed to achieving net emissions reductions through BAT/BEP, has committed to net-zero emissions by 2050, and has committed to comply with federal and provincial regulations and permits, Environment and Climate Change Canada is of the view that the ECRP will be a low GHG-emitting open-pit gold mine, and is likely to achieve net-zero by 2050, provided it carries out its commitments.

24.9.5 Key Issues Raised

In addition to Environment and Climate Change Canada, Tahltan Central Government and Tsetsaut Skii Km Lax Ha submitted comments relating to the methodology used in Skeena's assessment of greenhouse gas emissions and regarding emissions reporting requirements. Skeena responded with additional details and clarifying information. No comments were received that specifically focussed on Canada's current climate change commitments.

24.9.6 EAO's Conclusions

Based on the analysis of the considerations listed above, EAO has concluded that the ECRP may hinder Canada's ability to meet its environmental obligations to a Low extent. Regarding climate change commitments, EAO has concluded that the ECRP may hinder Canada's ability to meet its commitments in respect of climate change to a Low extent. However, by 2050, ECRP is expected to align with Canada's longer-term commitments in respect of climate change. Given ECRP's GHG emissions, EAO has concluded that the likely effects would not contribute to Canada's ability to meet its commitments in respect of climate change.

24.10 Federal Crown's Duty to Consult and Nisga'a Treaty Obligations

24.10.1 Overview

This section assesses the extent to which the substituted assessment process supports Canada's ability to meet its constitutional obligations to Indigenous peoples, including the duty to consult and treaty obligations under the *Nisga'a Final Agreement.* If there is a determination that adverse federal effects are likely to be significant, the effects on Indigenous peoples will be considered as a public interest factor in decision making by Canada.[60] This section draws on the information provided by or about potentially affected Indigenous groups in various sections of the Report, including:

- *Section 3*: Regional and Regulatory Context;
- *Section 6*: Indigenous Nation Engagement and Summary of Effects;
- *Section 8*: Key Concerns Identified in EAO's Assessment of Effects;
- *Section 9*: EAO's Proposed Conditions;
- *Section 10*: Contribution of ECRP to Sustainability in B.C.;
- *Appendix 2*: EAO's Recommended Key Mitigation Measures and Follow-Up Programs under the IAA;
- *Appendix 5*: Detailed First Nation Assessments; and
- *Appendix 9*: Effects on Current and Future Generations.

The information has been used to describe the potential effects of the ECRP on Indigenous peoples from a holistic perspective, considering Indigenous Knowledge described throughout this Report.

24.10.2 The Duty to Consult and Nisga'a Treaty Obligations

The federal Minister of Environment and Climate Change approved the substitution of the provincial assessment process for the federal impact assessment on November 29, 2022. As per the Cooperation Agreement and the Notice of Substitution Approval under the IAA, EAO conducts the procedural aspects of consultation with Indigenous peoples through the substituted assessment process. However, Canada retains its duty to consult with Indigenous peoples and is also required to make its own determination of whether the requirements under Chapter 10 of the *Nisga'a Final Agreement* have been met.

The IAA describes how this duty is to be implemented, including support for coordinated action among jurisdictions; fostering reconciliation and working in partnership with Indigenous peoples; and the integration of Western scientific information and Indigenous Knowledge. Consideration of any potential adverse impact on the exercise of the rights of Indigenous peoples that may be caused by the ECRP is required by the IAA and to fulfill the Crown's constitutional obligation to consult with respect to potential impacts.

Chapter 10 of the *Nisga'a Final Agreement* contains obligations related to the assessment that are additional to the requirements of the IAA. Information gathered during the substituted assessment will inform Canada's determination of whether it has met the requirements under Chapter 10 of *Nisga'a Final Agreement*. The federal Minister will issue a Project Recommendation under Chapter 10 paragraph 8(h) of the *Nisga'a Final Agreement* alongside the Decision Statement required under the IAA.

[60] Further information on the consideration of effects on Indigenous peoples in the public interest factors can be found in *Policy Context: Public Interest Determination under the Impact Assessment Act*.

24.10.3 Consultation Principles and Objectives

The objectives of Crown consultation are to meet the duty to consult, uphold the honour of the Crown, and help build long-term relationships based on shared reconciliation objectives. The methods for meeting the legal duty to consult can be different for every project, but are informed by government policies, best practice, and evolving jurisprudence such as[61]:

- *Aboriginal Consultation and Accommodation Guidelines* (Guidelines; March 2011);
- *Principles Respecting the Government of Canada's Relationship with Indigenous Peoples* (Principles; July 2025);
- *Impact Assessment Agency of Canada's Reconciliation Framework* (Pathways; June 2024)
- *Building Relationships and Advancing Reconciliation through Meaningful Consultation* (May 2016);
- *Collaboration with Indigenous Peoples in Impact Assessments* (August 2025);
- *Indigenous Knowledge under the Impact Assessment Act* (August 2025); and
- *Considering Community Knowledge under the Impact Assessment Act* (July 2021).

As described in the documents above, key principles and objectives driving the Crown's Duty to Consult include the following:

- Respectful: The process must respect the potential or established Aboriginal or Treaty rights of First Nation, Métis, and Inuit people while engaging in consultation and should demonstrate how the Crown has sought to accurately understand all issues and potential impacts on Indigenous peoples and their rights (Guideline No. 1, No.2, No.3, and No.8; Principle No.5, and No.10). This includes ensuring that Indigenous groups are given opportunities, appropriate to the level of potential impacts on rights, to learn about the ECRP and its potential impacts, evaluate the ECRP, and communicate concerns to the Crown (Guideline No.2, and No. 3; Pathway No.1 and No.4).
- Meaningful: The process must clearly reflect that the Crown has made meaningful efforts to understand Indigenous concerns, potential impacts, and identify solutions for accommodation where required (Guideline No.4, and No.8, Principle No.6, and No.7; Pathway No.2, and No.3).
- Flexible and Responsive: Through its consultation record, the Crown must demonstrate that the process remained flexible and responsive, and identified means to address potential impacts on Indigenous peoples and their rights (Guideline No.4, No.5, No.7, and No.8; Principle No.6; Pathway No.1, and No.2). Responsiveness must be both meaningful and reasonable, where "meaningfulness" is measured by sufficiency, quality, and consistency (Guideline No.4; Pathway No.2).
- Accommodation: Where appropriate, accommodation should be considered, and commensurate to the degree of seriousness of the potential impact on Indigenous communities and their rights (Pathway No.3, and No.4).

Overall, the process must be accessible, reasonable, flexible and fair, founded in the principles of good faith, respect and reciprocal responsibility, and respectful of the uniqueness of each Indigenous group or nation.

[61] It is important to note that federal guidance and policies are continually evolving and undergoing revisions. The documents listed represent the most current versions at the time of drafting (July 2025).

24.10.4 The Eskay Creek Revitalization Project Consultation Process

Throughout the consultation process, each Indigenous group had opportunities to:

- evaluate the ECRP's impacts on Indigenous interests;
- provide Indigenous Knowledge related to the assessment site and potential impacts to Indigenous rights and interests;
- conduct studies to support the characterization of potential impacts to indigenous rights and interests;
- raise concerns to Skeena, EAO, IAAC, and Federal Authorities who participated through the Technical Advisory Committee; and
- meaningfully engage in the substituted assessment and consultation process, including on potential federal conditions which are based on EAO's recommended federal Key Mitigation Measures.

Issues raised by Indigenous Nations were documented and tracked in an *issues tracking table*. This document was regularly updated and shared with Indigenous groups to facilitate discussion.

During the Effects Assessment and Recommendations phase, EAO and IAAC are pursuing a collaborative approach to consultation with the aim of achieving consensus with Indigenous groups on the draft Report, the proposed provincial conditions, and the potential federal conditions. EAO and IAAC will hold consultation meetings to respond to outstanding issues or concerns from Indigenous groups prior to the Decision phase. EAO and IAAC will also continue to work directly with Tahltan Central Government as per the Consent Agreement to identity and include Tahltan Nation-authored conditions.

The consultation record summarized in this Report, proposed provincial conditions, and potential federal conditions will inform federal, provincial, and Tahltan Nation decisions for the ECRP.

EAO is of the view that the substituted assessment, to date, has offered sufficient opportunities and funding to all Indigenous groups to enable them to participate meaningfully in all phases of the process. Indigenous groups received timely information to enable them to understand the ECRP, the substituted assessment and consultation process, and to evaluate the potential changes to the environment, health, social and economic conditions, and the potential impacts on the rights of Indigenous peoples.

24.10.5 Meeting Federal Crown Consultation Objectives

Appendix 5: Detailed First Nation Assessments provides detailed First Nation assessments and the assessment required under Chapter 10 of the *Nisga'a Final Agreement*. These assessments are summarized below to describe how they support meeting federal consultation obligations.

24.10.5.1 Consensus Seeking Under the Provincial EA Process

EAO sought consensus with Participating Indigenous Nations at each phase of the substituted assessment and will offer the opportunity to submit notifications of consent or lack of consent at the conclusion of the assessment. Any notices of consent or lack of consent would be provided to decision makers to support both federal and provincial decision making for the ECRP.

24.10.5.2 Tahltan Central Government – B.C. Consent Agreement

Through the Consent Agreement with B.C., Tahltan Nation will determine whether it will provide consent on the ECRP. To meet the requirements set out in the Consent Agreement, EAO and IAAC met with Tahltan Nation on a regular basis and provided Tahltan Nation with additional opportunities to review materials and provide feedback on the draft Report and

potential federal and provincial conditions prior to sharing them with the Technical Advisory Committee and the public. A Consensus-Seeking Tracking Table was maintained with Tahltan Nation, and Tahltan Nation provided statements of consent at each stage of the ECRP before advancing to the next phase. Tahltan Nation will also be issuing a final decision statement on the ECRP.

24.10.5.3 Nisga'a Final Agreement

Chapter 10 of the *Nisga'a Final Agreement* specifies unique provisions for environmental assessments that are in addition to the requirements of the IAA and B.C.'s *Environmental Assessment Act.* The decision-maker must consider the requirements in Sections 8(e) and 8(f) of Chapter 10 of the *Nisga'a Final Agreement*. Canada's representatives worked collaboratively with Nisga'a Nation and B.C. as part of a tripartite government approach to ensure that Nisga'a Nation:

1) received timely notice and relevant available information on the project and the potential adverse environmental effects;
2) were provided the opportunity to collaboratively develop effects assessment methodology;
3) were invited to contribute to the identification and characterization of potential project effects and were consulted regarding potential impacts of the project on Nisga'a Nation's treaty rights and other interests;
4) were invited to collaboratively develop and review potential Federal and Provincial conditions; and,
5) had opportunities to participate and provide feedback on how the *Nisga'a Final Agreement* applies to different phases of the substituted assessment process.

24.10.5.4 Mitigation Measures and Conditions

During consultation on the draft Report, proposed provincial conditions and potential federal conditions, provincial and federal representatives indicated the measures proposed to address the concerns and interests of Indigenous groups, as summarized in *Appendix 5*: Detailed First Nation Assessments, *Appendix 6*: Valued Component Assessments, and *Appendix 13*: Federal Requirements.

24.10.6 Issues Outside the Scope of the Project

Indigenous groups also raised concerns about broader issues affecting Indigenous Interests that are outside the scope of the assessment, as described below.

24.10.6.1 Cumulative Effects in the Portland Canal Area

Nisga'a Nation raised concerns about the potential impacts of loading, unloading, handling, and storage of concentrate at the port facilities located in the District of Stewart and marine transportation activities associated with the shipping of concentrate from the port facilities down Portland Canal, which are activities outside the scope of the ECRP. These concerns were raised in the context of the ECRP but are also historic concerns raised by Nisga'a Nation on past projects from a cumulative effects perspective. To address these longstanding concerns, IAAC, EAO, and Nisga'a Nation worked together to explore possible tools and to ensure the Government of Canada and the B.C. government are fulfilling their Treaty obligations under the *Nisga'a Final Agreement*. IAAC and EAO met regularly with Nisga'a Nation to discuss solutions, and took the following actions:

- Expanded the scope of the Process Order for the ECRP to include an assessment under Chapter 10 of the *Nisga'a Final Agreement* of any direct, indirect, and cumulative impacts to the marine and freshwater environments in and around the Bear River estuary as a result of the planned use of vessels carrying concentrate in and around the ports located in the District of Stewart. This assessment can be found in Section 16.2: Nisga'a Nation.

- Nisga'a Nation met with IAAC to discuss regional assessment as a potential tool to address Nisga'a Nation's concerns related to marine shipping in the Portland Canal area. IAAC and Nisga'a Nation agreed that other tools would be more effective at this time.
- IAAC provided Nisga'a Nation with funding through the Indigenous Capacity Support Program over a three-year term to support the compilation of current baseline conditions data and evaluate ongoing and legacy developments in the area. Four projects were identified and are currently being carried out by the Nisga'a Nation to support the above initiatives. These projects include: the Bear and Salmon River Estuary Aquatic Ecosystems Project, the Bear River Estuary Marine and Human Health Toxicity Project, the Bear River Eulachon Spawning Habitat Project, and the Marbled Murrelet Post-Fledging Surveys.
- EAO provided grant funding to support Nisga'a Nation in the implementation of the Stewart Area Aquatic Ecosystems Cumulative Effects Assessment (2018) and the Golden Triangle Infrastructure Strategy. EAO also provided additional capacity funding to support a Vessel Traffic Study to quantify vessel traffic in Portland Inlet and nearby waters by vessel class.
- Relevant information collected through the various project initiatives was shared with Skeena and EAO for consideration and inclusion in the assessment of Nisga'a Nation rights and interests.
- Relevant sections of the Report have been collaboratively developed by EAO and Nisga'a Nation to ensure it meets the requirements outlined in Sections 8(e) and 8(f) of the *Nisga'a Final Agreement*.

24.10.6.2 Engagement with United States Tribes

Throughout the assessment process, the Southeast Alaska Indigenous Transboundary Commission (SEITC) raised concerns about the federal and provincial approaches to consultation with United States Tribes. Citing *R v. Desautel*, SEITC asserted that the duty to consult was not being met by the substituted assessment process due to the inability of SEITC and its member Tribes to be identified as participating Indigenous nations in the context of a variety of projects, including the ECRP. B.C. and Canada are of the view that the engagement opportunities afforded during the assessment process will meet any consultation obligations that may be owed to SEITC. Further information on EAO's engagement with SEITC, including key concerns, is documented in *Section 6.5* Alaska Tribes, of this Report.

Within the context of the ECRP, IAAC and EAO have supported SEITC's engagement in the assessment process through funding, notification, and opportunities to participate. IAAC provided funding to SEITC through its Participant Funding Program, and EAO established the ATTAC as a forum for SEITC to engage in the assessment process. The Terms of Reference for the ATTAC were revised to include the opportunity for SEITC to comment on the potential impacts of the ECRP on its seven member Tribes' asserted Section 35 rights and how those potential impacts could be mitigated through the assessment process.

24.10.7 EAO's Analysis and Conclusion

Engagement with Indigenous groups on the ECRP remains ongoing throughout the Effects Assessment and Recommendation phase. EAO is continuing to engage on the potential impacts of the ECRP on Indigenous Interests and is working to meaningfully consider and incorporate of the comments of Indigenous groups into the Report, Key Mitigation Measures, and Follow-up Programs.

To inform both federal and provincial decision making on the ECRP, Indigenous groups may provide input directly to decision makers, including expressions of consent or lack of consent with this Report and EAO's draft recommendations.

25.0 Appendix 14 Gitanyow Wilp Sustainability Assessment Report

GITANYOW WILP SUSTAINABILITY ASSESSMENT REPORT

An Assessment of the Eskay Creek Revitalization Project – Dec. 20, 2024

OVERVIEW

Skeena Resources Ltd is proposing to restart mining at the past-producing Eskay Creek Mine. The project is located in Tahltan Nation territory but requires an industrial transportation corridor through Highway 37 and 37A in the Gitanyow Lax'yip. The Gitanyow Hereditary Chiefs Office completed an assessment of the proposed project under the Wilp Sustainability Assessment Process (WSAP). This report summarizes the potential impacts to the Lax'yip and Gitanyow rights and interests and proposes mitigation and accommodation measures for these impacts. The Impacted Wilp and Simgigyet will review the report and make a final decision on Nidinsxw (agreement/consent) as outlined in the WSAP.

Tara Marsden
Wilp Sustainability Director

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INTRODUCTION

The Eskay Creek Revitalization Project ("the Project") proposes to revitalize an existing mine in Tahltan Nation territory. Skeena Resources Ltd proposes to re-open an historic mine that would be an open-pit gold-silver mine with an estimated total annual production of 3.0 Mt/year in Years 1-5 and up to 3.7 Mt/year in Years 6-9. The Project requires transportation of goods, materials, personnel, and ore concentrate to be transported through the Gitanyow Lax'yip along Highway 37 and 37A.

The Project is in what is referred to as northwestern British Columbia (BC) and previously operated as the Eskay Creek Mine. At the time of its original environmental assessment and approval by the provincial government of BC, there was no consultation carried out with Gitanyow Hereditary Chiefs. The Project is anticipated to create 5,088 person-years of employment over the mine life of 14 years (2 years construction, 9 years operation, 3 years closure and reclamation.) A detailed project description is provided in **Appendix 2**.

The Project has been deemed reviewable under Section 16 of the Gitanyow Wilp Sustainability Assessment Process, with the Wilp Sustainability Assessment Direction approved by the Impacted Wilp April 22, 2022 and attached in **Appendix 1** of this Report. The scope of the studies and analysis informing the Wilp Sustainability Assessment for the Project is as follows:

A. An assessment of the Project's potential transportation-related impacts on animal mortality and general driver safety on Highways 37 and 37A, and potential mitigation and response measures;
B. An assessment regarding potential transportation-related spills or accidents from the Project, related potential impacts, and potential mitigation and response measures;
C. Analysis regarding the potential for changes in access to Gitanyow Lax'yip by Gitanyow people and non-Gitanyow people as a result of the Project and, as applicable, related potential impacts and mitigation and response measures;
D. Assessment and analysis of potential socio-cultural benefits and impacts stemming from the Project on the Gitanyow Huwilp and community;
E. Analysis of the potential carbon footprint of the Project, including greenhouse gas emissions associated with the Project, and the Proponent's reduction, mitigation, and offset strategies and commitments.

While the Gitanyow Hereditary Chiefs Office did employ an employment and training coordinator (Tkandaa'wihl Coordinator) specifically for the Project for a period of one year, there were challenges in completing D of the above scoping list. This report will therefore be missing this component of the Wilp Sustainability Assessment Process, to no fault of the Project proponent. In the view of the Gitanyow Hereditary Chiefs Office, hiring a new coordinator to complete this work cannot be done in a reasonable amount of time for the

WSAP to continue according to the planned timeline. Moreover, based on the other studies and analysis conducted, the Gitanyow Hereditary Chiefs Office recommends that there is sufficient information for the Impacted Wilp to make an informed decision about the Project according to the requirements of the WSAP, without a further separate study on socio-cultural benefits and impacts.

PURPOSE & OBJECTIVES

The purpose of this report is to:

A. Document the Wilp Sustainability Assessment Process ("WSAP") and key outcomes, including Wilp Sustainability Test results;
B. Propose Conditions for Nidinsxw for Gitanyow Hereditary Chiefs to consider;
C. Inform the Project Decision Statement by the Simgigyet'm Gitanyow, in accordance with section 24 of the WSAP;
D. Share WSAP results transparently with Gitanyow Huwilp members and neighbouring First Nations who may also be impacted by the Project;
E. Communicate to the Project proponent, Skeena Resources, WSAP outcomes and inform discussions towards a potential Economic Agreement, in accordance with sections 28-29 of the WSAP.

Additional objectives and uses of this report are:

1. Inform the provincial environmental assessment process, as it relates to the Crown's duty to consult and accommodate affected First Nations;
2. Serve as an appendix or supplementary material for the Project proponent to attach to its provincial environmental assessment documents that may include reporting requirements for engagement with Gitanyow.

SCOPE OF GITANYOW WILP SUSTAINABILITY ASSESSMENT PROCESS: PROJECT ASSESSMENT DIRECTION BY GITANYOW HEREDITARY CHIEFS

The determination of scope of the WSAP for the Project included the following key steps carried out over a one-year period:

1. Initial meetings of the Impacted Wilp and Simgigyet'm to confirm review of the Project under the WSAP.
2. Initial meetings with the Project proponent, Skeena Resources Ltd., to confirm:
    a. Potential downstream impacts in the Nass Watershed affecting Gitanyow fishing and other rights. The mine site was confirmed to be outside of the Gitanyow Lax'yip and the tailings treatment facilities and other water-related impacts were not in the Nass Watershed.
    b. The proponent's agreement to have the Project reviewed under the WSAP, including the applicable Climate Test.
    c. The modified and streamlined approach to regional socio-cultural impacts and benefits related to the Project, based on pre-existing employment and training programs and frameworks developed by the Gitanyow Hereditary Chiefs Office and the Gitanyow Employment and Training Institute.
    d. The proponent's interest in engaging Gitanyow in long-term discussions on hydro-electric development, pertaining to potential partnerships with Gitanyow green energy projects.
3. Further deliberations amongst the Impacted Wilp and technical staff to finalize the WSAP scope and Assessment Direction.

The Project Assessment Direction, April 22, 2022, is included in Appendix 1. It includes the following scope of matters for assessment:

1. Project-related transportation that would occur in Gitanyow Lax'yip or otherwise could impact Gitanyow Lax'yip or Gitanyow Huwilp; and
2. regional socio-cultural impacts and benefits related to the Project; and
3. greenhouse gas emissions associated with the Project, inclusive of industrial vehicle traffic; and
4. hydro-electric power development, as it pertains to potential partnerships with Gitanyow green energy projects; and
5. bonding for catastrophic events (environmental) that could impact the Project.

For clarity, while bonding for catastrophic events is of interest to the Impacted Wilp, it is recognized that this is within the mine site and the Project Assessment Direction also confirms that the scope of the Project Assessment will not include development at the mine site itself, which is located within the territory of the Tahltan Nation and does not pose potential downstream impacts in the Nass Watershed.

ENGAGEMENT WITH PROPONENT

Engagement between the Impacted Wilp and the Project proponent has been consistent, reciprocal, and respectful over the past 2.5 years. The proponent has acknowledged and respected the Ayookxw of the Gitanyow, including the WSAP. Milestone meetings included:

- Sept. 2022: Signing of the Initial Engagement and Project Assessment Agreement.
- February 2023: Launch of the WSAP for the Project and meeting with Impacted Wilp Simgigyet and senior leadership of the proponent. Details found here on Gitanyow Chiefs website under Wilp Sustainability Assessment Process.

Following the direction given at the above two milestone meetings, the technical team began meeting every month to ensure needed information was provided to Gitanyow, and to provide regular updates on Project development and timelines for other review processes.

Meetings have been held in-person and virtually, and included key subject matter experts on behalf of the proponent related to the scope of matters for assessment. In addition to the scope of matters for assessment, other items of discussion included the provincial government's consistent requests for information from the proponent on the progress of the WSAP, as it pertains to the Crown duty to consult. Gitanyow clearly communicated that the WSAP runs in parallel to Crown processes, is an expression of the Gitanyow Ayookxw, and participating in Crown processes has not fulfilled the objectives of upholding Gitanyow rights and title.

While pressure from the provincial environmental assessment office on the proponent was at times significant to share information and updates on the WSAP, the proponent has respectfully communicated the nature of the WSAP and their participation in it, and provided assurance that the provincial government would receive the outcomes of the process once concluded.

Meeting records are available upon request in the form of Action Tracker documents documenting issues raised by Gitanyow and actions taken by the proponent in response.

ASSESSMENT RESULTS: ALIGNMENT WITH GITANYOW STRATEGIC DIRECTION

The Project has been assessed for consistency with Gitanyow Strategic Direction in accordance with Sections 10 and 19 of the WSAP. The Gitanyow Strategic Direction includes existing policies, plans or higher-level assessments. The Proponent outlined this

consistency check in Table 6-1 of the Initial Description of Activities in **Appendix 2**, including relevant sections and how the Project aligns or does not align with Gitanyow Strategic Direction.

Gitanyow has reviewed Table 6-1 in the Initial Description of Activities and confirms the findings that the Project is in general alignment with Gitanyow Strategic Direction, with appropriate mitigation and accommodation measures regarding traffic impacts on wildlife, sensitive areas, and spill prevention and response outlined in the Wilp Sustainability Test and Conditions for Nidinsxw.

ASSESSMENT RESULTS: TRAFFIC IMPACTS & MITIGATION OPTIONS

Over the review period, the Impacted Wilp enlisted Gitanyow Fisheries Authority Wildlife Biologist and Lax'yip Guardians Coordinator Kevin Koch to complete a review of the potential impacts of the transportation component of the Project on fish, wildlife, sensitive and protected areas, and Wilp member safety on Highway 37 and 37A. The detailed results of this review and recommended mitigations can be found in **Appendix 3**.

ASSESSMENT RESULTS: INDUSTRIAL TRAFFIC SPILL PREVENTION & RESPONSE

Over the review period, the Impacted Wilp enlisted Gitanyow Fisheries Authority Environmental Scientist Megan Spooner to complete a review of the potential for industrial traffic spills along Highway 37 and 37A and spill response options including the feasibility of establishing a spill response cache at Meziadin Junction (camp and gas bar owned by Gitanyow). The detailed results of this review can be found in **Appendix 4**.

ASSESSMENT RESULTS: CLIMATE IMPACTS & MITIGATION

Over the review period, the Impacted Wilp enlisted Swiftcreek Consulting to develop further and apply the Gitanyow Climate Test to the Project. The purposes of the Gitanyow Climate Test are to:

1. Enhance Gitanyow understanding of the climate impact potential of proposed major projects.
2. Support Gitanyow sovereignty and jurisdiction over Gitanyow territory and interests.
3. Inform Gitanyow decision-making with the WSAP.
4. Improve the climate performance and quality of projects proposed for or affecting Gitanyow territory and interests.

The results of the Gitanyow Climate WSAP Test for the Project can be found in **Appendix 5**. The Gitanyow WSAP Climate Test: Guidance for Evaluators is available upon request.

ASSESSMENT RESULTS: SOCIO-ECONOMIC IMPACTS & BENEFITS

Over the review period, the Impacted Wilp hired and trained a Tkandaa'wihl Coordinator (translated as 'opening doors'). The Tkandaa'wihl Coordinator was responsible for various tasks associated with supporting employment and training opportunities for Gitanyow Wilp and community members associated with the Project. Some of these responsibilities included:

- Collaborate with Wilp Sustainability Director, GETI project manager, and other GHC/Wildlife senior staff to develop an assessment plan and identify baseline indicators.
- Research life cycle of a mine and job availability at each phase of mine development; construction phase, operational phase, reclamation phase.
- Research and report development- gap analysis and socio-cultural impacts including overview, key recommendations, and mitigation strategies.
- Analyze and evaluate the effectiveness of an employment service model for Eskay Revitalization Mine and provide recommendations for service enhancements.
- Develop a training plan pertaining to the Eskay Revitalization Mine
- Explore further with Eskay Revitalization Mine the idea of the Gitanyow Education & Training Institute being a designated training hub for the lifecycle of the mine
- Support education and training delivery in the community, including but not limited to, career fair, graduation celebration, community-based programming, etc.

The Tkandaa'wihl Coordinator was successful in learning about the Project and employment and training opportunities and sharing information with Huwilp and community members over the review period. They were also able to participate and help coordinate a number of related events including the annual Gitanyow Annual Career Fair, which included participation from Skeena Resources Inc. Unfortunately, however the individual did not complete the assessment of socio-economic impacts before leaving

their position with the Gitanyow Hereditary Chiefs. For this reason, this component of the WSAP for the Project is not complete at this time.

Gitanyow remains open and committed to working with the proponent to maximize employment and training opportunities with the Project for Gitanyow Wilp and community members. This can continue through the Gitanyow Employment and Training Institute, the Gitanyow Annual Career Fair, and other opportunities as they arise. At the discretion of the Impacted Wilp, these topics may also be addressed with the proponent during any discussions related to the Economic Agreement contemplated under WSAP sections 28-29.

Based on the other information and activities noted in this report and Appendices, the Gitanyow Hereditary Chiefs Office is of the opinion that there is sufficient information for the Impacted Wilp to make an informed decision about the Project according to the requirements of the WSAP, without a further separate study on socio-cultural benefits and impacts. Consequently, the Gitanyow Hereditary Chiefs Office recommends that the Impacted Wilp and the proponent amend section 7(a) of the Project Assessment Agreement dated August 30, 2022, to remove from the list of required studies and analysis the study regarding potential socio-cultural benefits and impacts stemming from the Project on the Gitanyow Huwilp and community.

WILP SUSTAINABILITY TEST RESULTS

The Gitanyow Wilp Sustainability Test ("the Test") (Section 23 of the WSAP) is intended to support informed decision-making for the Simgigyet'm Gitanyow under the WSAP. The Test is designed to support the Impacted Wilp in making a determination regarding which option from among alternatives, including the option of not proceeding with a Project, will make the greatest, mutually reinforcing, cumulative and lasting positive contribution to Wilp Sustainability.

The results of the Test for the Project are outlined in the below table.

GITANYOW WILP SUSTAINABILITY VALUE	THE PROJECT PROTECTS, RESTORES OR ENHANCES?	RECOMMENDED MEASURES TO ADDRESS IMPACTS
Di'dii'mxw'm Lax'yip: the ecological integrity of healthy, fully functioning ecosystems, including the ecological basis for the meaningful exercise of Gitanyow Title and Rights,	The Project will increase industrial traffic through sensitive ecological areas of the Lax'yip, thereby by increasing the risk of wildlife mortality and industrial spills into waterways.	Mitigation strategies as outlined in Appendix 3 including: -collision reporting -daylight travel timing -roadside brushing or burning

community health and cultural transmission between the generations.	Without appropriate measures in place, the Project does not stand to protect, restore or enhance Di'dii'mxw'm Lax'yip.	-feasibility study for wildlife crossing structures -speed reduction monitoring and enforcement -collaborative lobbying of provincial Ministry of Transportation and Infrastructure for reclassification of Highway 37 &37A for improved winter maintenance -multi-party user agreement or collaboration for spill response cache development, training, and maintenance at Meziadin Junction
Climate: BC's ability to meet its legislated greenhouse gas reduction targets and Canada's ability to do its share to meet the Paris Agreement commitment to limit global temperature rise to well below 2 degrees Celsius above pre-industrial levels.	The Project aims to reduce its emissions between 37-54% based on electrification opportunities not currently available. The Project does not adequately address Scope 3 impacts, shifting responsibility to third parties downstream. The Project rightfully first focuses on reducing emissions, and second on offsetting them through carbon credits. The Project is consistent with applicable climate targets as it would not interfere with the relevant jurisdiction meeting its targets. The Project is anticipated to be one of the lowest GHG emitting gold mining projects per ounce in Canada.	To ensure availability of green electricity for Project to meet climate targets, explore partnerships with Gitanyow for green energy opportunities in the Lax'yip. To offset any unmitigated emissions, explore purchase of Gitanyow Carbon Credits when and as they become available.
Climate: The efficient and non-wasteful use of resources, including minimizing carbon pollution and other forms of pollution.	The Project has received a rating of Good in 69% of Gitanyow Climate Test questions, and a rating of Fair in the remaining 31%. The Project did not receive any Poor ratings.	To ensure availability of green electricity for Project to meet climate targets, explore partnerships with Gitanyow for green energy opportunities in the Lax'yip. To offset any unmitigated emissions, explore purchase of Gitanyow Carbon Credits when and as they become available.
Gitanyow Food Security: The ability of Gitanyow Wilp and	The Project poses some risk to impact moose populations	Mitigation strategies as outlined in Appendix 3 including:

community members to access healthy, nutritious, traditional foods from the Lax'yip.	through potential increased mortality on Highway 37 and 37A. The Project poses some risk to salmon-bearing streams through increased risk of industrial spills from Project traffic. There are no identifiable restoration or enhancement measures associated with the Project.	-collision reporting -daylight travel timing -roadside brushing or burning -feasibility study for wildlife crossing structures -speed reduction monitoring and enforcement -collaborative lobbying of provincial Ministry of Transportation and Infrastructure for reclassification of Highway 37 &37A for improved winter maintenance -multi-party user agreement or collaboration for spill response cache development, training, and maintenance at Meziadin Junction
Community Cohesion & Social Well-Being: Wilp and community connection, cultural practice, and peaceful relations.	Due to the incomplete review of socio-economic impacts and benefits of the Project, there is insufficient information at this time to determine.	
Intragenerational Equity and Intergenerational Equity: Equal distribution of benefits and impacts of the Project between generations and within generations of Gitanyow Wilp and community members.	Given the relatively short-term nature of the Project, there is a risk that benefits such as employment, training, and financial accommodations may not endure to future generations, while impacts to moose populations and food security may endure.	Adherence to mitigation strategies outlined in Appendix 3 and above. Development of a trust or contribution to the Wilp Sustainability Fund to support the financial needs for on-going mitigation of impacts and contribution to Wilp Sustainability that may include wildlife and spill response, access and safety, monitoring, green-energy projects supporting electrification, Project purchase of Gitanyow Carbon Credits, and employment and training coordination and support.
Amma gan'da'dilst (health) of Wilp Members: Physical, spiritual, and mental health of Gitanyow Wilp members.	Due to the incomplete review of socio-economic impacts and benefits of the Project, there is insufficient information at this time to determine.	
Gitanyow Cultural Heritage Resources: Cultural sites and	The Project has potential to increase cumulative risk to	Development of a trust or contribution to the Wilp

resources on the Lax'yip supporting generations of Gitanyow Huwilp including traditional medicines, fishing sites, hunting and trapping sites, berries and plants, fungi, travel networks, and ancestral village sites.	cultural heritage resources along the Highway 37 and 37A corridor. The Project has potential to increase risk to Gitanyow Wilp members safe access to cultural sites in the Lax'yip through increased industrial traffic.	Sustainability Fund to support the financial needs for on-going mitigation of impacts and contribution to Wilp Sustainability that may include wildlife and spill response, access and safety, monitoring, green-energy projects supporting electrification, Project purchase of Gitanyow Carbon Credits, and employment and training coordination and support.
Education Needs and Priorities for Wilp Members: Education to support cultural practice, employment, social well-being, including available resources and infrastructure for life-long learning.	Due to the incomplete review of socio-economic impacts and benefits of the Project, there is insufficient information at this time to determine.	
Livelihood Sufficiency: Employment income and other resources to support Gitanyow Wilp and community member livelihood over the short and long-term.	Due to the incomplete review of socio-economic impacts and benefits of the Project, there is insufficient information at this time to determine.	
Long-term Economic Well-Being: Economic well-being of the Gitanyow Huwilp and community, including diversification and the ability to prevent and avoid boom and bust cycles of economic development.	Due to the incomplete review of socio-economic impacts and benefits of the Project, there is insufficient information at this time to determine.	

PROPOSED CONDITIONS FOR NIDINSXW

The results of the Wilp Sustainability Test for the Project indicate that without some mitigation and accommodation measures, there will be negligible contribution to Wilp Sustainability, with a potential for increased risk to some elements of Wilp Sustainability. In order to ensure that the Project makes a cumulative and lasting contribution to Wilp Sustainability the following Conditions for Nidinsxw are proposed to be included in a legally binding Compliance and Monitoring Agreement and/or Economic Agreement under WSAP sections 28 and 38:

1. **Traffic Impacts & Di'dii'mxw'm Lax'yip:** The proponent supports the creation of a trust or contributes to the Wilp Sustainability Fund to cover costs of Gitanyow monitoring and receiving information, ensuring compliances with, and analyzing effectiveness of mitigation strategies as outlined in Appendix 3 including:
    a. collision reporting
    b. daylight travel timing
    c. speed reduction monitoring and enforcement
    d. collaborative lobbying of provincial Ministry of Transportation and Infrastructure for reclassification of Highway 37 &37A for improved winter maintenance

    And contributes to the costs associated with Gitanyow leading the following:
    e. roadside brushing or burning
    f. feasibility study for wildlife crossing structures
    g. multi-party user agreement or collaboration for spill response cache development, training, and maintenance at Meziadin Junction

2. **Climate:** The Project prioritizes green electrification for it greenhouse emission reduction targets, including discussions and potential partnerships with Gitanyow to source a portion of this electricity from Gitanyow green energy projects. The proponent and Gitanyow commit to offsetting any unmitigated emissions associated with the Project through the purchase of Gitanyow Carbon Credits.

3. **Livelihood Sufficiency & Education Needs and Priorities for Wilp Members:** To ensure maximum potential benefit to Wilp and community members livelihood and education or employment and training, the proponent makes a contribution to the Gitanyow Education and Training Institute or to a trust or the Gitanyow Wilp Sustainability Fund to support coordination of employment and training opportunities with the Project as well as cultural and other supports for Gitanyow members who are employed by the Project. Discussions between the proponent and the Impacted Wilp may also include targets for numbers or percentages of Gitanyow members who are employed by the Project.

4. **Upholding Gitanyow Ayookxw, Recognizing Tahltan Consent:** In accordance with Gitanyow Ayookxw, the Simgigyet'm must recognize and respect any consent-based decision of the Tahltan Nation on the Project as the mine site itself is wholly within their territory. Should the Tahltan Nation consent-based process result in consent being withheld by the Tahltan, then Gitanyow will accordingly withhold or withdraw Nidinsxw.

CONCLUSION & NEXT STEPS

The Project is the first to be reviewed under the Wilp Sustainability Assessment Process. The proponent has entered into agreements with Gitanyow respectfully to recognize and uphold Gitanyow rights and title to the Lax'yip and to ensure that the Project is aligned with Gitanyow Strategic Direction and Ayookxw.

The results of the Wilp Sustainability Test are such that the Project, as currently proposed, does not stand to contribute to Wilp Sustainability. There are some risks to Wilp Sustainability from the increase in industrial traffic through the Lax'yip along Highway 37 and 37A. These risks can be mitigated mostly, but Conditions for Nidinsxw are needed to ensure that there are positive and enduring contributions to Wilp Sustainability.

This report recommends that, if the above conditions are imposed, the Impacted Wilp grant nidinsxw to the Project because the Project, including fulfillment of the conditions, would make the greatest, mutually reinforcing, cumulative and lasting positive contribution to Wilp Sustainability. However, without the recommended conditions being met by the proponent, the Project is unlikely to make the greatest, mutually reinforcing, cumulative and lasting positive contribution to Wilp Sustainability, when compared to the alternative of simply not proceeding with the Project. Thus the recommended conditions are integral to the recommendation that nidinsxw be granted.

Following confirmation of this Report, the Gitanyow Hereditary Chiefs Office will submit this Report to the proponent for their consideration of the assessment and findings and the Conditions for Nidinsxw. They will provide a preliminary response that may include confirmation or questions regarding the assessment and findings, general feasibility of meeting the Conditions for Nidinsxw, and other proposed next steps.

Upon review of this report and the preliminary response from the proponent, the Simgigyet of the Impacted Wilp will release a Project Decision Statement in accordance with Section 24 of the WSAP that either grants or refuses Nidinsxw for the Project or directs the Gitanyow Hereditary Chiefs Office to conduct further assessment.

APPENDIX 1: WILP SUSTAINABILITY ASSESSMENT DIRECTION

GITANYOW HEREDITARY CHIEFS
P.O. Box 148, Kitwanga B.C. V0J 2A0
PHONE: 250-849-5373 FAX: 250-849-5375

WILP SUSTAINABILITY ASSESSMENT DIRECTION

Under section 16 of the Gitanyow Ayookxw for Wilp Sustainability Assessment (the "WSA")

Project: Eskay Creek Revitalization Project (the "Project")

Proponent: Skeena Resources Limited (the "Proponent")

1. BACKGROUND

A. The Impacted Wilp issued an Initial Project Assessment Decision dated January 28, 2022 under section 11 of the WSA, requiring a Project Assessment for the Project (the "Project Assessment").

B. The Impacted Wilp indicated in the Initial Project Assessment Decision that it would be appropriate for the Proponent and the Impacted Wilp to conclude an Initial Engagement Agreement and a Project Assessment Agreement regarding the Project in a consolidated fashion, as a single agreement.

C. The Impacted Wilp issue this Direction under section 16 of the WSA for the purposes of concluding a Project Assessment Agreement between the Impacted Wilp and the Proponent regarding the Project (the "Project Assessment Agreement"), which may be concluded in the consolidated manner described in paragraph 1(B).

2. GUIDANCE ON SCOPE OF MATTERS FOR ASSESSMENT

A. Unless agreed otherwise in the Project Assessment Agreement, the Impacted Wilp consider the appropriate scope of the Project Assessment, for the purposes of the studies and analysis described in section 3 of this Direction and the Matters for Assessment under WSA section 19, to consist of:

i. Project-related transportation that would occur in Gitanyow Lax'yip or otherwise could impact Gitanyow Lax'yip or Gitanyow Huwilp; and

ii. regional socio-cultural impacts and benefits related to the Project; and

iii. greenhouse gas emissions associated with the Project, inclusive of industrial vehicle traffic; and

iv. hydro-electric power development, as it pertains to potential partnerships with Gitanyow green energy projects; and

v. bonding for catastrophic events (environmental) that could impact the Project.

B. For clarity, the scope of the Project Assessment will not include development at the mine site itself, which is located within the territory of the Tahltan Nation and does not pose potential downstream impacts in the Nass Watershed.

3. STUDIES AND ANALYSIS

The Impacted Wilp direct that the Project Assessment Agreement must include provisions for the following studies and analysis, to be carried out by the GHC Office with necessary information and input furnished by the Proponent:

A. An assessment of the Project's potential transportation-related impacts on animal mortality and general driver safety on Highways 37 and 37A, and potential mitigation and response measures;

B. An assessment regarding potential transportation-related spills or accidents from the Project, related potential impacts, and potential mitigation and response measures;

C. Analysis regarding the potential for changes in access to Gitanyow Lax'yip by Gitanyow people and non-Gitanyow people as a result of the Project and, as applicable, related potential impacts and mitigation and response measures;

D. Assessment and analysis of potential socio-cultural benefits and impacts stemming from the Project on the Gitanyow Huwilp and community;

E. Analysis of the potential carbon footprint of the Project, including greenhouse gas emissions associated with the Project, and the Proponent's reduction, mitigation, and offset strategies and commitments.

4. DRAFT BUDGET AND FEES

The Impacted Wilp direct that the draft budget attached as Appendix "A" must inform the fees to be payed by the Proponent under the Project Assessment Agreement in order to compensate for Gitanyow's costs with respect to:

A. Initial engagement between Gitanyow and the Proponent regarding the Project; and

B. the conduct of the Project Assessment up to and including the issuance of a Project Decision Statement.

5. TIMELINES

A. Gitanyow will endeavour to align the timelines for the Project Assessment with the timelines for the provincial environmental assessment process for the Project, to the extent practicable.

6. WILP MEMBER ENGAGEMENT

A. The Impacted Wilp will individually and collectively engage their respective Wilp members regarding the Project in accordance with Gitanyow Ayookxw. Various mediums including Wilp meetings, Gitanyow Huwilp Annual General Assembly, and social media may be used to engage with Wilp members about the Project and the Project Assessment.

7. INPUT FROM INDIGENOUS OR CROWN GOVERNMENTS

A. Gitanyow will monitor the provincial environmental assessment process for the Project and may utilize any relevant information, studies or other outcomes from that process, or other Crown regulatory processes, to inform the Project Assessment.

B. The Impacted Wilp note the provincial Environmental Assessment Office has issued a statement that "acknowledges and respects Gitanyow's laws and decision-making responsibilities in Gitanyow Lax'yip, including through the application of the WSAP." (Letter from David Grace, Project Assessment Director, Environmental Assessment Office, to Glen Williams/Malii dated March 29, 2022).

C. Gitanyow will invite the Tahltan Nation to share with Gitanyow their position and recommendations regarding the Project as a whole, and Gitanyow may consider in the Project Assessment any decision or information from the Tahltan Nation regarding the Project.

APPROVED THIS April 22, 2022 BY:

Gwaas Hla'am (Phillip Daniels), Malii (Glen Williams), Axwindesxw (Tony Morgan for Wilp Malii) Wii Litsxw (Gregory Rush Sr.), Gwinuu (Cory Haizimsque, Solomon Haizimsque for Phyllis Haizimsque), Sindihl (Graham Morgan for Gamlakyeltxw), Sk'a'nism Tsa 'Win'Giit(Joel Starlund

for Gitanyow Chiefs Office) at the Gitanyow Museum/Chiefs Office, in-person and via zoom meeting.

Appendices

A. FEES & BUDGET

Item	Description	Estimate Total
Engagement w/Proponent – Technical Staff	Wages, Travel, Consulting Fees for Guardians, RpBios, Junior Environmental Scientist, meeting participation with proponent and Chiefs	$12,000
Technical Document Review	Technical staff review of Proponent documents, input and recommendations to Proponent & Chiefs	$7,000
Spill Response Centre Plan and Training	Wages, consultant fees, travel, equipment to develop plan and implement training for Spill Response Centre at Meziadin Junction	$46,000
Roadkill Mitigation Planning	Development of recommendations and plan for mitigating wildlife mortality on Hwy 37&37A.	$22,000
Independent Verification of GHG/Climate Assessment	Independent review and verification of Proponent's data, reports on GHG emissions and climate information.	$20,000
Engagement w/Proponent – Hereditary Chiefs	Honoraria, travel, space rental, catering and other costs for meetings with Proponent, including potential future negotiations if Nidinsxw is granted.	$60,000
Coordinator, Point of Contact	Consulting fees for WSA Coordinator & Point of Contact for Proponent, Drafting WSA Documents	$15,000
Employment & Training Staff	Staff time to liaise with Proponent on employment & training planning, including offering relevant training courses.	$50,000
Wilp Member Engagement	Wages, travel, space rental, catering, materials, communications services for Wilp member engagement	$30,000
Legal Support	Legal fees for Agreement execution and key WSA milestones	$30,000
Executive Leadership	Additional time for Executive Director & Chief Negotiator for Agreement execution and engagement with Proponent	$25,000
Subtotal		**$317,000**
Admin @ 15% (GHC & GFA)		**$47,550**
Total		**$364,550**

APPENDIX 2: INITIAL DESCRIPTION OF ACTIVITIES PROVIDED BY SKEENA RESOURCES INC AND CONFIRMED BY GITANYOW HEREDITARY CHIEFS

SKEENA™ RESOURCES

Eskay Creek Revitalization Project

Initial Description of Activities

December 1, 2022
Revised December 2023

Eskay Creek Revitalization Project

Initial Description of Activities

Submission to the Gitanyow Hereditary Chiefs Office to support the Wilp Sustainability Assessment Process

Skeena Resources
Suite #2600, 1133 Melville Street
Vancouver, BC V6E 4E5

December 2022
Revised December 2023

EXECUTIVE SUMMARY

Skeena Resources Limited (Skeena Resources) is proposing the Eskay Creek Revitalization Project (the Project) to restart mining at the past-producing Eskay Creek Mine. The Project will be an open pit gold-silver mine with an estimated total annual production of 3.0 Mt/year in Years 1-5 and up to 3.7 Mt/year in Years 6-9 (8,225 tpd to 10,140 tpd). Project employment is anticipated to be approximately 5,088 person-years over the mine life of 14 years (2 years for construction, 9 years for operations, and 3 years for closure and reclamation).

The Project is in northwestern British Columbia (BC), within the territory[1] of the Tahltan Nation and the territory of the Tsetsaut Skii km Lax Ha. In February 2022 Skeena Resources held introductory meetings with Gitanyow Nation during which the Gitanyow Hereditary Chiefs Office (GHC) expressed interest in the Eskay Creek Revitalization Project participating in the Pilot Program for the Gitanyow Wilp Sustainability Assessment Process (WSAP; Gitanyow Nation 2020). In April 2022 GHC sent Skeena the WSAP Project Direction (GHC 2022) which outlined the scope of the WSAP for the Project outlined below:

i. Project-related transportation that would occur in Gitanyow Lax'yip or otherwise could impact Gitanyow Lax'yip or Gitanyow Huwilp;

ii. regional socio-cultural impacts and benefits related to the Project;

iii. greenhouse gas emissions associated with the Project, inclusive of industrial vehicle traffic;

iv. hydro-electric power development, as it pertains to potential partnerships with Gitanyow green energy projects; and

v. bonding for catastrophic events (environmental) that could impact the Project.

During peak operations for the Project, traffic along Highway 37A (Meziadin Junction to Stewart) may increase by up to 7% relative to average traffic levels between 2011 and 2020, due mainly to the hauling of concentrate to ports in the District of Stewart. All other phases of the Project (i.e., construction and closure phases when no concentrate truck hauling would occur) will only constitute a 1% increase in average traffic levels along Highway 37A (Allnorth-Tahltan 2023). The traffic estimate for Highway 37 for the Project is 21 trips per day during the operations phase, accounting for a 4% increase relative to the average (Allnorth-Tahltan 2023).

The Project is anticipated to be one of the lowest GHG emitting gold mining projects per ounce in Canada and globally with a predicted 0.20 tCO_2e per ounce of gold equivalent produced (Skeena Resources 2022b). Power for the Project will rely on the existing hydroelectric power grid nearby.

[1] As in the Hybrid Application Information Requirements, for the purposes of this document, "territory" is defined as the established or asserted traditional territories of Indigenous Nations, except in relation to the Nisga'a Nation, which refers to Nisga'a Lands, the Nass Area, and the Nass Wildlife Area as applicable.

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ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
AADT	Annual Average Daily Traffic
BC	British Columbia
BC EAO	British Columbia Environmental Assessment Office
GETI	Gitanyow Education and Training Institute
GHC	Gitanyow Hereditary Chiefs (Office)
GHG	Greenhouse gas
GETI	Gitanyow Education and Training Institute
IDA	Initial Description of Activities
MOTI	Ministry of Transportation and Infrastructure
WSA	Wilp Sustainability Assessment
WSAP	Gitanyow Wilp Sustainability Assessment Process

1.0 INTRODUCTION

Skeena Resources Limited (Skeena Resources) is proposing the Eskay Creek Revitalization Project (the Project) to restart mining at the past-producing Eskay Creek Mine. The Project will be an open pit gold-silver mine with an estimated total annual production of 3.0 Mt/year in Years 1-5 and up to 3.7 Mt/year in Years 6-9 (8,225 tpd to 10,140 tpd). Project employment is anticipated to be approximately 5,088 person-years over the mine life of 14 years (2 years for construction, 9 years for operations, and 3 years for closure and reclamation).

The Project is in northwestern British Columbia (BC), within the territory of the Tahltan Nation and the territory of the Tsetsaut Skii km Lax Ha (Figure 2-1). The Project mine site is located outside and to the northwest of Gitanyow Nation territory. The proposed concentrate haul route from the mines site to the port of Stewart is along Highway 37 near Meziadin Junction, and westward along Highway 37A to Stewart. A portion of the proposed concentrate haul route passes through Wilp Wii'litsxw. South of Meziadin Junction. The proposed Project transportation corridor continues down Highway 37, passing through Wilp Malii, Wilp Gamlakyeltxw, Wilp Gwinuu, and Wilp Gwaas Hla'am of the Gitanyow Lax'yip. The section of Highway 37 south of Meziadin junction will be used to transport supplies and personnel, and not concentrate. Portions of the Project transportation corridor along Highways 37 and 37A also pass through the Nass and Nass Wildlife Areas (as defined in the Nisga'a Final Agreement) of the Nisga'a Nation.

In February 2022 Skeena Resources held introductory meetings with Gitanyow Nation during which the Gitanyow Hereditary Chiefs Office (GHC) expressed interest in the Eskay Creek Revitalization Project participating in the Pilot Program for the Gitanyow Wilp Sustainability Assessment Process (WSAP; Gitanyow Nation 2020), to which Skeena Resources agreed. In April 2022, GHC provided Skeena Resources with the WSAP Direction (GHC 2022) and, in September 2022, Skeena Resources and GHC signed a combined Initial Engagement Agreement and Project Assessment Agreement (Gitanyow Huwilp Society and Skeena Resources 2022).

2.0 PURPOSE

The purpose of the Initial Description of Activities (IDA; Skeena Resources 2022a) is to support the initiation of the WSAP for the Project, and to provide information for interested Gitanyow Nation members on the Project components that could potentially affect the Gitanyow Lax'yip or Gitanyow Huwilp.

The objectives of the IDA are to:

- Provide descriptions of the components of the Project that could potentially impact the Gitanyow Lax'yip or Huwilp;
- Inform the initial stages of the WSAP; and
- Describe how the Project aligns with the WSAP Strategic Direction (Schedule 2 of the Wilp Sustainability Assessment; Gitanyow Nation 2020).

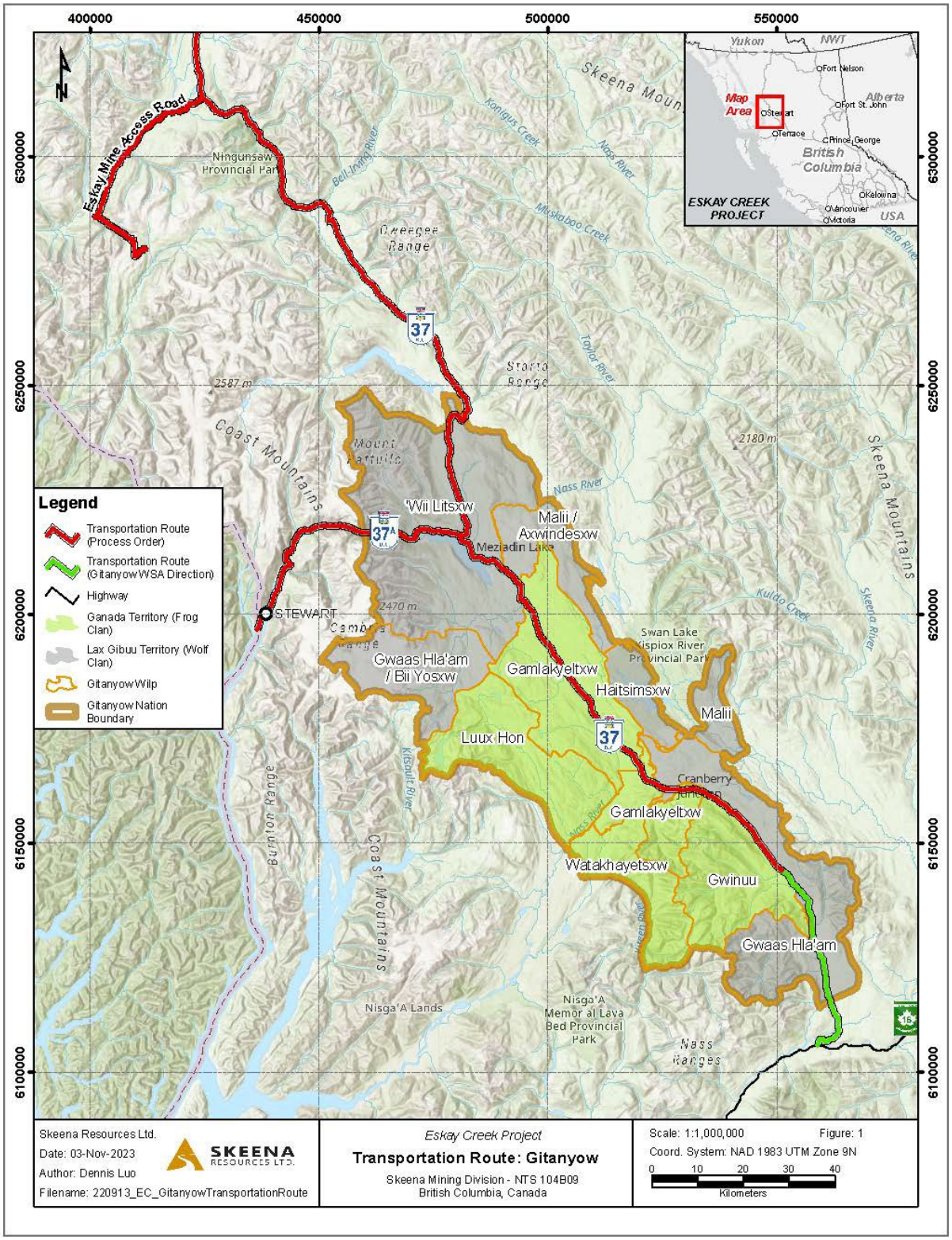

Figure 2-1: Project Location and the Transportation Routes Identified in the Process Order (BC EAO 2023) and Gitanyow WSA Direction (GHC 2022).

3.0 PROPONENT INFORMATION

Skeena Resources is a Canadian mining exploration company focusing on the revitalization of the past-producing Eskay Creek mine in Tahltan Territory. Skeena Resources' vision is to build an industry leading mining company that delivers value and prosperity to shareholders, employees, Indigenous Nation partners, and surrounding communities, and is committed to reconciliation with Indigenous peoples through responsible and sustainable mining development.

For the purposes of the WSAP the primary contact person is:

Nalaine Morin
Vice President, Sustainability
Skeena Resources Limited
Email: nmorin@skeenaresources.com
Phone: (778) 834-6292

4.0 ENGAGEMENT WITH GITANYOW NATION

Skeena Resources is committed to early, inclusive, and meaningful engagement. Skeena Resources held introductory meetings with Gitanyow Nation in February 2022, during which GHC expressed interest in the Eskay Creek Revitalization Project participating in the Pilot Program of the WSAP. Skeena Resources met regularly with GHC representatives in 2022 and 2023 to progress through the WSAP (Table 4-1). In September 2022, a combined Initial Engagement Agreement and Project Assessment Agreement (Gitanyow Huwilp Society and Skeena Resources 2022) was signed by Skeena Resources and GHC. In October 2022, representatives from Skeena Resources visited Gitanyow Lax'yip in person and met with representatives from GHC and the Gitanyow Education and Training Institution (GETI).

Table 4-1. Summary of Key Engagements with Gitanyow Nation.

Date	Summary
March 9, 2021	Introductory meeting and Project overview
February 25, 2022	Initial meeting on WSAP
April 6, 2022	Draft Detailed Project Description from Skeena Resources provided to Gitanyow Nation
April 22, 2022	Gitanyow Strategic Direction, the Initial Project Assessment Decision, and Wilp Sustainability Assessment Direction (WSA) provided by Gitanyow Nation
September 2022	WSAP Initial Engagement Agreement & Project Assessment Agreement (combined) signed
October 2022	WSAP Funding Agreement signed
October 25, 2022	In-person meeting with GETI in Gitanyow
November 10, 2022	Technical workshop with Gitanyow WSAP technical team
December 2022	Draft Initial Description of Activities provided to Gitanyow Nation as required under the WSAP
January 13, 2023	In-person meeting with Gitanyow Chiefs to formally kick-off the WSAP

Date	Summary
August 11, 2023	In-person meeting between Skeena Resources and GETI Tkandaa'wihl Coordinator

5.0 RELEVANT PROJECT COMPONENTS DESCRIPTION

The WSAP for the Project will be focused on Project components that have the potential to affect the Gitanyow Lax'yip or Gitanyow Huwilp. These components are identified in the WSA Direction provided by GHC in April 2022 (GHC 2022):

i. Project-related transportation that would occur in Gitanyow Lax'yip or otherwise could impact Gitanyow Lax'yip or Gitanyow Huwilp;

ii. regional socio-cultural impacts and benefits related to the Project;

iii. greenhouse gas emissions associated with the Project, inclusive of industrial vehicle traffic;

iv. hydro-electric power development, as it pertains to potential partnerships with Gitanyow green energy projects; and

v. bonding for catastrophic events (environmental) that could impact the Project.

5.1 Access and Transportation

The proposed concentrate haul route along Highway 37 near Meziadin Junction, and westward along Highway 37A to Stewart, passes through Wilp Wii'litsxw. South of Meziadin Junction, the proposed Project transportation corridor continues down Highway 37, passing through Wilp Malii, Wilp Gamlakyeltxw, Wilp Gwinuu, and Wilp Gwaas Hla'am of the Gitanyow Lax'yip. Highway 37 south of Meziadin Junction will be used to transport supplies and personnel, but not concentrate.

Portions of the Project transportation corridor along Highways 37 and 37A also pass through the Nass and Nass Wildlife Areas (as defined in the Nisga'a Final Agreement; Nisga'a Lisims Government, Province of BC, and Government of Canada 1999) of the Nisga'a Nation; these are identified in the Project Process Order (BC EAO 2023). The section of Highway 37 south of the Nass Area is scoped in for the purposes of the WSAP (Gitanyow Nation 2020) as identified in the WSA Direction (GHC 2022).

Gitanyow Nation has highlighted that sections of the transportation corridor traverse areas of high ecological value, with special concern for stream crossings linked to the Kitwanga River and Meziadin Lake (Gitanyow Fisheries Authority 2023). Culturally important ecological values include sensitive salmon stocks and habitat, and wildlife habitat for moose and grizzly bear, identified in the Gitanyow Lax'yip Land Use Plan.

According to the Ministry of Transportation and Infrastructure (MOTI), Highways 37 and 37A are currently "Class B" roads, one level below Class A roads (like Highway 16) that are a higher priority for winter maintenance.

Anticipated Project vehicle traffic includes:

- Concentrate hauling from the Project site to port facilities in the District of Stewart for shipment to third-party smelters;
- Delivery of construction supplies and equipment to the Project site along Highway 37, Highway 37A, and the Mine Access Road;
- Delivery of operating supplies and equipment along Highway 37, Highway 37A, and the Mine Access Road; and
- Transit of personnel to and from the Project site.

The Project will require construction materials—including building supplies, mill equipment, cable, piping, and construction equipment—to be trucked to the Project site from various locations throughout BC and potentially out of province, primarily via Highway 37 at the intersection with Highway 16. In addition, during the mine life, consumable materials will be needed for:

- Processing (grinding media, reagents);
- Mining (explosives); and
- Other purposes (food, camp supplies, maintenance materials).

These consumables are expected to be sourced from various locations, but it is anticipated that Smithers or Terrace, both situated along Highway 16, will be the main points for supplies, materials, and construction equipment.

Because of the remoteness of parts of Highways 37 and 37A, Gitanyow Nation has identified relatively higher risks in terms of response times in the event of a spill, including from lower levels of traffic speed monitoring and enforcement and environmental monitoring capacity (Gitanyow Fisheries Authority 2023).

Traffic information, monitoring locations, and estimated total concentrate tonnage to be hauled included below are from the Tahltan-Allnorth Traffic Volume Study (2021; 2023). Traffic along Highways 37 and 37A has changed with the economic drivers in the region; measured traffic volumes in recent years are lower than estimates from five to ten years ago. Estimates for the annual average daily traffic (AADT) from 2011 to 2020 for the Project transportation routes are summarized in Table 5-1.

The Highway 37/37A transportation corridor is also used by other mining projects in the area, including Newmont's Red Chris and Brucejack mines. Seabridge's approved KSM Project plans to use this transportation route as well (Table 5-2).

Table 5-1: Annual Average Daily Traffic for Hwy 37 and 37A from 2011-2020.

Year	**Annual Average Daily Traffic (AADT)**		
	Highway 37 at Nass River Bridge 47-014NS (10 km south of Meziadin Junction)	**Highway 37 Meziadin Lake Junction** 47-016NS (2 km north of Meziadin Junction)	**Highway 37A Windy Point Bridge** 47-015EW (18 km west of Meziadin Junction)
2011	519	192	243

2013	479	-	240
2014	675	390	216
2017	746	154	292
2020	429	290	161
Average	**570**	**257**	**231**

Source: Tahltan-Allnorth (2023).

Table 5-2: Predicted Traffic Volume of Projects using Highways 37 and 37A in AADT.

Project	**Annual Average Daily Traffic**		
	Highway 37 South of Meziadin	**Highway 37 North of Meziadin**	**Highway 37 A West of Meziadin**
Eskay Creek Revitalization Project	5	21	16
Red Chris Mine	11	39	28
Brucejack Mine	1	12	11
KSM Project	49	85	36
Total	**66**	**157**	**91**

Data Source: Rescan (2013).

Estimates of concentrate-truck hauling and Project traffic were revised through the Project Feasibility Study (2022b), based on an average of 200,000 tonnes of higher-grade concentrate produced per year. A study by McElhanney (2011) estimates the indicated capacity of Highway 37 at 1,260 passenger cars per hour (pc/h), from which Rescan (2013) estimates a modified capacity value for commercial vehicles as 252 commercial vehicles per hour one-way, or 6,048 one-way trips per day.

During peak operations for the Project, traffic along Highway 37A (Meziadin Junction to Stewart) may increase by up to 7% relative to average traffic levels between 2011 and 2020, due mainly to the hauling of concentrate to the port facilities in the District of Stewart. All other phases of the Project (i.e., construction and closure phases, when no concentrate truck hauling would occur) are expected to increase average traffic levels along Highway 37A by approximately 1% (Allnorth-Tahltan 2023).

The traffic estimate for Highway 37 for the Project is 21 trips per day (in AADT) during the (middle of the) operations phase, accounting for a 4% increase relative to the average traffic levels between 2011 and 2020 (Allnorth-Tahltan 2023). Projected Project traffic is a fraction of a percentage of the historic highway capacity.

The Allnorth-Tahltan (2023) Traffic Volume Study also calculates changes in incident frequency—which refers to incidents of property damage, vehicle collisions resulting in injury or mortality, or vehicle collision with an animal—based on the projected Project-based traffic increase during the operations phase. The predicted change in incident frequencies is less than a 1.5% change for both Highways 37 and 37A (when considered separately or in combination).

Table 5-3 summarizes estimates of additional Project traffic (i.e., number of trips in AADT), both south and north of Meziadin Junction along Highway 37, and west of Meziadin Junction along Highway 37A; points of origin for all truck traffic is not defined in detail at this stage of the Project. Therefore, the data in Table 5-3 represent times when trucks are transporting goods, people, or supplies to and from the Project site. It does not consider instances when trucks are traveling to or from their point of origin.

Table 5-3: Breakdown of Predicted Traffic for the Project by Phase and Highway as Annual Average Daily Traffic (AADT).

Traffic Comparison	Highway 37 (south of Meziadin)	Highway 37 (north of Meziadin)	Highway 37A (west of Meziadin)
Predicted Project Traffic during Construction[1]	10.5	13	2.5
Predicted Project Traffic during Operation[1]	5	21	16
Predicted Project Traffic during Closure[1]	7	7	0
Baseline Traffic (Average Traffic 2011-2020)[2]	570	257	231
Highway 37 Capacity[2]	6,048	6,048	N/A
% Increase from Baseline Traffic during Operations	1%	8%	7%
% Of Highway 37 Capacity during Operations (Operations + Baseline Traffic)	9.5%	4.6%	N/A

[1] Values for north and west of Meziadin are taken from Tahltan-Allnorth (2023) and values for south of Meziadin were estimated as the difference between north and west of Meziadin.
[2] Tahltan-Allnorth (2023)

5.2 Regional Socio-Cultural Impacts and Benefits

Skeena Resources will continue to collaborate with Gitanyow Nation, including the GHC and GETI to identify and address potential socio-cultural impacts and benefits related to the Project. This includes Skeena Resources' ongoing participation in the WSAP, and provision of information needed as inputs for GHC studies and analyses, and GHC development of the Wilp Sustainability Assessment Report and Project Decision Statement.

5.3 Greenhouse Gas Emissions

Based on analyses conducted for the Feasibility Study (Skeena Resources 2022b), the Eskay Creek Project is anticipated to be one of the lowest greenhouse gas (GHG) emitting gold mining projects per ounce in Canada and globally with a predicted 0.20/tCO_2e per ounce of gold equivalent produced (Figure 5-1).

These preliminary GHG estimates do not consider emissions from industrial traffic off the Project site. Skeena Resources has received Gitanyow Nation's *Eskay Creek Revitalization Project: Review of Initial Description of Activities* report (SCC 2023) and will work with Gitanyow Nation to prepare a report to address the information requests listed therein.

Skeena Resources has started updating GHG emissions calculations based on estimates from the Feasibility Study (Skeena Resources 2022b). Calculations follow the formula provided in the Strategic Assessment of Climate Change (ECCC 2020), where net GHG emissions are:

> Net GHG emissions = Direct GHG emissions + Acquired energy GHG emissions - Avoided domestic GHG emissions - Offset measures.

Based on the direct and acquired energy GHG emissions for all phases of the Project, the total net GHG emissions for the Project are estimated at 618,674 t CO_2e. Total net emissions by

Project phase are as follows: construction (44,101 t CO_2e), operations (568,799 t CO_2e), and closure (5,774 t CO_2e).

The maximum annual net GHG emissions for the construction phase of the Project is in Year -1 (27,463 t CO_2e). The maximum annual net GHG emissions during the operations phase of the Project is in Year 3 (85,976 t CO_2e). Annual net GHG emissions for decommissioning and closure are estimated to be the same for all years at 1,925 t CO_2e.

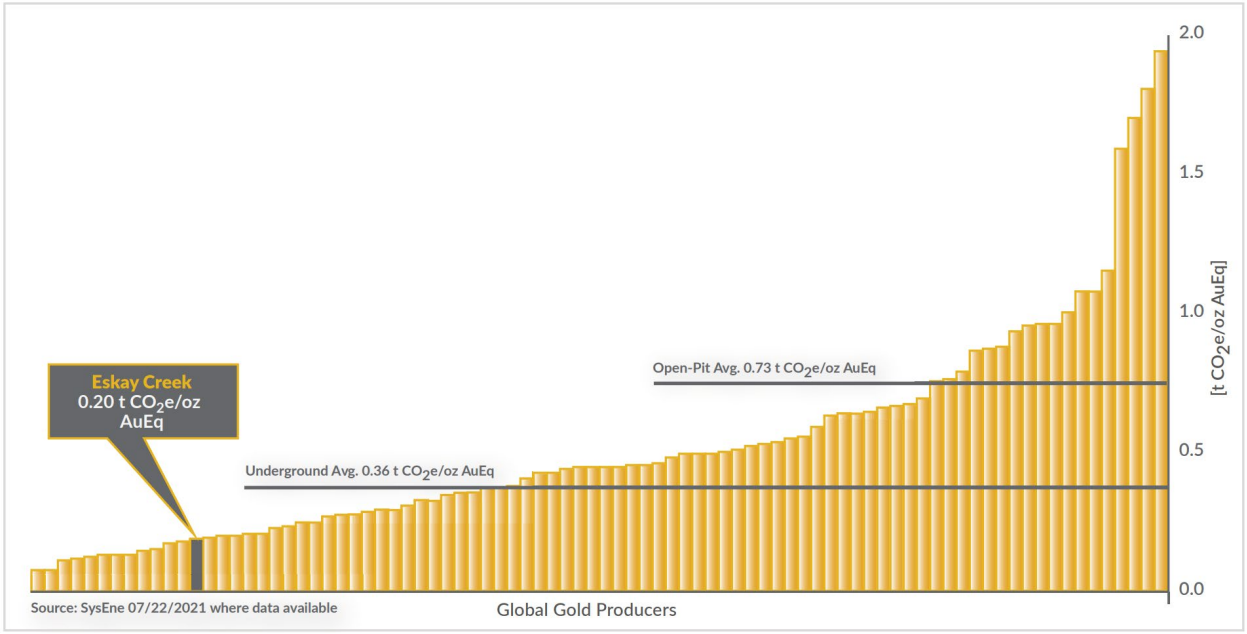

Figure 5-1: Graph Comparing the Eskay Creek Project's predicted GHG Emission Intensity Compared to Worldwide Gold Producer Averages (Skeena Resource 2022b).

Table 5-4: Total Net GHG Emissions during Eskay Creek Project Construction, Operations, and Closure.

Project Phase	Total Net Emissions for the Project by Phase	Total Net Emissions for the Project
	t CO_2e	
Construction	44,101	618,674
Operations	568,799	
Closure	5,774	

5.4 Hydro-Electric Power Development

Power for the Project will rely on the existing hydroelectric power grid nearby, requiring construction of a new 69 kV transmission line and connection to a new substation located 2 km past the existing Volcano Creek hydroelectric facility (Skeena Resources 2022b). The new substation will draw power from BC Hydro's existing 287 kV transmission line; the transmission line (and BC Hydro grid) is fed by the Volcano Creek, McLymont Creek, and Forrest Kerr hydroelectric facilities.

6.0 ALIGNMENT WITH GITANYOW STRATEGIC DIRECTION

Per Section 10(3)(a) of the Wilp Sustainability Assessment (Gitanyow Nation 2020), the IDA must include a description of how Project activities are consistent with Gitanyow Strategic Direction. Table 6-1 summarizes the Project's alignment with Gitanyow Nation policies, plans, and assessments designated as Gitanyow Strategic Direction for the WSAP (Gitanyow Nation 2020).

Table 6-1: Summary of Project's Alignment with Gitanyow Strategic Direction.

Gitanyow Nation Policy / Plan / Higher Level Assessments	**Relevant Section(s)**	**Alignment with Project Activities**
Gitanyow Cultural Heritage Resource Management Policy (GHC 2009)	8.3.1.12 8.9	• Skeena Resources will work with GHC to include Gitanyow placenames throughout WSAP documents.
Gitanyow Lax'yip Land Use Plan (Gitanyow Nation and Province of BC 2012)	B-51 (1.0)	• The Project will use existing provincial highway infrastructure and will not be altering any land use within Gitanyow Lax'yip. • Skeena Resources recognizes that moose and grizzly bears are key values for Gitanyow Nation and will work with GHC to address and mitigate Project impacts to moose and bears through the WSAP. • The land use plan does not have prohibitions or restrictions regarding use of Highway 37 or Highway 37A in Gitanyow Lax'yip.
Gitanyow Huwilp Socio-Cultural Needs Assessment (GHC 2015)	Pgs. 24-27 Key Concerns (4, 6, 7)	• Skeena Resources recognizes that traffic along Highway 37 is a key concern of Gitanyow Nation and will work with the GHC to address and mitigate identified Project concerns through the WSAP. • The Project is participating in the WSAP in parallel with the BC provincial environmental assessment process. • Skeena Resources has signed a WSAP funding agreement to support GHC capacity through the WSAP.
Kitwanga River Sockeye Recovery Strategy (Cleveland, Cox-Rogers, and Rabnett 2006)		• Skeena Resources recognizes that salmon are a key value to Gitanyow Nation and that highway crossings over salmon-bearing streams at risk from vehicle accidents and malfunctions is a key concern. Skeena Resources will work with GHC to address and mitigate Project risks through the WSAP.
Gitanyow Wildlife Strategy		• Skeena Resources recognizes that moose and grizzly bears are key values for Gitanyow Nation and will work with GHC to address and mitigate Project impacts to moose and bears through the WSAP.
Gitanyow Lax'yip Guardians Environmental Monitoring and Compliance Framework	Land Use Plan Values, Effectiveness, Compliance	• Skeena Resources will work with the Gitanyow Lax'yip Guardians on developing a Meziadin Spill Response Centre.

Gitanyow Nation Policy / Plan / Higher Level Assessments	Relevant Section(s)	Alignment with Project Activities
Ecosystem Representation in Gitanyow Territory: Assessment of Current and Future Risk (Price and Daust 2010; 2015)		• Skeena Resources recognizes that moose and grizzly bears are key values for Gitanyow Nation and will work with GHC to address and mitigate Project impacts to moose and bears through the WSAP.
Wilp Wii Litsxw Meziadin Indigenous Protected Area Plan (GHC and HSS 2023)	Allowable Activities in the Protected Area, Infrastructure and Highways (p. 13)	• The Project use existing provincial highway infrastructure and will not be altering any land use within the Meziadin Indigenous Protected Area. • Skeena Resources recognizes the ecological and cultural value of the Meziadin Indigenous Protected Area for Gitanyow Nation and will work with GHC to address and mitigate Project impacts through the WSAP. • The Meziadin Indigenous Protected Area Plan does not have prohibitions or restrictions regarding use of Highway 37 or Highway 37A in the Meziadin Indigenous Protected Area. Skeena Resources will work with GHC on road-use management and mitigations through the WSAP.
Gitanyow Aks Ayookxw / Lax'yip Water Policy (Gitanyow Nation 2023)		• The proposed mine site is not located in Gitanyow Lax'yip or any linked watershed. Project traffic will be using existing provincial highway infrastructure and will not be altering any waterways or waterbodies in Gitanyow Lax'yip through normal operations. • The Gitanyow Aks Ayookxw / Lax'yip Water Policy does not have prohibitions or restrictions regarding use of Highway 37 or Highway 37A in Gitanyow Lax'yip. • Skeena Resources recognizes that traffic along Highway 37 is a key concern of Gitanyow Nation and will work with the GHC to address the Gitanyow Aks Ayookxw / Lax'yip Water Policy through the ongoing WSAP, including development of mitigations and management to address effects directly resulting from Project related activities.

7.0 CLOSING

The Project will restart mining at the past producing Eskay Creek Mine, making use of facilities and infrastructure of the former mine and existing areas of disturbance. The Project will provide employment, contracting and other economic benefits to communities in northwest BC while mitigating potential impacts to human, physical and biological environments.

Skeena Resources appreciates the feedback and ongoing engagement with Indigenous Peoples, including Gitanyow Nation. Based on engagement with Gitanyow Nation, including Gitanyow Nation review of the draft IDA and resulting information requests, Skeena Resources provided a draft Climate Impact Report (Skeena Resources 2023a) and draft Traffic Impact

Report (Skeena Resources 2023b) to Gitanyow Nation in December 2023. Finalization of these two reports is anticipated in Spring 2024.

8.0 REFERENCES

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APPENDIX 3: TRAFFIC IMPACTS MITIGATION PLAN, GITANYOW FISHERIES AUTHORITY

Gitanyow
Fisheries
Authority

4581 4th Ave, PO Box 397, Kitwanga, BC, V0J 2A0
Tel: 250-849-5373 | www.gitanyowfisheries.com

Date: March 23, 2024
To: Freda Campbell, Skeena Resources LTD.
From: Kevin Koch, BSc. RPBio
cc: Tara Marsden
Re: Gitanyow WSAP – Wildlife Impacts Assessment

Traffic Impacts Mitigation Plan

Introduction

This review is conducted in accordance with the Gitanyow Wilp Sustainability Assessment Process (WSAP). It provides an evaluation of factors contributing to wildlife and ecosystem related impacts, especially Wildlife Vehicle Collisions (WVC), due to transportation required for development and operation of the Eskay Creek Revitalization Project (the Project) as proposed by Skeena Resources Ltd. (the Proponent) and recommends a range of wildlife impact mitigation actions. The following Traffic Impact Mitigation Plan is intended to help chart a new path forward for industry to enable protection of (Gitanyow WSAP, 2020):

Amma gan'da'dilst (health) – understood inclusively as the physical, emotional, mental, and spiritual dimensions of well-being… and

Di'dii'mxw'm Lax'yip (ecological integrity) – the biological richness and ecosystem services provided by natural terrestrial and marine processes, sustained at all scales through time…

Background

Highways 37 and 37A (H37 and H37A) are the main transportation corridors through the Gitanyow Lax'yip. Historically speaking these highways are very new, with H37 only completed in the 1970s. The travel corridors themselves however are ancient, with parts of these highways having been built on historic grease trails and Gitanyow travel routes (Pers. comm., Gwaas Hlaam, 2023). The high cultural value for both moose and grizzly bear along this corridor were highlighted in Gitanyow's previous submission to the proponent (Koch and Spooner, 2023), but the ecological value of the ecosystems intersected by the highways goes far beyond those two species. The high ecological value of this corridor is reflected in various protections within it (Figure 1 – Appendix A), including:

- Forest Ecosystem Networks (Gitanyow Lax'yip Land Use Plan – GLLUP)
- Moose Ungulate Winter Range management areas (GLLUP and draft Xadaa UWR Government Actions Regulation Order currently under review)
- Mountain Goat Ungulate Winter Range on Highway 37A west of Meziadin Junction (GLLUP).
- Hanna Tintina Conservancy
- Meziadin Indigenous Protected Area

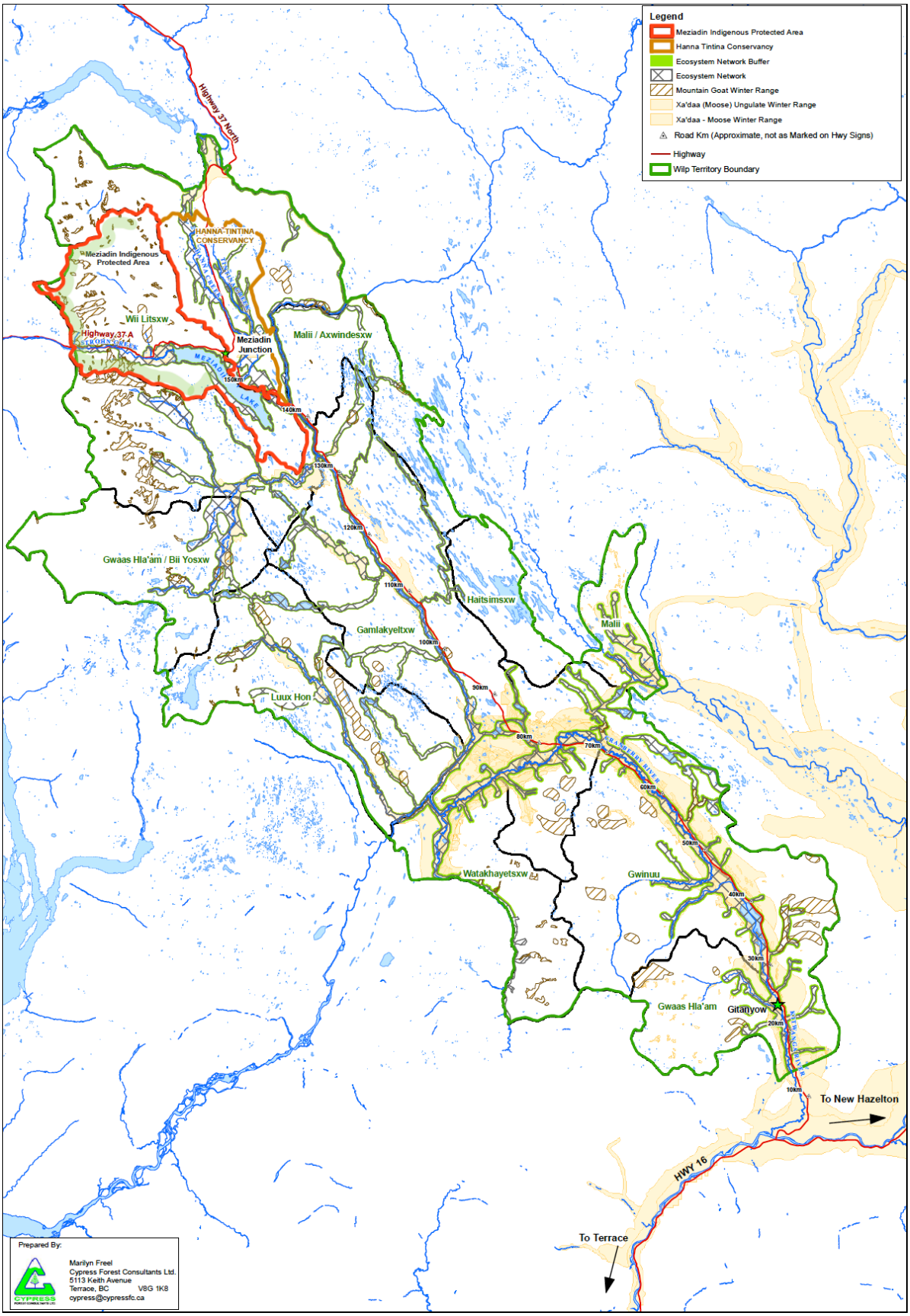

Figure 1: Highway 37 and 37A Corridors - overlap with mapped high cultural and ecological planning zones and protected areas.

H37 and H37A are remote highways and are known locally as very challenging highways to drive, specifically in winter. The combination of highly variable winter temperatures in part due to these highway's location in the coastal/interior transition zone but also changing climate, frequent fog, extreme snow levels from Meziadin north, the location of the highway in moose winter range and the unregulated nature of the highway in terms of speed control, make for high risk driving conditions.

Since 2007 when the moose population in the Nass was documented as having declined by around 65% (Demarchi 2007), the Gitanyow have expended significant effort towards rebuilding the population through harvest restrictions, habitat assessment, protection and enhancement, roadkill mitigation, population monitoring and a legal challenge to BC relating to harvest management (Gamlakyeltxw vs. BC, 2020). Moose continue to be a large focus for Gitanyow as population levels are still only 2/3^{rds} what they were 20 years ago (Demarchi 2023), in spite of population recovery efforts.

H37 and H37A have perhaps the single largest impact to wildlife generally on the Gitanyow Lax'yip. Highways can result in adverse effects to biodiversity (Polak, 2014), habitat fragmentation including movement barriers (Karlson et al., 2014, van der Grift et al., 2013) and wildlife mortalities resulting from collisions (Pagany, 2020, Hill et al., 2020). For H37 and H37A, aside from moose, most wildlife collisions are never documented. These highways also provide access to thousands of kilometers of resource roads that enable hunting and other consumptive and non-consumptive recreational use.

The BC Ministry of Transportation and Infrastructure (MOTI) *Wildlife Accident Reporting System* (WARS) is the provincial system for documentation of wildlife collisions. For the Gitanyow Lax'yip, the WARS database captures an unknown fraction of total wildlife collisions, with moose being the only species where there is alternative data to compare to WARS data. Data provided by MOTI showing all documented roadkills between Kitwanga (slightly south of the Gitanyow Lax'yip boundary) and the Bell-Irving River crossing (northern Lax'yip boundary) indicate that since 2013, MOTI documented 21 moose roadkills where Gitanyow documented 115 moose roadkills (App 1 – MOTI WARS data, Nov. 2023, App 2 - Gitanyow unpublished roadkill data, 2023). Therefore, MOTI documented approximately 18% of what Gitanyow has for moose and, of course, Gitanyow data should be considered less than the actual total.

Moose are the largest mammal species on the Lax'yip and when involved in a vehicle collision leave the most visible signs, with black and grizzly bear being comparable in that regard. MOTI data also included black and grizzly bear, wolf, beaver and porcupine (MOTI, 2023), and our GLG program has documented those species in addition to coyote, otter, marten, bald eagle, various owls and other birds. Most importantly, collisions causing death or injury to the vast majority of species on H37 and H37A go undetected and undocumented.

Cumulative Traffic Related Impacts

The Gitanyow WSAP (2023) defines cumulatives effects as:

> *…the combined effects from past, present and reasonably foreseeable human activities on the environment and human well-being, including the effects of malfunctions or accidents that may occur, and the synergistic and interactive effects of multiple land-use practices, development, and climate change that aggregate over time and space.*

The impacts to wildlife of a given road will vary depending on several synergisticfactors, with traffic levels and ecosystem type being two key variables. Also important are what wildlife mitigation strategies are employed, such as fencing and/or wildlife overpasses/underpasses. Weather conditions along a highway can play a large role in affecting collisions, with snow being the most prominent factor in this area. The GLG have consistently

spent hundreds of hours travelling H37 and 37A throughout the seasons for approximately the last 12 years and therefore have considerable local knowledge of the corridor. Considerations specific to H37 and H37A that affect the level of adverse wildlife impacts include:

1) Traffic levels are low relative to other more populated parts of BC/Canada.
2) Industrial traffic makes up a significant percentage of the overall traffic volume, including semi-trucks and company pickup trucks servicing primarily the forest and mining industries. Gitanyow collected data using the *Vehicle Turning Movement Count* protocol provided by MOTI for the time period of the study (Aug 2012 – Jul 2013) tractor trailers accounted for 26% of traffic volume, with work pickups accounting for another 20% (App 3 – Gitanyow unpublished traffic data 2013). Balciauskas (2009) found on Lithuanian highways that overall traffic load but especially heavy vehicles (trucks) correlated strongly towards Wildlife Vehicle Collisions (WVC).
3) The ecosystems along both H37 and H37A are some of the most productive and biologically diverse ecosystems in BC, therefore by default some of the most productive and diverse in Canada. This is oweing to the highway locations being along and across several salmon rich watersheds and located within the floodplain, wetland and riparian areas of these watersheds (Kitwanga, Cranberry, Meziadin including Hanna, Tintina and Strohn Creeks). A large study that analyzed 191 publications on WVC found that proximity of roads to wetlands, water bodies such as rivers and riparian areas increases the risk of WVC (Pagany, 2020).
4) Specific to moose, the low elevation of H37 and H37A mean that when snow levels increase in winter, moose migrate to these lower elevations and congregate near the highways. This is especially true of cow moose which comprise on average 65% of all the moose roadkills we have documented.
5) The northerly latitudes and location within the interior/coastal transition zone result in many months of snow/ice and greatly fluctuating weather. Northern parts of the corridor near Meziadin Junction can receive 20+ feet of snow per year, contrasting with the Cranberry watershed that receives much less. Rain on snow and freezing rain events are extremely common throughout the period from roughly November to March each year. These weather conditions often contribute to highly dynamic and dangerous driving conditions due to decreased traction and visibility.
6) H37 and H37A are classified as Class B highways which includes them being managed in winter for a compact ice surface. This management approach does not work well in areas where winter temperatures are frequently well above freezing. As well, Class B highways are not maintained to the standards that Class A highways are. Consequently we regularly witness extremely poor road conditions in winter that are highly unsafe and which coincide with moose having migrated to elevations near the highway and a large percentage of non-daylight hours/day resulting in less visibility for drivers.
7) Brush and overall vegetation levels along H37 and H37A are generally very high oweing to the rich, moist environments the highways traverse. Roadside vegetation has an increasing effect on WVCs, especially moose (Pagany, 2020). Other than small amounts of roadside brushing, which Gitanyow have played a leading role in instigating, there is no wildlife collision mitigation being done along H37 and H37A.
8) H37 especially is known for high speed traffic relative to the road quality, specifically with industrial traffic and there is very little enforcement of speed limits by the RCMP because the highway is so remote. Traffic speed has been documented as a factor that contributes to increased WVC (Pagany, 2020).

The abovementioned factors, and others, work together to lead to wildlife related impacts, however, quantifying impacts in the context of an *environmental impact assessment* in a meaningful way, for a specific project, is very difficult. The case is made here that there is more value in viewing impacts through a cumulative impact lens and rather than striving to accurately predict adverse effect, to simply assume there will be some adverse effect, and divert resources towards monitoring and mitigation.

Eskay Project Specific Review

In support of the WSAP, to date we have received three main documents from the Proponent that are intended to outline impacts of the Project on wildlife from project related transportation. Those documents include:

- Eskay Creek Revitalization Project Initial Description of Activities (IDA) *Draft* – December 2022, Revised December 2023.
- Tahltan – Allnorth Traffic Study – February 2023.
- Eskay Creek Revitalization Project Gitanyow Traffic Impact Report – December 2023.

The assessment provided in this document largely focusses on the content of the Tahltan – Allnorth Traffic Study (2023) and the Initial Description of Activities (2022, revised 2023). The Traffic Impact Report (TIR) (2023) is intended to respond to Gitanyow concerns raised through Gitanyow requests for information (2023). These will be addressed first before assessing the Proponent's assessment methods and conclusions.

The comments herein relate only to wildlife/ecosystem impacts from traffic, primarily collisions and habitat fragmentation. They do not relate to spills or greenhouse gas impacts.

Section 3.1 of the TIR responds to a GFA recommendation that the Proponent produce a Traffic Management Plan (TMP) that address impacts to high density moose crossings. In their response, the Proponent did not commit to produce a TMP but implied that a TMP may be required as part of the EA process. Table 6-1 of the revised IDA indicates that the Proponent will work with the GHC to address wildlife issues. The recommendation here is that rather than statements of "will work with" that the Proponent commit to incorporating recommendations provided in this report and implementing strategies proved to reduce wildlife vehicle collisions.

Section 3.8 of the TIR highlights additional text added to the IDA that reflects the high ecological values of the Project's transportation corridor. This document provides a more fullsome ecological value description. Also, the Cranberry River should be noted as a key watershed that Project traffic will affect, as the route follows the Cranberry River mainstem for several kilometers and crosses it twice.

Section 3.9 of the TIR responds to Gitanyow comments around the characterization of Highways 37 and 37A, in terms of remoteness, reduced capacity for environmental monitoring, speed monitoring and the Highway Classification issues.

In terms of the highway classification issues, in spite of the Proponent's staff seemingly in agreeance with issues around highway classification when discussed in previous meetings, the response provided indicated an additional statement provided in the revised IDA that simply defaulted to the fact that the BC Ministry of Transportation and Infrastructure has classified these highways as Class B roads, with no mention of the impacts of this classification in terms of it being higher risk for issues. Therefore this issue is not resolved.

With respect to issues resulting from the remoteness of the highway and lack of monitoring and enforcement, the Proponent indicated language had been added to the IDA highlighting that Gitanyow has raised this issue.

The key here is that the issues around high ecological values, a highway classification that results in relatively poor winter highway maintenance, remoteness, lack of monitoring and lack of speed enforcement do not seem to be actually factoring in anywhere in the Proponent's assessment of impacts to Wilp Sustainability.

These documents take a common approach used by industry in outlining how certain project related metrics – in this case traffic volume – compare to the status quo, then suggesting that the percentage increase in that metric is proportional to the increased adverse effect. Although clearly this is a common approach in the environmental impact assessment field in BC, this approach has the following weaknesses.

Traffic volume is one of many factors that contribute to moose vehicle collisions. Pagany (2020) analyzed for 16 different variables and traffic volume had less of an impact on MVC than many others, including speed, forest and wetland/riparian proximity, diversity of landscapes, road type, travel times of traffic and seasonality. Using only traffic volume as a means to predict WVC is therefore overly simplistic.

The impact assessment method provided by the Proponent to date is similar to approaches we have seen used in the past during the Kitsault and KSM assessments and takes the approach of using one variable – traffic volume – on which to base the impact assessment. The Tahltan-Allnorth (2023) report estimated current traffic data at four different MOTI traffic measurement stations (Figure 2) with corresponding data (Table 1).

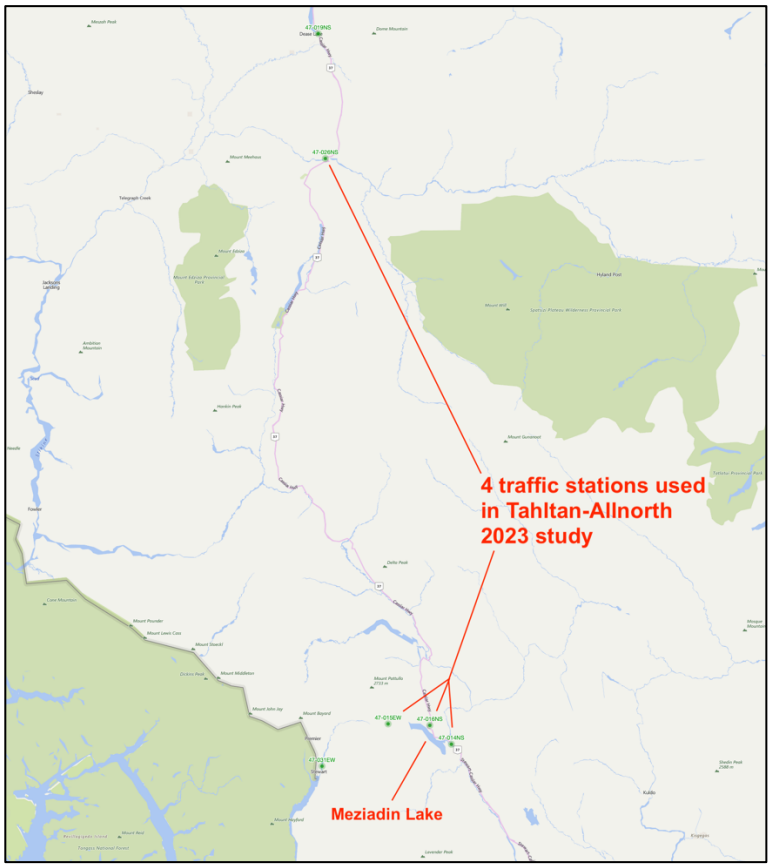

Figure 2: Traffic stations used in Tahltan-Allnorth (2023) study.

Table 1: Traffic data from 4 MOTI traffic stations (Tahltan-Allnorth 2023).

	HWY 37 Nass River Bridge	HWY 37 Meziadin Lake Junction	HWY 37 Stikine River	HWY 37A Windy Point Bridge
	47-014NS	47-016NS	47-026NS	47-015EW
Year	AADT	AADT	AADT	AADT
2011	519	192	na	243
2013	479	na	194	240
2014	675	390	242	216
2017	746	154	213	292
2020	429	290	147	161
Average	570	257	199	230

To summarize the Proponent's assessment methodology, using the Nass River Bridge station (47-014NS) as an example, with an average AADT of 570 and comparing that to the Project's estimated peak AADT during operations of 20, results in a modest 3.4% increase in traffic volume. Total traffic volume and projected increases in traffic volume are then used as inputs for a Collision Prediction Model (CPM) following a methodology accepted by MOTI and the Insurance Corporation of BC (ICBC). The CPM predicts less than 1% increase in predicted collisions during Project operations (Tahltan-Allnorth 2023). The conclusion is then drawn that:

> *"…the Project will not significantly increase traffic along Highway 37 and 37A. During the peak of the Operations Phase (Year 8) traffic is predicted to increase 4% on Highway 37 and 7% on Highway 37A. During the time each Highway will remain at the highest LOS rating 'A', and all predicted traffic will make up less than 10% of Highway 37's total capacity. … predicted collisions for the Project are not expected to appreciably increase during the peak of the Operations phase. Thus, the Project is expected to have a marginal impact on collision frequency along the access corridor."*

To date this is the extent of the traffic impact assessment provided to Gitanyow by the Proponent. As mentioned this is a common approach used in impact assessment and, unless a project is massive in scale, will always result in a conclusion of "no significant adverse effect" because of the small relative percentage increase and then require no mitigations by proponents. This approach also results in an inability to assess cumulative effects which are ultimately what actually affects ecosystems, wildlife and in this case the Gitanyow.

To illustrate this we provide a hypothetical scenario where 28 additional projects of equal size to Eskay are added (AADT = 20) and we use the relative percentage traffic increase as the metric for assessing adverse effects. Note: although the Tahltan-Allnorth (2023) study used collision frequency increase as the metric to determine effect, ultimately this value is proportional to relative % traffic increase.

Figure 3 below illustrates that with each additional project, at 20 AADT per project, although the total AADT doubles over this timeframe, the relative percentage AADT increase drops from 3.39% for Eskay to 1.74% for the final project. Under this type of scenario, every new project proposal assessed by Gitanyow would be shown to have a decreasing relative adverse effect, in spite of the total traffic volume doubling.

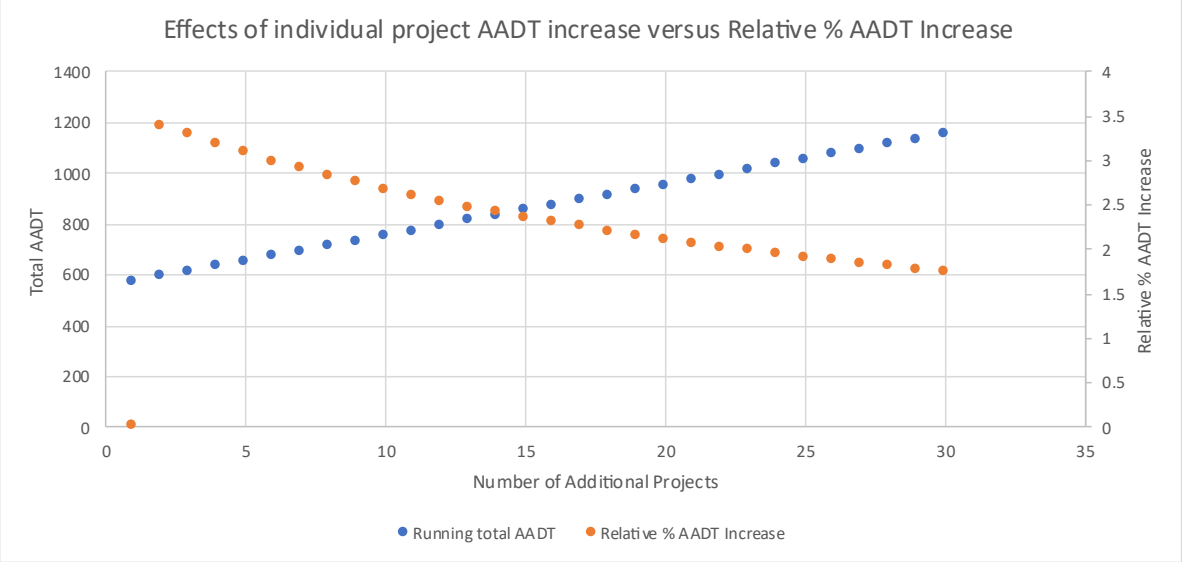

Figure 3: Shows a hypothetical traffic increase from the 2011-2020 AADT average of 570, increasing in increments of 20 vehicles per day compared to the relative % AADT increase for each project.

With this approach, increasing traffic volumes on the highway result in decreasing *project-specific* assessed impact and under current assessment criteria, repeating conclusions of "no adverse effect" until such time as the total AADT hits the estimated historic *highway capacity*. In this case, H37 capacity was estimated at 6,048 vehicles per day (Tahltan-Allnorth, 2023), or approximately 12 times current estimated traffic volume. Of importance, highway capacity estimations following the Transportation Research Board's Highway Capacity Manual (HCM) do not take into account any environmental factors whatsoever, but are based on (Tahltan-Allnorth, 2023):

- Proportion of segment length where passing is prohibited.
- The highway classification being rural two-lane.
- Two-way segmental analysis with grades less than 3%.
- Truck percentage estimated at 40% of total traffic volume.

To conclude, total traffic does have a positive effect on WVC, but is only one contributing factor. By reviewing projects individually but never cumulatively, we will increasingly underestimate traffic impacts on wildlife and ecosystems. As well, by only using traffic volume as the metric for assessing effects, we are oversimplifying effects assessments and really gaining no understanding of how project-specific traffic increases may affect wildlife.

Only in the last decade have the effects of industrial project related traffic been assessed at all as part of environmental assessment processes for the Gitanyow Lax'yip. The historic effects of H37 and H37A on wildlife, ecosystems and Gitanyow's aboriginal rights, which are all intertwined, have undoubtedly been immense and largely unmeasurable. Assessing individual project related effects is of course a positive step but comes with the challenges as stated above. Ideally the environmental costs related to highway usage would be distributed amongst all those using the highway and we are not suggesting that the Proponent in this case should have to shoulder the burden for addressing all cumulative highway impacts. At the same time, we need to start somewhere with Proponents, who stand to profit greatly from transporting goods and people through the Lax'yip, to set a new standard for responsible, ethical and environmentally proactive contributions towards monitoring and mitigating adverse effects of transportation. Concluding no adverse effect because of a modest increase in predicted collision frequency, therefore not requiring any mitigation,

is an approach that is not acceptable and will no doubt lead to long-term degradation of wildlife on the Gitanyow Lax'yip. To that end we recommend several mitigation strategies and monitoring approaches.

Mitigation Strategies for Wildlife Related Highway Impacts

The following mitigation strategies range from inexpensive, best management practices that should be part of every day business for all industries, to opportunities where the Proponent could contribute financially to larger initiatives that are ongoing or in early stages of development.

Collision Reporting

Any contractor or employee travelling to and from the Project area should report WVC and that reporting should include Gitanyow (for collisions within the Gitanyow Lax'yip). For moose, the GLG program not only documents, but salvages moose roadkill for the community and conducts health sampling in partnership with the BC Government through the Skeena Sustainability Assessment Forum project. Bears are also health sampled as part of the same initiative. Any roadkills of the following species should be reported immediately to the GLG program in addition to other required reporting:

- Moose
- Grizzly, black or kermode bear
- Mountain goat
- Fisher
- Wolf
- Wolverine
- Northern goshawk

All other species involved in WVC through Project related traffic should be reported annually (at a minimum) to Gitanyow and should include species, sex if possible, GPS coordinates of kill location or Highway km marker, date and time of day.

Daylight Travel Timing

Pagany (2020) found direct links between WVC and time of day, with morning and evening peaks occurring, especially just before and after dawn and dusk (van der Ree et al, 2011, Sullivan, 2011) and at night (Pagany and Dorner, 2016, Sullivan, 2011). Reducing project related travel to those times of day from one hour after sunrise to one hour before sunset is a mitigation strategy shown to reduce WVC. This is a strategy that should be considered by the Proponent.

Roadside brushing and/or burning

Roadside vegetation along H37 and H37A typically consists of a high percentage of preferred forage species especially for moose (red osier dogwood, willow sp., aspen, cottonwood, etc.) but also bear, which by default would also be used by many other mammal and bird species. Roadside vegetation provides both forage and screening for moose and other species and has been shown to contribute to increased WVC (Pagany, 2020). After years of lobbying MOTI to conduct brushing on the H37 right-of-way (ROW), in 2019 the Gitanyow Lax'yip Guardian's (GLG) program was contracted to direct roadside brushing activities based on where they could have the biggest positive impact on reducing moose vehicle collisions. GLG staff mapped roadside brush levels based on 5-point scale of nil (already cleared) to extreme (brush extending overtop paved shoulders) and overlayed this with spatial data on moose roadkills as collected by the GLG program starting in 2010. Based on our data we recommended several priority areas for brushing and each year since, other

than 2023, MOTIs roadside brushing contracts have focussed on reducing moose-vehicle collisions (Figure 4/Appendix B and Figure 5/Appendix C).

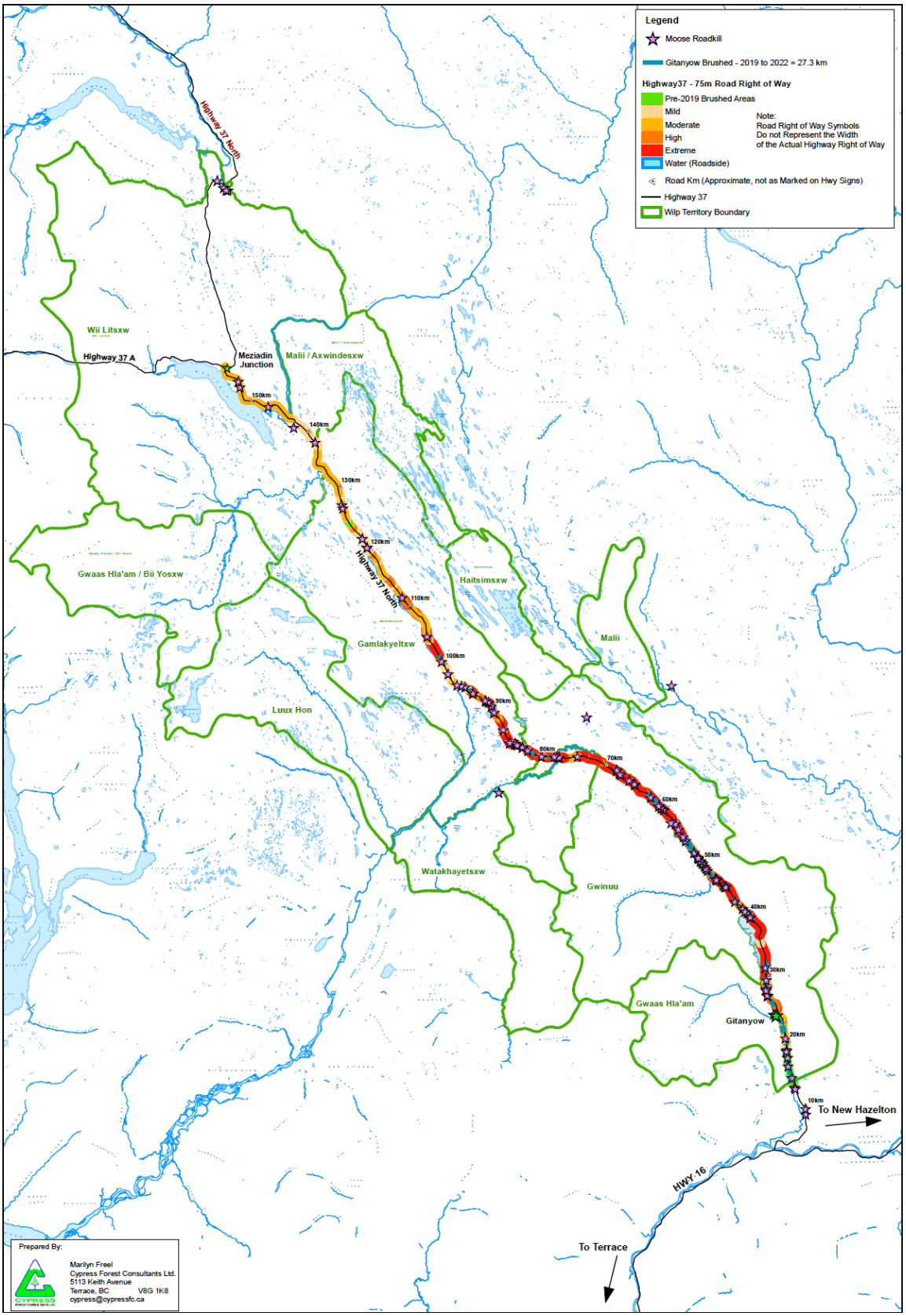

Figure 4: An example of one of the maps produced by the GLG program to direct roadside brushing efforts with the objective of reducing moose vehicle collisions.

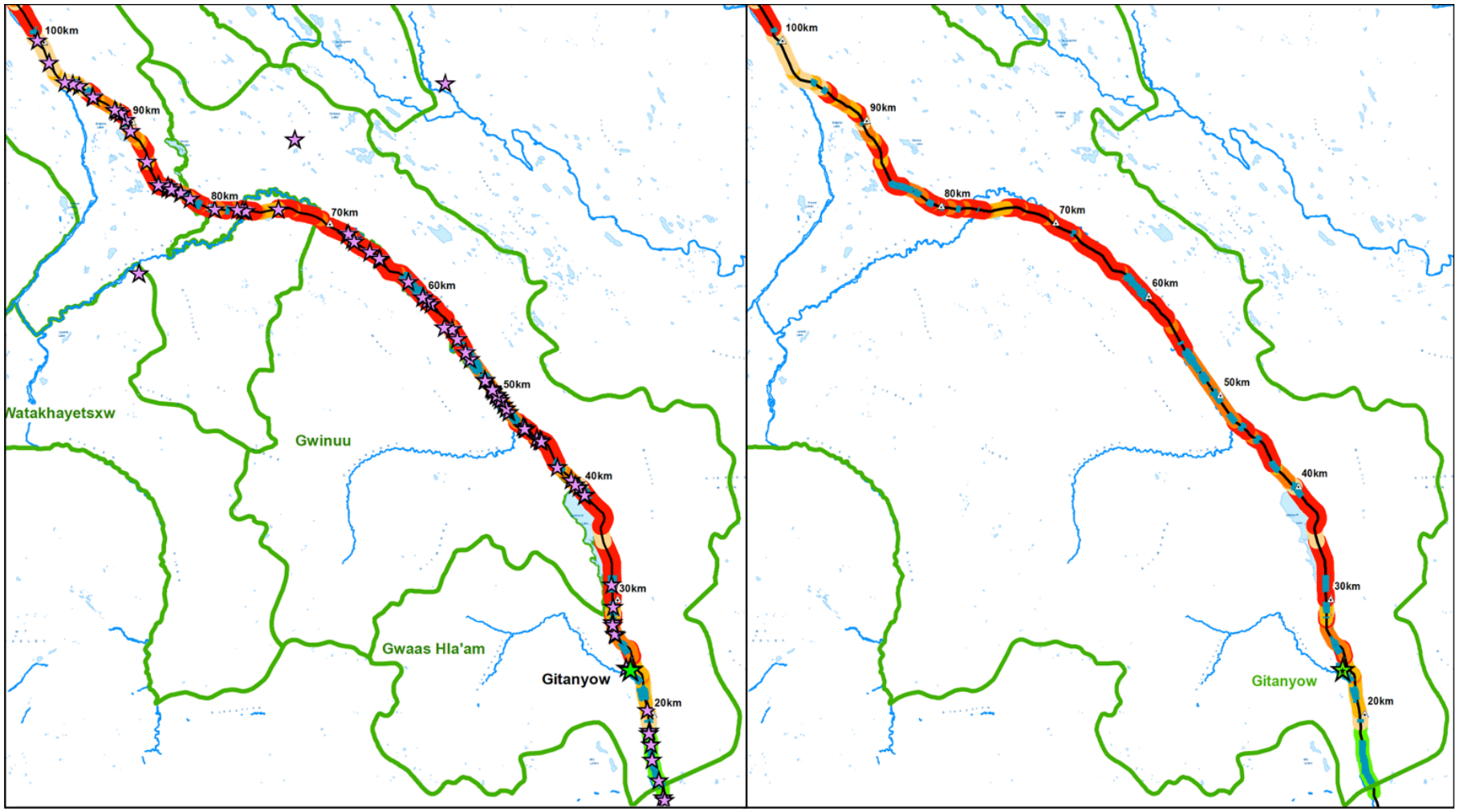

Figure 5: Zoomed in view of area with majority of moose roadkill where all moose related roadside brushing has occurred since 2019. Map on left includes roadkills. Map on right does not include roadkills to more clearly show brushed areas.

Brushing completed since 2019 has been conducted by a Gitanyow based contractor who works in collaboration with the GLG program (Note: The GLG program was not involved in 2023 brushing therefore areas brushed are not shown in Figures 4 and 5). Brushing is relatively slow and labour intensive work therefore requires a continuous financial commitment in order to make a difference. GLG roadside brush mapping focussed on the section of H37 from Meziadin Junction south because most moose roadkills were in this section. That said, grizzly bear roadkills are an issue on highway sections closer to Meziadin Junction and there have been significant moose roadkills since we did this mapping near the Bell One bridge.

In 2019, GLG mapped brush on a ~143km section of H37 from Meziadin Junction south to the Gitanyow Lax'yip border for both sides of the highway. Of this length, 54% and 61% of the left and right sides of the highway (if looking northbound) were mapped from moderate to extreme brush levels respectively and in four years of brushing for these areas, approximately 15% and 7% have been brushed respectively (Table 2). We included moderate brush levels in this analysis because many areas mapped moderate in 2019 will likely be mapped at high or extreme currently due to high site productivity.

Table 2: Approximate lengths of the 3 highway segments in the study area showing levels of moderate to extreme brush and proportions cleared since 2019.

Highway Section	KMs within Gitanyow Lax'yip	KMs brushed	% brushed	KMs of mapped mod to extreme brush levels	% total segment length mapped at mod to extreme brush levels	KMs of mod to extreme brush cleared	% of mod to extreme brush cleared
H37 from Meziadin Junction south to Gitanyow Lax'yip boundary - LEFT SIDE*	143	14	10%	77	54%	11.5	15%
H37 from Meziadin Junction south to Gitanyow Lax'yip boundary - RIGHT SIDE*	143	10	7%	87	61%	5.9	7%
H37 from Meziadin Junction north to Gitanyow Lax'yip boundary - LEFT SIDE*	32	0	0%	0	0%	0	0%
H37 from Meziadin Junction north to Gitanyow Lax'yip boundary - RIGHT SIDE*	32	0	0%	0	0%	0	0%
H37A from Meziadin Junction west to Gitanyow Lax'yip boundary - LEFT SIDE**	24	0	0%	0	0%	0	0%
H37A from Meziadin Junction west to Gitanyow Lax'yip boundary - RIGHT SIDE**	24	0	0%	0	0%	0	0%

**LEFT and RIGHT delineations are as if heading northbound.*

***LEFT and RIGHT delineations are as if heading westbound.*

Also of importance is that of the areas brushed, not all were brushed to the full ROW width, as a tradeoff to getting more length cut. It's important that brush is cleared to the widest extent possible to provide more time for drivers to see moose and to reduce forage/screening habitat immediately adjacent to the highway

edge. Clearly, the current level of brushing is not adequate to reduce brush levels to any meaningful extent and will not keep up with brush growth (most areas will need re-brushing 5-7 years after being brushed).

The GLG program is currently working with the BC Wildfire Service on a number of burn plans and one area of interest is the H37 corridor, specifically to assess whether burning could be an alternative and perhaps more cost effective method of reducing brush levels along the corridor.

Next steps for this project include:

- Re-assess the highways along the entire travel corridor (including H37 north of Meziadin and H37A) and map brush levels based on the scale used previously or other alternative scales if available.
- Develop a cost estimate to treat all areas mapped at high to extreme brush levels with brushing (consider both manual and machine).
- Work with BC Wildfire to develop burn plans where possible for the corridor. Some areas will be more suited for burning than others.
- Conduct some trial burns to assess feasibility and cost.
- Compare areas brushed with previously mapped brush levels and develop a cost estimate and prescription for brush management along H37 and H37A that includes both brushing and burning.
- Work with the MOTI wildlife staff to develop a methodology for effectiveness monitoring of treatments.

Feasibility study for crossing structures combined with speed reduction

Many highways globally that bisect ecologically rich areas have a variety of significant mitigations in place for protection of a vast array of wildlife species, with wildlife overpassess/underpasses often combined with fencing as one example (Figures 6 and 7) (Ogden, 2012, Arc News & Media, 2023). Significantly reduced speed zones in some of Canada's National Parks (Government of Canada, 2023) and repetitive and sometimes electronically lit wildlife signage in parts of BC (BC MOTI, 2023) are other commonly utilized examples of tools used to reduce WVC. Highways 37 and 37A have none of these mitigations in place, other than 3-4 wildlife crossing signs with extensive distances in between and limited roadside brushing as previously described. Banff National Park alone has six wildlife overpasses and 38 underpasses (CBC, 2019).

Figure 6: Top left - moose underpass at unknown BC location (BC MOTI, 2023); right and bottom left – wildlife overpasses in Banff National Park (Canadian Geographic, 2022, CBC, 2019).

Figure 7: Top left - salamander crossing at unknown location; top right – wildlife underpass in Florida; bottom right – elephant crossing in Kenya; bottom left – wildlife overpass in the Great Smoky Mountains, Tennessee-North Carolina border.

Wildlife overpasses and underpasses are large infrastructure projects that would require a feasibility study to be conducted to assess factors including:

- Priority locations for crossing structures.
- Literature review of types of crossing structures utilized for the species present on the Gitanyow Lax'yip to assess which types worked and for which species, any negative impacts arising from fencing, typical costs of structures, funding models used to cover costs of structures, etc.
- Recommendations for types of structures best suited to the landscape and purpose and cost estimates to build such structures.

Wildlife crossing structures in combination with fencing are a long-term solution that would only come to fruition with the support of a multi-stakeholder entity that included First Nations, industry including mining, forestry, tourism and others and Federal and Provincial governments. A financial contribution from the Proponent to such a study would be a valuable contribution.

Speed Monitoring

Gitanyow have lobbied MOTI for years for speed reductions, specifically focussed on the Hanna-Tintina Conservancy and around Strohn Creek where we have documented a significant amount of grizzly bear roadkills. Observations of our Guardian's program over the last decade are that tractor trailer units, including mining ore trucks, travel at very dangerous speeds especially when descending/ascending hills near Hanna Creek, but also near Tintina and Strohn Creeks where grizzly bears commonly are on the road. Throughout the Gitanyow Lax'yip, industrial traffic especially travel at dangerous speeds well above posted speed limits.

Our efforts to lobby MOTI for reduced speeds have been unsuccessful as they argue there is no appetite for speed reductions and they couldn't be effectively enforced anyways. RCMP have told us the same thing, that they are rarely out on H37 and H37A enforcing speed limits. To that end, we would want the Proponent to ensure that company staff are monitored with GPS tracking, that strict speed limits are enforced and that GPS tracking data is made available to Gitanyow. For contractor traffic, where you may not be able to utilize GPS tracking technology, we would want to see a solid plan for monitoring their speed through documented check-ins en route or some other means.

Collaborate to lobby MOTI for reclassification of H37 and H37A to improve winter maintenance

Traffic volume on H37 and H37A should be expected to increase in coming years and along with a changing climate that delivers winter rain on snow events multiple times each year, there is a justification for re-classification of the highways. Locally H37 and H37A are known as very dangerous winter highways the winter classification of the highways is one area where collectively we could exert pressure on MOTI. This is a topic that Gitanyow and the Proponent have discussed previously and one where the Proponent indicated as being in agreement. The highway sections in the Project area and corresponding road classifications are as follows:

Highway segment	Summer Class	Winter Class
Hwy 37 from Gitwangak to Meziadin Junction	3	B
Hwy 37 from Meziadin Junction to Yukon Border	4	B
Hwy 37A	3	B

There are several areas of Performance Criteria where winter highway driving conditions would improve by H37 and H37A being reclassified to Class A. *Highway Maintenance Agreements (HMA)* between MOTI and

road maintenance contractors govern road maintenance requirements and for the highways in the Project area, the 2018-2019 Schedules contain the details (Pers. comm. Kirk Normand, 2023, BC MOTI 2018-2019). Schedule 1, Section 3.01.2 of the HMA contains the following *Routine Maintenance Services* and the specific improvements that would be gained by a re-classification to Class A are highlighted below in Table 3 (MOTI 2018-2019 Highway Maintenance Agreement Schedule 1):

Table 3: Copied from 2018-2019 Schedule 1 accessed at MOTI website with red borders added to highlight relevant sections.

PM3.01.2-1 Remove Winter Accumulations from Travelled Lanes as follows:

Performance Criteria	Maximum Winter Accumulations Response by Highway Classification				
	A	B	C	D	E
a) One lane each direction	4 cm	6 cm	10 cm	15 cm	25 cm
b) Second lane	8 cm	10 cm	n/a	n/a	n/a
c) All other lanes including brake checks, chain up/off areas and any other vehicle accessible portions within the Right-of-Way	12 cm	16 cm	20 cm	20 cm	n/a
d) Rest Areas, pull-outs and parking areas at a minimum 2.5 metre pass width	12 cm	16 cm	20 cm	20 cm	n/a

PM3.01.2-2 Notwithstanding PM3.01.2-1, remove slush or broken Compact from Travelled Lanes as follows:

`Performance Criteria	Response by Highway Classification				
	A	B	C	D	E
a) All lanes including brake checks, chain up/off areas and any other vehicle accessible portions within the Right-of-Way	90 min	2 h	6 h	n/a	n/a

PM3.01.2-3 Remove Winter Accumulations and Compact after the end of the Weather Event from Travelled Lanes as follows:

Performance Criteria	Response by Highway Classification				
	A	B	C	D	E
a) Bare lanes when the pavement temperature is -9°C or warmer	24 h	36 h	48 h	n/a	n/a

PM3.01.2-5 Remove Winter Accumulations after the end of the Weather Event from paved shoulders of Travelled Lanes, as follows:

Performance Criteria	Response by Highway Classification				
	A	B	C	D	E
a) Paved shoulders	30 h	42 h	54 h	80 h	n/a

PM3.01.2-6 Remove the remaining Winter Accumulations after the end of the Weather Event from Rest Areas, pullouts and parking areas as follows:

Performance Criteria	Response by Highway Classification				
	A	B	C	D	E
a) Rest Areas, pullouts and parking areas	4 d	6 d	10 d	24 d	n/a

The definitions of “compact” and “compaction” are as follows (MOTI 2018-2019):

- “Compact” means when snow or slush or ice has been compressed to form a solid mass.
- “Compaction” means that the finished compacted surface must be tightly knit, well bounded, and does not leave an indentation when driven over with a loaded tandem truck.

Having H37 and H37A re-classified from Class B to Class A could provide the following benefits:

1) Maintenance contractors would have to plow sooner and winter accumulations of snow would be less.

2) It would put a spotlight on these highways as areas where improvement was needed which hopefully would translate to more attention from maintenance contractors and MOTI.

In reality, performance criteria could be viewed in the same way as speed limits in that they are irrelevant if there are not effective monitoring and enforcement processes and resources in place. Considering all of the above, and based on our collective experience driving these highways, is that they are generally very poorly maintained. In addition to Gitanyow and the Proponent, and ideally other First Nations and industry representatives, collectively lobbying for highway re-classification, we could embark on a monitoring program for road maintenance contractor performance. This could include:

- Obtaining historical data on road surface temperatures from nearby *Road Weather Stations*. MOTI operates 99 of these stations throughout BC so selecting some of these within or closest to the study area would allow us to assess how road surface temperatures have changed over time.
- The GLG program could use a series of remote cameras to monitor plowing activities. By setting cameras on both time-lapse to take photos hourly (this would monitor highway snow conditions) and to be triggered by vehicles (to determine when roads were plowed), would allow us to monitor internally the performance of the maintenance contractors.
- Remote camera stations could also be used to monitor overall traffic volumes and types. Artifical Intelligence capabilities are likely available to scan and catalogue images by vehicle type and to detect plow trucks.

Obtaining data on highway conditions and maintenance performance would better inform our ability to collectively lobby MOTI for change that could improve highway safety. A contribution by the Proponent to such a monitoring program would be a valuable contribution.

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APPENDIX 4: SPILL RESPONSE CACHE TECHNICAL MEMO, GITANYOW FISHERIES AUTHORITY

Spill Response Cache

Introduction and Objective

Gitanyow Fisheries Authority (GFA) has been retained by the Gitanyow Hereditary Chiefs Office (GHC) to assist in the design of a spill response cache (SRC) at the Meziadin Junction. The purpose for the development of an SRC is to help mitigate any potential environmental impacts that may be caused due to increasing industrial traffic within the Gitanyow Lax'yip (territory) via Highways 37 and 37A. Due to the remoteness of Hwy 37 and 37A, delayed response and cleanup times for large scale spills present a large risk to the local environments. Placing an SRC at the Meziadin Junction will aid in reducing response times and assist in controlling contaminants until larger scale cleanup crews can be dispatched.

The development of this SRC has been initiated as part of the technical review and assessment of the Skeena Resources Limited – Eskay Creek Revitalisation Project (the Project) as part of the Gitanyow Wilp Sustainability Assessment Process (WSAP). The Eskay Creek project is one of many industrial projects that will or currently use the highways that pass through the Gitanyow Lax'yip. With industrial traffic on the rise, the need for a remote spill response cache at the Meziadin junction increases.

This document provides the initial design proposal for the development of a spill response cache at the Meziadin Junction, including recommended facility design, spill response protocols, communication procedures, and future work. This will ensure that necessary equipment is available for incidents in and around the Meziadin watershed and that a response can be implemented quickly and effectively in the event of a spill.

Background

Gitanyow Lax'yip

There are abundant freshwater resources and aquatic ecosystems within the Gitanyow Lax'yip. The territory encompasses an area of approximately 6,296 km^2 within the northwestern region of British Columbia (Fig. 1). Spanning portions of both the Nass and Skeena River watersheds, the Gitanyow Lax'yip contains countless waterbodies including creeks, rivers, lakes, wetlands, snowfields, glaciers and groundwater. These waterbodies provide high quality water and aquatic habitat and support abundant aquatic and terrestrial ecosystems, human health, Gitanyow culture, and Wilp sustainability. Wilp sustainability is a core value and vision and requires a strong ecological foundation to maintain ecosystem function, socio-cultural, and economic well-being within a framework of low risk to ecological integrity.

Waterbodies and their aquatic ecosystems are a source of cultural and spiritual value for the Gitanyow people, who utilize all aquatic resources within the Lax'yip for fishing, trapping, hunting, food and medicinal plant gathering, spiritual worship, and upholding traditional laws. Because aquatic resources are an abundant and integrated part of Gitanyow culture and the landscape of the Gitanyow Lax'yip, preserving the ecological integrity of waterbodies is central to Wilp sustainability.

Transportation to and from the Eskay Project Site, and other industrial projects, will occur via Highway 37 and 37A, directly through the Gitanyow Lax'yip. The southern end of Hwy 37 closely follows the Kitwanga River, while Hwy 37A and portions of Hwy 37 near the Meziadin junction follow or cross inlet streams to Meziadin Lake. Due to the proximity of these highways to key waterbodies within the Gitanyow Lax'yip, the development of a spill response cache at the Meziadin junction is highly recommended.

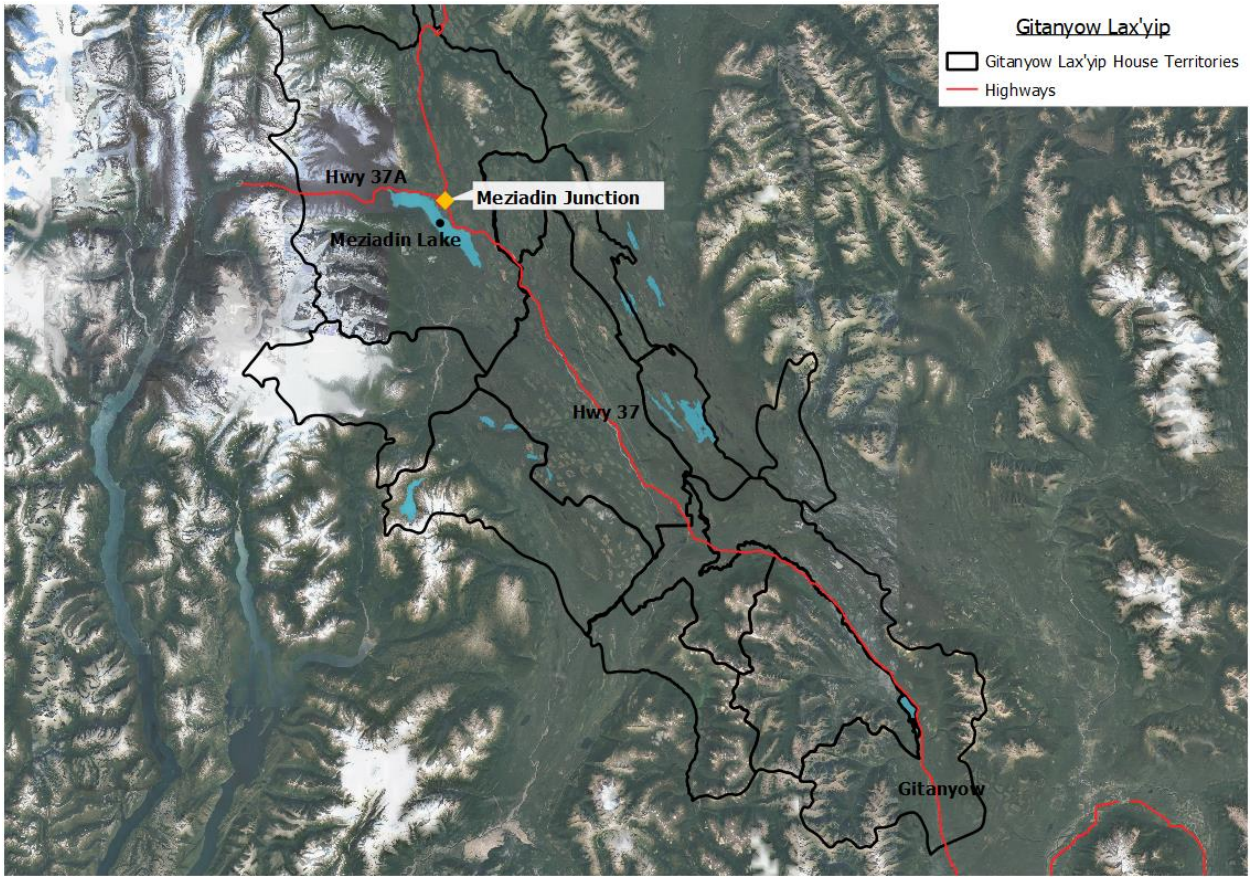

Figure 1. Gitanyow Lax'yip

Meziadin Watershed

The Nass River is the integral lifeblood of the Gitanyow Lax'yip. The Nass is the largest river in the Lax'yip; the majority of watersheds in the Lax'yip flow into the Nass River, which then flows to the Pacific Ocean. The Nass River is the third largest producer of sockeye salmon in British Columbia, producing on average 770,000 adult sockeye per year between 1982 and 2018. Meziadin sockeye are the most abundant of the Nass sockeye stocks and between 1967 and 2018 comprised on average 80% of all Nass sockeye. Nass and Meziadin sockeye are highly valued in many fisheries, including the Gitanyow Food, Social and Ceremonial (FSC) and economic fisheries, the Nisga'a treaty food and commercial fisheries, U.S. and Canadian marine commercial fisheries, and sport fisheries.

Hanna and Tintina Creeks are inlet streams to Meziadin Lake and historically provided most of the spawning habitat within the Meziadin Lake watershed. Strohn Creek is a major inlet stream entering the western end of Meziadin Lake near Highway 37A and Surprise Creek is a tributary to Strohn Creek that enters the left bank of Strohn Creek approximately 3.5 km upstream from Meziadin Lake. Historically, Strohn Creek supported a small number of sockeye spawners; however, GFA survey efforts between 2016 and 2018 revealed a very significant sockeye run in Strohn Creek, warranting further investigation into run size, hydrology, habitat use and the genetics of Strohn Creek sockeye (Koch 2017). The Meziadin Lake shoreline also provides a significant amount of sockeye spawning habitat.

Kitwanga Watershed

In the southeastern portion of the territory, the Kitwanga River runs along highway 37 and is a critical aquatic ecosystem for salmon within the Gitanyow Lax'yip. The Kitwanga River is biologically rich, supporting populations of all six species of salmon found in North America, as well as various species of resident salmonids and coarse fish. Sockeye salmon are an especially important species in the Kitwanga, with returns historically numbered in the tens of thousands. Kitwanga sockeye were actively fished for sustenance purposes by the Gitanyow and the Gitwangak; however, drastic declines in stock abundance have halted sustenance fishing of Kitwanga sockeye for the last couple decades because of conservation concerns.

Kitwanga sockeye are an evolutionary significant unit as defined under the Wild Salmon Policy which indicates that Kitwanga sockeye have developed specific life history adaptations and timing regimes that are genetically unique. Therefore, there is little possibility that neighbouring sockeye populations could replace Kitwanga sockeye naturally. Given the current depressed level of Kitwanga sockeye, a population collapse could lead to extinction. The GFA has been cryogenically freezing Kitwanga sockeye milt in the event of such a collapse.

The aquatic ecosystems within the Gitanyow Lax'yip provide critical habitat and aquatic resources (e.g., flow, food, habitat) and processes (e.g., flood plain maintenance, nutrient cycling, material mobilization) not only for fish, but also for a variety of culturally and economically important plants and wildlife. Because of the highly-connected nature of aquatic ecosystems, even watersheds and aquatic waterbodies that don't directly support fish and wildlife are critically important as they support and influence downstream conditions and ecosystem function.

The extremely high fisheries and ecosystem values along the Eskay transportation route, as described, highlight the potential consequence and irreversible damage that could occur should a spill occur at an inopportune time and location.

Spill Response Cache

Facility Design

The facility will consist of a mobile cargo trailer and an industrial tent structure with two storage containers built into it (Figure 2). The cargo trailer will house all of the spill materials required to respond to a spill. The storage containers and the tent structure will hold additional materials for restocking the trailer after an incident or for use if more materials are required to respond to a larger spill. It will also provide room to store the trailer when not in use.

The trailer and structure would be located at the Meziadin junction and the approximate footprint of the spill cache would be 50' x 50'. This design would require minimal/no power and very little maintenance aside from access. The cargo trailer's mobility allows responders to simply hitch on to the unit and head to the incident location with everything they need to respond to a spill.

Recommended materials to be stored within the mobile cargo trailer and storage facilities can be found in appendix A and estimated start-up costs can be found in appendix B.

Figure 2. Enclosed Industrial Tent

Recommend Response, Communication, & Use of the Meziadin SRC

It is the ultimate responsibility of the proponent liable for causing the incident to respond, clean up, and report the spill. As mentioned in the introduction of this document, spills at these locations can be challenging to respond to. As such, Gitanyow would like to propose that Gitanyow Lax'yip Guardian (GLG) first responders can be made available to assist proponents with clean up and response under the direction of the liable party. A contact list of possible/willing proponents should be developed and made available for the GLG to report incidents to the responsible parties as they are discovered.

The GLG shall be fully trained and equipped to respond to basic spills as they encounter them. In the event that the GLG are the first to encounter a spill, the protocol is recommended as follows:

1. The GLG will determine that the area is safe to access.
2. They will attempt to contain and stop the spill if it is safe to do so and if the necessary equipment is on hand. They will also try to determine the party responsible for the spill.
3. If larger or more material is required, drive to the Meziadin SRC to collect trailer or required materials.
4. At this point, the GLG (equipped with Starlink communications) will or will have attempted to contact the liable party to inform them of the spill. This is where it will be key to have a robust contact list/agreement with various road users. The GLG will also have contacted their supervisor informing them of the incident.
5. The GLG will then receive direction on how to proceed from their supervisor and the liable party (ie. Continued or stopped response, waiting for representative from party, etc.) and will only respond as instructed within their capacity.

Should it not be possible for the GLG to determine the liable party or should the liable party not be willing to cooperate, they should proceed as follows:

1. Follow steps 1 through 3 above.
2. Contact their supervisor about next steps.
3. Report the spill to the Provincial Emergency Preparedness line.
4. Respond and clean up the spill as directed.

Ideally in the future, the SRC will be made available for multiple users who wish to support the SRC and GLG in responding to incidents in the Meziadin watershed. The GLG should only be used as a means to assist in the initial clean up and containment of a spill and should not be relied on to take full responsibility of such duties. This is to allow for companies who do not have the resources to respond quickly to an incident to make use of the GLG while coordinating a larger response/clean up team.

Recommended Training

Every person willing to join an agreement/contact list to gain access to the MSC and conducting work in/through the Gitanyow Lax'yip should receive training in the following areas:

- Awareness training of the watershed and historical/cultural importance
- Spill prevention
- Basic spill response and how to make use of the SRC

The Gitanyow first responders (ie. The Gitanyow Lax'yip Guardians) will receive more formal training through qualified instructors. The following list of training topics are recommended and not an exhaustive list:

- Advanced spill response
- HAZMAT training
- Aquatic/marine spill response
- Pleasure craft operation
- Swiftwater rescue

Training should be renewed as required by the certification and practice scenarios should be completed at least annually.

Maintenance

Required maintenance of the SRC facility should be minimal as zero/minimal power would be required for the storage facility itself.

Snow removal will be required during winter months to maintain access to the facility; however, snow removal already takes place at the Meziadin junction and could likely include/add the area required to access the SRC.

The maintenance costs associated with the Starlink communications subscription would be approximately 170 – 330/month depending on how many devices would be required.

Other additional maintenance costs would include restocking of materials after use, cost of cleanup/disposal of waste materials, and labour costs for incident responses.

Future Recommendations

In the future, it is the goal of the GHC that Skeena Resources and multiple other Hwy 37 road users (ie. Other mine traffic users, fuel transport companies, third party ore hauling vehicles, forestry workers, oil & gas, transmission line traffic, etc.) join an agreement or a cooperative that will make use of the GLG first responders as well as the Meziadin SRC.

This cooperative will allow for the quick and efficient response to spills and incidents within the Meziadin watershed by any party who is participating in the coop. This will benefit all parties using Hwy 37 for industrial or cultural purposes and allow for smooth communications and cooperation between the various road users in the event of an incident.

Upon the implementation of the coop, the development of a more robust spill response plan for the GLG first responders will be of critical importance. The plan should include contact lists, communication and safety protocols, location/incident specific procedures, etc. for the GLG to officially follow in the event of an incident.

Ideally, this quick response time and collaborative spill response process will minimize the impacts of any potential environmental incidents to this high-value watershed.

Appendix A. Recommended Materials

The following list includes recommended materials for storage at the MSC. These are recommendations and not an exhaustive list.

Recommended Materials:

- PPE required for fuel spills (HH Rubber Rain Gear)
- Cargo Trailer
- Highway barriers & signs
- Radios and satellite communication devices (starlink preferred for response trucks)
- Portable spill trays or small pool
- Portable open holding tank with liners
- Closed holding tanks
- Fuel transfer pumps, hoses, & extensions
- Large water pumps
- Large generator
- Mobile light plants
- Brushless battery-operated drills
- Pallet of spill booms
- Oil sweeps
- Rolls of universal and hydrocarbon spill pads
- Emergency leak sealant (plug n dyke or wax rings)
- Pallet of sphag sorb
- Pallet of oil gator
- Spill barrels/drums with liner
- Spades
- Pulaski's

Optional/Eventual Materials:

- 14' Aluminum river boats
- 10,000 L holding tank

Appendix B. Estimated Initial Costs

Table 1. Initial costs of the Meziadin SRC

Item	Quantity	Cost
Shipping container	2	8,000 (used) – 14,000 (new)
Industrial tent storage	1	5,000
Cargo Trailer (8x16)	1	12,000
Open portable holding tank	2	1,500
Liner for holding tank (8'x6')	1	600
Closed holding tank	2	1,000
Fuel transfer pump	1	1,000
Starlink Communication (hardware)	2	1,600
Handheld Radios	2	1,000
Mobile Light Plant	1	5,000
Large water pumps	2	1,000
Large generator	1	2,000
Oil sweeps	2	300
Containment boom	1	3,000
Spill booms	8	600
Pallet of sphag sorb	1	3,000
Pallet of oil gator	1	3,600
Roll of universal spill pads	2	250
Roll of hydrocarbon spill pads	2	250
Emergency leak sealant (plug n dyke or wax rings)	10	450

Spill barrels/drums with liner	4	500
Portable spill trays/pools	2	100
Brushless battery-operated drills	2	300
Highway barriers	2	700
PPE – Rubber HH Rain Gear	4	550
PPE – Heavy duty latex gloves	2	60
Highway signs	2	200
Traffic pylons	10	30
Spades	2	40
Pulaski's	2	100
Total Costs		**59,730**

Table 2. Initial spill response training costs for Gitanyow staff.

Item	Quantity	Total
Spill response 2 training – 2-day course (consultant)	1	1600
Spill response training – labour costs	4	5000
Spill response training – travel & accommodation costs	4	1000
HAZMAT Training – 2-day course (consultant)	1	2400
HAZMAT Training – labour costs	4	5000
HAZMAT Training – travel & accommodation costs	4	1000
Total Costs		$16,000

APPENDIX 5: CLIMATE TEST RESULTS, ESKAY CREEK, SWIFTCREEK CONSULTING

Climate Test Results: Eskay Creek

This evaluation is based upon a review of the following materials from Skeena Resources:

- *Skeena Resources (2024). Eskay Creek Revitalization Project Gitanyow Climate Impact Report. Re: Response to Gitanyow Climate Impact Information Requests, April 30, 2024 (DRAFT). 20 pp.*
- *Skeena Resources (2024). 2023 ESG Report. 41pp.*
- *Skeena Resources (2023). Eskay Creek Revitalization Project: Initial Description of Activities (Revised December 2023). 15 pp.*
- *Skeena Resources (2023). Eskay Creek Project, British Columbia: NI 43-101 Technical Report on Updated Feasibility Study. 301 pp.*
- *Skeena Resources (2023). 2022 ESG Report. 34pp.*
- *Skeena Resources (2022). Eskay Creek Revitalization Project: Detailed Project Description. 285pp.*
- *Skeena Resources (2021). Eskay Creek Revitalization: Initial Project Description. 136 pp.*
- *Skeena Resources (Undated). ESG Report 2022. 34 pp.*

Other materials are noted below where relevant.

The project is still pre-construction and evolving, and various information gaps remain. The scoring given across criteria and sub-criteria are subject to change as more information comes available.

Criterion	Sub-criterion	Conclusion	Evidence and Explanation for Conclusion
Project Design	Ambition with respect to climate impact performance	Good: Clear demonstration of intent to lead with respect to climate design	- Skeena Resources (Skeena, or 'the proponent') has demonstrated an interest in the project's climate impact performance through initiatives undertaken and under consideration. - Skeena has set internal climate targets. The 2022 ESG report indicates a short-term emission target for Eskay Creek (37% reduction compared to the base-case in the 2022 feasibility study) through energy efficiency and decarbonization of operations, and a medium-term aspirational emission target (an additional 54% reduction) based on electrification opportunities that are not yet commercially available. The 2023 ESG report states a target of 30% reduction 'against their base-case'. Skeena's targets appear to be at least as ambitious as other miners like BHP and Vale.[1] However, Skeena's own targets for Eskay Creek's climate impacts have not been validated by the Science Based Targets Initiative (SBTi) or otherwise.[2] - Skeena has identified a variety of ways to reduce its climate impacts further, including electrification on-site to the extent that planned electrical transmission infrastructure will allow, and potential future electrification of equipment. Skeena has engaged with BC Hydro to explore electrification options, and Skeena is seeking to enlarge the electricity supply that will be available at the site.

[1] https://www.mckinsey.com/industries/metals-and-mining/our-insights/creating-the-zero-carbon-mine.
[2] https://sciencebasedtargets.org/

Criterion	Sub-criterion	Conclusion	Evidence and Explanation for Conclusion
			- Skeena demonstrates some attention to its scope 3 impacts in its ESG reporting, but Skeena appears to have only limited interest in addressing them. Skeena has stated, for example, that downstream impacts will be the responsibility of third parties. In comparison, the majority owner of the nearby Red Chris mine – Newmont – demonstrates strong attention to Scope 3 emission reduction by identifying ways to influence this class of impacts, and states that it is taking action to do so.[3]
	Adherence to Mitigation Hierarchy	Good: Strong adherence to mitigation hierarchy.	- The proponent demonstrates attention and consistency with the mitigation hierarchy. - Skeena states that its primary focus is on abating operational emissions, while continuing to study the role carbon credits may place in offsetting any residual emissions from the project. This focus on preventing emissions in the first place, and caution regarding offsetting, is appropriate given the many uncertainties and consequent risks of offsetting. - Skeena stated in its 2022 ESG report that they are minimizing the footprint of the mine to contain it in the geographical bounds of the original mine, consistent with the mitigation hierarchy by preventing further impacts in the first place.
	Plan for Improvement over Project Lifespan	Good: Project design contains credible plans and viable mechanisms to substantially improve climate performance over the project's lifespan.	- Various plans and ideas are advanced, but they are generally vague and non-committal, though some of this lack of specificity and commitment can be traced to the project's state of design at time of evaluation. - Proponent has commissioned an 'EV Ready Plan', supported in part by BC Hydro, to facilitate use of light-duty electric vehicles at the mine site. - Skeena's electrification ambitions are constrained by available electricity supply, but Skeena is pursuing additional supply.
	Implementation and Effectiveness Monitoring	Fair: Mediocre plan to monitor implementation and effectiveness, report on results, and rectify.	- The proponent has stated that monitoring programs will be developed further through the major project impact assessment process, and then implemented during project development. Skeena is planning to conduct pre-assurance (or "assurance readiness") over 2023 emissions in preparation for obtaining independent, third-party verification of the project's GHG emissions in subsequent years. Skeena states that when GHG emissions vary from expectations, it will conduct a 'root-cause analysis' to understand the variance and set corrective actions to address, but it is unclear what options would be available to correct such variance. However, all of these plans are hypothetical and not concrete or officially established at time of evaluation. - The proponent states that it reports energy efficiency and low-carbon electrification opportunities and results into BC Hydro's industrial energy management program, but it is not clear how this reporting translates into improvements.
	Confidence in Explanation	Fair: Design and mitigation explanations have	- Skeena presents GHG emissions under a scenario of full production, full utilization of equipment, and without various potential electrification opportunities built in, leading to worst-case estimates, which is conservative and appropriate.

3 Newmont (Undated). 2022 Climate Report. 68 pp. https://s24.q4cdn.com/382246808/files/doc_downloads/2023/05/Newmont-2022-Climate-Report.pdf.

Criterion	Sub-criterion	Conclusion	Evidence and Explanation for Conclusion
		some gaps and leave questions unanswered, raising questions about success.	- However, the GHG emission data provided does not provide sufficient detail to allow for validation of the proponent's numbers. Additional data such as equipment planned for use, fuels the equipment will use, planned levels of usage, GHG emissions in native units, and related details would better allow for validation. The proponent notes that emissions will vary by level of production, strip ratio, and other operational parameters, but does not provide this information, and thus one is not able to validate estimates. - Proponent states that it uses the GHG Protocol of World Resources Institute and World Business Council for Sustainable Development to estimate emissions, however the information provided by at time of evaluation on GHG emissions is in CO_2e, obscuring potential details with respect to what particular GHGs will be emitted. There may be some emissions of GHGs other than CO_2, and with the proponent's use of a 100-year time horizon for estimating global warming potential, important near-term warming effects may be discounted. - Skeena has provided limited information on potential scope 3 impacts, indicative of little in the way of examination of these impacts (which can compose the largest proportion of emissions of a resource project's value chain). Further information on methodology could also be provided to enhance transparency and confidence. - There is a lack of transparency provided by the proponent with respect to some key documentation – e.g., Skeena's consultant's (SysEne) report on Eskay Creek's emissions performance relative to peers around the world – and this prevents validation of key conclusions. Skeena admits that even it does not have the documentation behind SysEne's conclusions. - The proponent has yet to provide any concrete information on the likelihood of success of planned and potential mitigation measures, though this may change with the release of the project's impact assessment application.
	Climate Lock-in	Good: Project has no climate impact lock-in characteristics.	- The project's purpose is to extract and supply gold and silver to the global market, which from a climate perspective has value because these minerals are used in renewable energy technologies. - There are opportunities for improvements in climate performance over the project's life through substitution of technologies and greater electrification, though these opportunities may be limited due to the short lifespan of the project (about a decade of production).
Climate Impact	Comparison to Peers	Good: Clearly better performance than peers	- The project is anticipated to be one of the lowest GHG emitting gold mining projects per ounce in Canada and globally largely due to the high grade of ore, availability of clean electricity, and brownfield nature of the mine site. These three characteristics provide high confidence in the project's superior climate performance compared to peers. - Despite growth in ore removal plans, Skeena has adjusted its design and energy management to be able to maintain their projected carbon intensity to $0.2tCO_2e$/oz Au. - The proponent signals caution towards use of carbon offsets and capture and storage to address unmitigated climate impacts, solutions that are frequently suggested by major project proponents but of questionable real value. Skeena's caution in this respect is atypically refreshing.

Criterion	Sub-criterion	Conclusion	Evidence and Explanation for Conclusion
	Scope 3 Performance	Fair: Moderate unmitigated scope 3 impacts.	- The project is associated with a variety of scope 3 emissions, such as off-site traffic, employee commuting, indirect emissions associated with the production of physical inputs to the mine, and downstream activities (i.e., transportation and shipping of ore to customers, crushing, smelting, manufacturing). Skeena's 2023 ESG report provides an estimate of Scope 3 emissions (262 t CO_2e), but it is unclear how comprehensive this Scope 3 emission estimate is, and Skeena has expressed limited interest in influencing these emissions.
	Climate Targets	Good: Project is consistent with applicable climate targets as it would not interfere (or even help) with the jurisdiction meeting its targets.	- Skeena estimates direct and net emissions in 2030 of 87,809 and 91,106 t CO_2e/yr, which are said to be 0.22% and 0.23% of BC's 2030 target, respectively, and 2038 direct and net emissions of 0.05% and 0.07% of the 2040 BC target, respectively. This anticipated decline in contributions to BC's emissions over time, even while the target tightens, due to characteristics of the mine plan, is very positive.
	Other Effects	Fair: Project has negligible other climate effects	- Land clearing impacts are understood to be very limited given that the mine site is brownfield and as the new mine footprint is planned to be kept within the geographical boundary of original mine, though there will be some clearing tied to the new electricity transmission line. - The project's demand on the BC electrical grid will mean the project will contribute to the cumulative effects on the generation capacity of the province, with associated impacts on stakeholders, though the demand is relatively small compared to other major projects in the province seeking to electrify.
	Distribution of Effects	Good: No appreciable inequities of burden.	- No particular inequities of burden on communities, groups, stake-or rights holder have been identified, other than on those that might be affected by the project's relatively small contribution to the induced effects of incremental electricity generation to support industrialization in the region. - The proponent's stated openness to using regionally-sourced carbon offsets, to not just address climate impacts but also stimulate regional biodiversity and regional economic development, has the potential to have positive effects on local Indigenous or other offset suppliers.
Economic Viability	n/a	Good: Solid financial prospects over the project's lifespan	- With respect to demand: ▪ the project is expected to produce a high-grade gold–silver concentrate with elevated levels of other minerals, all of which is positive, though no contracts have been entered into as of November 2023; ▪ generally, gold and silver enjoy solid demand due in part to their role in global financial markets, and other minerals present in the project's mineralogy also enjoy strong demand; ▪ the recent feasibility study assumes ore prices based on multiple sources including recently-published feasibility studies, long-term analyst price forecasts, and the two-year and three-year trailing average gold and silver prices as of April 2023; and

Criterion	Sub-criterion	Conclusion	Evidence and Explanation for Conclusion
			▪ for the December 2023 feasibility study, gold pricing was set at US$1,800/oz, which is high historically but below February 2024 prices, but project financial performance is estimated to be very good even at US$1,600/oz. - There are various indications of a solid overall financial case for the project: ▪ reserves have grown, improving project economics; ▪ the project's all-in sustaining costs (AISC) are US$687/oz Au Eq compared to the under-construction Blackwater Mine's expected AISC ranging from US$578/oz Au to US$845/oz Au during its 23-year life, which suggests the project is competitive with the local market;[4] ▪ the proponent's feasibility study found the project would have an internal rate of return is 42.7% and a payback period of 1.19 years on an after-tax basis under price assumptions of US$1,800/oz Au and US$23/oz Ag, suggestive of a very good business case; ▪ Skeena's feasibility study undertakes some quantitative analysis of key uncertainties, with no findings raising alarms, giving a level of confidence that the project has robust economics; ▪ stock analysts' price targets are high relative to current stock price; and ▪ Skeena Resources recently concluded a financing package for the project, which shows investors are interested in the project's risk-reward value proposition.[5]
Proponent ESG	n/a	Good: Proponent is a champion of ESG, demonstrating sound reporting, strong performance, strong commitments, credible plans, and sound mechanisms for improvement.	- Skeena publishes annual ESG reports – the 2023 ESG report was the most recently published (May 2024) – with a solid level of detail on corporate climate objectives, initiatives, and progress. - Skeena states in its ESG reporting that it uses an internal price of carbon of $130/t CO_2e for company financial analysis and decision-making, which helps to ensure that the impact of their carbon emissions is considered in financial decisions. This internal price is higher than what Newmont uses ($100/t), suggesting that Skeena decision-making is more stringent than Newmont, though the difference may simply be a case of Skeena expressing their price in Canadian dollars and Newmont in US dollars.[6] - With respect to membership in industry and other associations that may or may not have positions and initiatives regarding climate change: ▪ Skeena became a supporter of the Task Force on Climate Related Financial Disclosures (TCFD) in 2021; ▪ Skeena is a participant in the UN Global Compact, and voluntary global corporate sustainability initiative, and Skeena uses the organization's Ten Principles as a framework for its ESG initiatives; ▪ Skeena is not currently a member of the Mining Association of Canada, an association that has expressed support for the Paris Agreement, which requires members to

[4] https://www.artemisgoldinc.com/blackwater-project/blackwater-gold-project/overview/.
[5] https://skeenaresources.com/news/skeena-closes-c-81-million-financing-with-franco-nevada/.
[6] Newmont (Undated). 2022 Climate Report. 68 pp. https://s24.q4cdn.com/382246808/files/doc_downloads/2023/05/Newmont-2022-Climate-Report.pdf.

Criterion	Sub-criterion	Conclusion	Evidence and Explanation for Conclusion
			participate in the global Towards Sustainable Mining initiative, and who adopted the International Council on Mining and Metals' Climate Change policy in 2009, but Skeena states that it is aligning its policies and practices to enable joining soon; ▪ Skeena is a member of the Mining Association of BC, which has been an active and constructive voice in climate policy in BC; and ▪ Skeena is a member of the BC Regional Mining Alliance, which does not appear to express any particular support or have any initiatives related to climate change.