SKEENA™ RESOURCES

# Eskay Creek Revitalization Project

## Detailed Project Description
## Executive Summary

August 23, 2022

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Joint Submission to the Impact Assessment Agency of Canada, British Columbia Environmental Assessment Office, and Tahltan Central Government

**Skeena Resources**
Suite #650, 1021 West Hastings Street
Vancouver, BC V6E 0C3

August 23, 2022

# ACRONYMS AND ABBREVIATIONS

| Acronym / Abbreviation | Definition |
|---|---|
| ARD | Acid Rock Drainage |
| Barrick | Barrick Gold Corporation (former owner of the historic Eskay Creek Mine) |
| BC | British Columbia |
| Canarc | Canarc Resources Corp. |
| CDN | Canadian |
| CIS LRMP | Cassiar Iskut-Stikine Land and Resource Management Plan |
| COVID-19 | Coronavirus disease 2019 |
| DPD | Detailed Project Description |
| DPM | Diesel particulate matter |
| EAA | British Columbia *Environmental Assessment Act, 2018* |
| EAC | Environmental Assessment Certificate |
| EAC Application | Skeena Resources' Application for an Environmental Assessment Certificate / Impact Statement for the Eskay Creek Revitalization |
| EAO | British Columbia Environmental Assessment Office |
| EC | Environment Canada (now Environment and Climate Change Canada) |
| ECCC | Environment and Climate Change Canada (formerly Environment Canada) |
| EMLI | British Columbia Ministry of Energy, Mines and Low Carbon Innovation |
| ENV | British Columbia Ministry of Environment and Climate Change Strategy |
| ESSF | Engelmann Spruce-Subalpine Fir |
| FLNRORD | BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development |
| FS | Feasibility Study |
| GBA Plus | Gender Based Analysis Plus |
| GDP | Gross Domestic Product |
| GHG | Greenhouse gas |
| HKP | Hallam Knight Piésold |
| Hybrid AIR | Hybrid Application Information Requirements |
| IAA | *Impact Assessment Act, 2019* |
| IAAC | Impact Assessment Agency of Canada |

| Acronym / Abbreviation | Definition |
|---|---|
| ICH | Interior Cedar Hemlock |
| ILMB | Integrated Land management Branch |
| Indigenous Groups | Tahltan Nation, Tsetsaut Skii km Lax Ha, Nisga'a Nation, Gitanyow Nation |
| Indigenous Peoples | Tahltan Nation, Tsetsaut Skii km Lax Ha, Nisga'a Nation, Gitanyow Nation and the Métis |
| IPD | Initial Project Description |
| JSOIE | Joint Summary of Issues and Engagement |
| LWRS | British Columbia Ministry of Land, Water and Resource Stewardship |
| MDMER | Metal and Diamond Mining Effluent Regulations |
| MH | Mountain Hemlock |
| ML/ARD | Metal Leaching/Acid Rock Drainage |
| MOF | British Columbia Ministry of Forests |
| MOTI | British Columbia Ministry of Transportation and Infrastructure |
| NWA | Nass Wildlife Area |
| NWRHD | Northwest Regional Hospital District |
| PEA | Preliminary Economic Assessment |
| PFS | Pre-feasibility Study |
| Project | Proposed Eskay Creek Revitalization by Skeena Resources Ltd. |
| Proponent | Skeena Resources Limited |
| RDBN | Regional District Bulkley Nechako |
| RDKS | Regional District Kitimat-Stikine |
| SARA | *Species at Risk Act* |
| Skeena Resources | Skeena Resources Limited |
| SNDS | Skeena Native Development Society |
| SRK | SRK Consulting Limited |
| TAC | Technical Advisory Committee |
| TCG | Tahltan Central Government |
| TEEM | Tahltan ERM Environmental Management (consultant) |
| THREAT | Tahltan Heritage Resources and Environmental Assessment Team |
| TMSF | Tom MacKay Storage Facility |

| Acronym / Abbreviation | Definition |
|---|---|
| TSI | Tahltan Stewardship Initiative |
| TSKLH | Tsetsaut Skii km Lax Ha |
| TSP | Total suspended particulates |
| TSS | Total suspended solids |
| VC | Valued Component |
| WRSF | Waste Rock Storage Facility |

## SYMBOLS AND UNITS OF MEASURE

| Symbol / Unit of Measure | Definition |
|---|---|
| % | percent |
| °C | degrees Celsius |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalent |
| CDN | Canadian (dollars) |
| ha | hectare |
| km | kilometre |
| $km^2$ | square kilometres |
| | |

| Symbol / Unit of Measure | Definition |
|---|---|
| m | metre |
| masl | metres above sea level |
| Mt/year | million tonnes per year |
| NOx | oxides of nitrogen |
| $NO_2$ | nitrogen dioxide |
| $SO_2$ | sulphur dioxide |
| T | tonne |
| tpd | tonnes per day |
| VOCs | volatile organic compounds |

# EXECUTIVE SUMMARY

**Key updates to this section:**

This section is updated to reflect changes made throughout the Detailed Project Description.

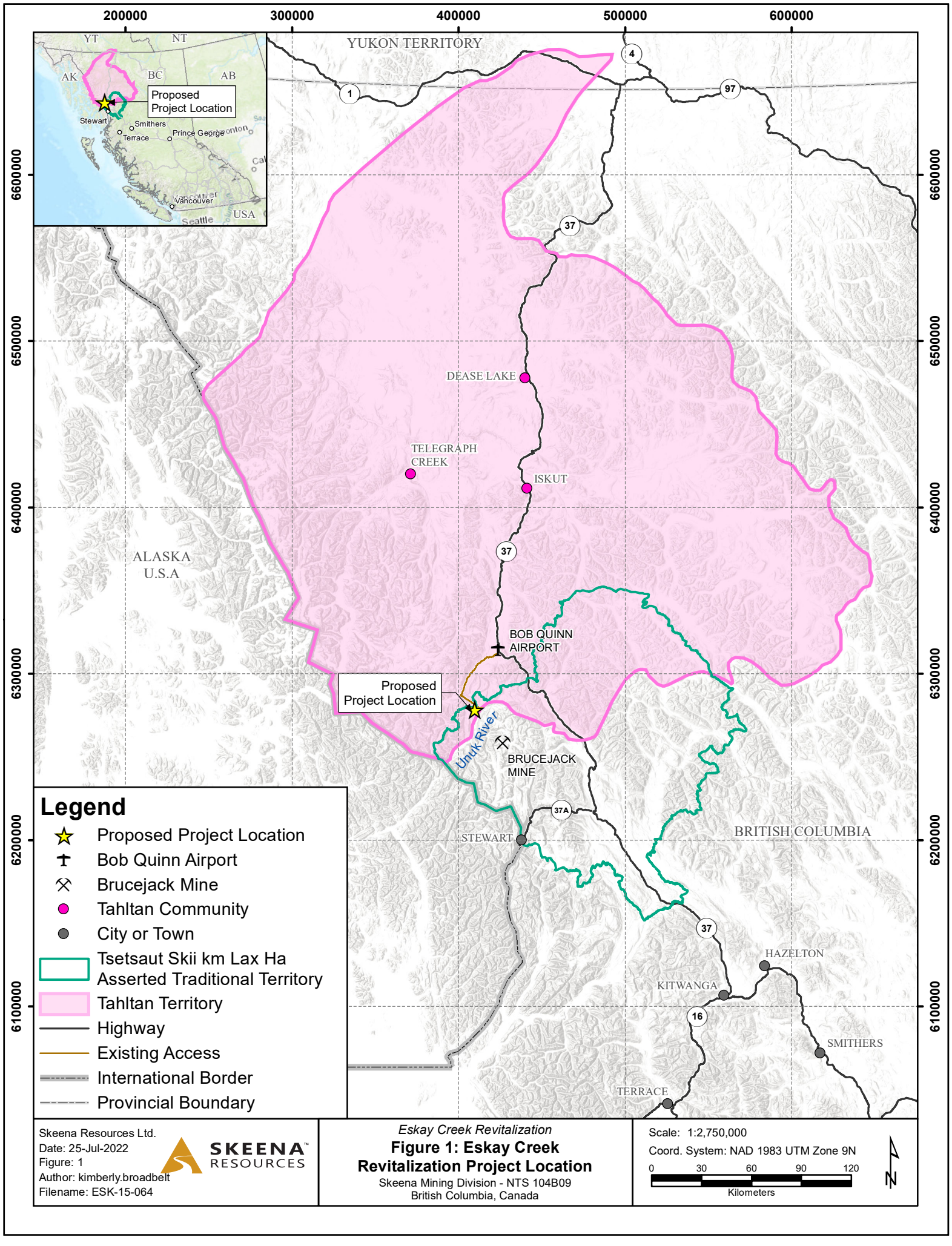
Skeena Resources Limited (Skeena Resources) is proposing the Eskay Creek Revitalization Project (the Project), to restart mining at the past-producing Eskay Creek Mine. The Project will be an open pit gold-silver mine with an estimated total annual production of 3.0 Mt/year in Years 1-5 and up to 3.7 Mt/year in Years 6-9 (8,225 tpd to 10,140 tpd).

The Project is located in northwestern British Columbia (BC), within the territory of the Tahltan Nation and the asserted traditional territory of the Tsetsaut Skii km Lax Ha (Figure 1). The southern portion of the concentrate haul route along Highway 37 near Meziadin Junction, and westward along Highway 37A to Stewart, passes through the territories of the Gitanyow Nation and Nisga'a Nation. The closest local Métis chartered community, represented by the Métis Nation British Columbia, is in Terrace, BC.

## Purpose of the Detailed Project Description

The purpose of the Detailed Project Description (DPD) is to provide an update to the July 2021 Initial Project Description (IPD), including refinements to the Project design, and to describe how Skeena Resources has addressed, or intends to address, the issues raised during engagement and in the Joint Summary of Issues and Engagement from the Environmental Assessment Office and the Impact Assessment Agency of Canada. The objectives of the DPD are to:

1. summarize key issues and concerns and Skeena Resources' approach to resolving them in the DPD or how the issues will be addressed in future phases;
2. update the list of potential positive and negative effects of the Project to inform Process Planning;
3. describe outcomes of engagement with Indigenous Peoples, regulators, stakeholders and public that informed the DPD and plans for follow-up engagement;
4. update information about the Project presented in the IPD and show how comments on the IPD have been considered, or will be considered, as more information becomes available; and
5. provide an overview of the anticipated regulatory path for the Project, including work to consider the Tahltan Nation's information requirements and the combined federal and provincial assessment approach.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Proposed Project Location
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DEASE LAKE
TELEGRAPH CREEK
ISKUT
ALASKA U.S.A
BOB QUINN AIRPORT
Proposed Project Location
Unuk River
BRUCEJACK MINE
37A
STEWART
BRITISH COLUMBIA
HAZELTON
KITWANGA
16
SMITHERS
TERRACE
Legend
Proposed Project Location
Bob Quinn Airport
Brucejack Mine
Tahltan Community
City or Town
Tsetsaut Skii km Lax Ha Asserted Traditional Territory
Tahltan Territory
Highway
Existing Access
International Border
Provincial Boundary
Skeena Resources Ltd.
Date: 25-Jul-2022
Figure: 1
Author: kimberly.broadbelt
Filename: ESK-15-064
SKEENA RESOURCES
Eskay Creek Revitalization
Figure 1: Eskay Creek Revitalization Project Location
Skeena Mining Division - NTS 104B09
British Columbia, Canada
Scale: 1:2,750,000
Coord. System: NAD 1983 UTM Zone 9N
0 30 60 90 120
Kilometers
N

For the purposes of the impact assessment, the primary contact person for Skeena Resources is:

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## Regulatory Context

The following describes the regulatory and policy framework for the Project, including its review within the Tahltan Central Government (TCG) environmental assessment process, the *Impact Assessment Act* (administered by the Impact Assessment Agency of Canada [IAAC]), and the *Environmental Assessment Act* (administered by the British Columbia Environmental Assessment Office [EAO]).

Since 2020, TCG and Skeena Resources have worked collaboratively to define an entry point into the provincial and federal assessment processes for the Revitalization Project. An important outcome of this collaborative approach was TCG's July 2021 request to the BC Minister of Environment and Climate Change Strategy for the Project to be designated as reviewable under Section 11 of the British Columbia *Environmental Assessment Act*. Skeena Resources fully supported this request to the Province, and the Minister designated the Project as reviewable under the federal *Impact Assessment Act, 2019* (IAA) *Physical Activities Regulations*, under the following sections:

- Section 18(d) the construction, operation, decommissioning and abandonment of a new metal mill, other than a uranium mill, with an ore input capacity of 5 000 tonnes per day (tpd) or more; and
- Section 19(c) the expansion of an existing mine with an increase in the area of mining operations of 50% or more and the total ore production capacity would be 5 000 tpd or more after the expansion.

The Project's production rate of 3.0 Mt/year to 3.7 Mt/year (8,225 tpd to 10,140 tpd) would be higher than the threshold in the *Physical Activities Regulations.*

The TCG is the administrative governing body of the Tahltan Nation and is reviewing the Project against TCG's Environmental Assessment Requirements to inform its decision about Tahltan consent on the Project. The Tahltan Heritage Resources Environmental Assessment Team (THREAT) provides technical support to TCG's Lands Department and to Tahltan Leadership.

Pursuant to the *Impact Assessment Cooperation Agreement between Canada and British Columbia*, on August 6, 2021, the Province of BC made a request to the federal Minister of Environment and Climate Change to approve the substitution of the provincial assessment process under the *Environmental Assessment Act* (EAA) for the federal process under the IAA. If the

substitution request is approved by the Minister, the Province would commit to meet the federal legislative requirements for the remainder of the assessment process and fulfill the conditions for substitution under the IAA set out in the Cooperation Agreement and the Substitution Decision.

The EAO and IAAC conducted a comment period on the Project from August 30, 2021, to September 29, 2021. As part of this process, EAO posted the IPD on its public registry, the EAO Project Information Centre, and IAAC posted the IPD on the Canadian Impact Assessment Registry, on July 19, 2021, requesting input from Indigenous Nations and the public as well as technical advisors (federal authorities, provincial ministries, local and Indigenous Governments, and the United States' federal and state agencies).

On June 6, 2022, the Province of BC and TCG announced that they had entered into the first consent-based decision-making agreement under section 7 of the *Declaration on the Rights of Indigenous Peoples Act* (*Declaration Act,* SBC 2019, c 44). The Consent Agreement is tied to the EAA, section 7(b), which allows the provincial government to establish an agreement with an Indigenous Nation to specify that a reviewable project within an area may not proceed without the consent of the Indigenous Nation. The Consent Agreement establishes a Collaboration Team comprising TCG's Lands Director and the EAO Project Lead (as well other designated individuals) to seek consensus and promote collaboration between the two parties at various stages of the assessment process, including:

- deciding whether the Project should proceed to Process Planning;
- establishing what information and assessment requirements are necessary to support both parties' decision-making, including with regards to Skeena's Application for an Environmental Assessment Certificate;
- assessing the EAO's draft Environmental Assessment Report and draft Environmental Assessment Certificate, including any conditions.

The Collaboration Team will also assist the parties to the Consent Agreement in collaboratively reviewing Skeena's Application for an Environmental Assessment Certificate. In addition, TCG will conduct an independent Tahltan Risk Assessment and prepare a Tahltan Risk Assessment Report, setting out TCG's conclusions on whether the Project is likely to cause significant residual or cumulative effects to Tahltan Values. Once the EAO process concludes, the Tahltan Risk Assessment Report report will inform TCG's decision on whether or not to consent to the Project.

A Coordinated Regulatory Authorizations Process Charter is in development between Skeena Resources, Tahltan Nation, and the Province of BC. The Process Charter is an outcome of a Memorandum of Understanding signed in early 2021 between the parties and establishes a strategic approach to coordinating regulatory processes for the Project.

The Project is located within the provincial Cassiar Iskut-Stikine Land and Resource Management Plan (CIS LRMP; ILMB 2000), which encompasses approximately 5.2 million ha. The CIS LRMP is a sub-regional integrated plan that establishes a framework for land use and management objectives. Skeena Resources is not aware of any Indigenous land use plans overlapping the Project area. Skeena Resources has been informed about the Tahltan Stewardship Initiative (TSI) and Lands Governance Framework that is being advanced by the Tahltan Nation and looks

forward to further updates and understanding of that important work. Skeena Resources has not identified any federal regional assessments, studies or plans that have been undertaken in the Project area under sections 92 or 93 of the IAA. The *Strategic Assessment of Climate Change* was deemed a strategic assessment conducted under section 95 of the IAA and applies to all designated projects under the IAA. No federal funding has been requested and no federal support is being provided for the Project.

The TCG Lands Department are developing Tahltan Environmental Assessment Strategy Framework, including Tahltan-specific Application Information Requirements, which include strategic policy and operational components and supports, to guide participation, inclusion of Tahltan Knowledge, and decision-making for projects proposed in Tahltan territory. The Tahltan Environmental Assessment Strategy Framework are grounded in Tahltan laws and values and guided by the Declaration of the Tahltan Tribe (Tahltan Nation 1910) and the Tahltan Resource Development Policy (TCC 1987), among other documents. As the Project is located within Tahltan territory, TCG indicated that it will be assessed using this approach.

The *Nisg̲a'a Final Agreement* is a treaty and land claims agreement which came into effect in 2000. This Agreement establishes three categories of lands with different specified Nisg̲a'a interests: Nisg̲a'a Lands, the Nass Wildlife Area, and the Nass Area. The Agreement affords title to Nisg̲a'a Nation within Nisg̲a'a Lands and defines the rights of Nisg̲a'a Nation to self-government and law-making authority in this area. Chapter 10 of the *Nisg̲a'a Final Agreement* establishes the requirements for environmental assessments for projects that are either on Nisg̲a'a Lands or may reasonably be expected to have adverse environmental effects on residents of Nisg̲a'a Lands, Nisg̲a'a Lands or Nisg̲a'a interests set out in the Agreement. The Project mine site is 16.8 km from the Nisg̲a'a Nass Area, 49.9 km from the Nass Wildlife Area, and 157.8 km from Nisg̲a'a Lands. Project activities in these areas comprise transportation and concentrate hauling along highways 37 and 37A to the Port of Stewart for marine concentrate shipping. Skeena Resources will continue to engage with Nisg̲a'a Nation to ensure that the Project and the assessment are meeting *Nisg̲a'a Final Agreement* requirements.

Skeena Resources will continue to work with Gitanyow Hereditary Chiefs Office on applying the Gitanyow Wilp Sustainability Assessment Process to the Project.

Skeena Resources will also continue to engage with Tsetsaut Skii km Lax Ha to support its participation in the environmental assessment process and its own decision-making.

A summary of potential provincial and federal authorizations required for the Project are provided in Table 1 and Table 2, respectively. The tables identify anticipated amendments to existing authorizations (summarized in Section 3.4) as well as new authorizations. Permit requirements will be confirmed by regulatory authorities during the assessment process. The Project is anticipated to be compatible with all known government policies.

*Table 1 Summary of Potential Provincial Permits, Licences and Approvals Required for the Project*

| Authorization | Responsible Agency | Legislation |
|---|---|---|
| Amendment to Permit M-197 | EMLI | *Mines Act*, Health, Safety and Reclamation Code for Mines in BC |
| Explosives Storage and Use Permit | EMLI | *Health, Safety and Reclamation Code s.8* |
| Water System Construction Permit<br>Water System Operating Permit | Northern Health | *Drinking Water Protection Act*, Drinking Water Protection Regulation |
| Food Facility - Health Approval Application | Northern Health | *Drinking Water Protection Act* |
| Industrial Camp Notification | Northern Health | *Industrial Camps Regulation* |
| Sewage Registration | ENV | *Environmental Management Act,* Municipal Wastewater Regulation |
| Amendment to *Environmental Management Act* (Effluent) Permit 10818 | ENV | *Environmental Management Act* |
| *Environmental Management Act* (Air Emissions Permit) | ENV | *Environmental Management Act* |
| Hazardous Waste Registration | ENV | *Environmental Management Act,* Hazardous Waste Regulation |
| Fuel Storage Registration | ENV | *Environmental Management Act* |
| Water Licence | MOF | *Water Sustainability Act* |
| Approval for Works in and about a Stream (Section 11) | MOF | *Water Sustainability Act* |
| Investigation or Inspection Permit | MOF | *Heritage Conservation Act*, RSBC 1996, c. 187 |
| Site Alteration Permit | MOF | *Heritage Conservation Act* |
| Occupant Licence to Cut | MOF | *Forest Act* |
| Road Use Permit | MOF | *Forest Act* |
| Amendment to Special Use Permit | MOF | *Forest Act* |
| Fish Collection Permit | LWRS | *Wildlife Act* |
| Wildlife Permit | LWRS | *Wildlife Act* |
| Licence of Occupation | LWRS | *Land Act*, RSBC, 1996, c. 245 |
| Access Permit | MOTI | *Transportation Act* |

*Table 2 Summary of Federal Permits, Licences and Approvals Possibly Required for the Project*

| Authorization | Responsible Agency | Legislation |
|---|---|---|
| Explosives Permit | Natural Resources Canada | *Explosives Act* R.S.C., 1985, and Explosives Regulations, (SOR/2013-211) |
| Fisheries Authorization | Fisheries and Oceans Canada | *Fisheries Act* |
| Migratory Bird Permit | ECCC | *Migratory Birds Convention Act* |
| Species at Risk Permit | ECCC | *Species at Risk Act* |
| Environmental Emergency Registration | ECCC | *Canadian Environmental Protection Act, 1999* Environmental Emergency Regulations |
| Nuclear Safety Authorization | Canadian Nuclear Safety Commission | *Nuclear Safety and Control Act* |
| Radio Licence | Industry Canada | *Radio Communication Act* |
| Navigable Waters Approval | Transport Canada | *Canadian Navigable Waters Act* |
| Transportation of Dangerous Goods Permits | Transport Canada | *Transportation of Dangerous Goods Act* |
| Strategic Assessment of Climate Change | ECCC | Section 95 of the IAA |

## Project Description

The Project would restart mining at the past-producing Eskay Creek Mine, which operated as an underground mine from 1994 to 2008. The Project will be a gold-silver open pit 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). The Project is expected to have a 14-year mine life (i.e., from Construction to Closure). Production process at the Project will include ore mined via an open pit and hauled to an adjacent crusher and processed using conventional milling and flotation to recover a gold-silver concentrate.

The Project will make use of facilities and infrastructure of the closed Eskay Creek Mine, which has been in care and maintenance since 2008—including existing disturbed areas, tailings/waste rock storage areas/waterbodies, and waste disposal locations—and will also require new infrastructure, including a new mill. Project access will be via the Eskay Creek Mine Access Road, a multi-use industrial road constructed in the early 1990s. The Project will involve construction, operation, decommissioning and closure of an open pit mine and mill operation, concentrate transport and associated infrastructure, and activities at the former underground mine site. Once into the Operations phase, the 2008 mine infrastructure will be decommissioned, as it will sit adjacent to the proposed open pit.

New Project infrastructure will include:

- construction of embankments to existing Tom MacKay Storage Facility (TMSF) to increase waste storage capacity including tailings and waste rock;
- 20 km transmission line to mine site;
- substation to connect to existing transmission lines near the Forrest Kerr and Volcano Creek hydroelectric generating facilities;
- open pits (North and South);
- overburden and topsoil stockpiles;
- Waste Rock Storage Facility (WRSF);
- surface and diversion water management structures;
- haul roads and light vehicle roads;
- processing area, including ore process plant, hazardous waste storage facility, and other buildings and facilities;
- detonator and explosives magazines and explosives bulk storage;
- mine infrastructure facility;
- tailings and reclaim water pipelines;
- helipad for emergency situations;
- security buildings;
- warehouse and laydown areas;
- modular worker accommodations; and
- water treatment facilities for sewage, potable water, and contact water (if required).

Skeena Resources has undertaken significant design work for the Project since the submission of the IPD in July 2021. Additional engineering work for the Feasibility Study (FS; e.g., water management, design, mitigation planning) will continue into 2022 to be reflected in materials prepared by Skeena Resources as part of the regulatory process. A summary of Project design and updates is presented in Section 4.0.

Planning for the Project is anticipated to occur over a two- to three-year period and will be concurrent with the environmental assessment regulatory process (2021-2024) preceding Project development and will include completion of engineering studies (i.e., the FS), regulatory engagement, and permitting. The regulatory schedule will be determined in collaboration with EAO, IAAC, and TCG.

Construction of the Project is planned to take two years and will include pre-stripping, stockpiling, construction, and commissioning activities. The estimated operating mine life is nine years. The site closure process at the end of the mine life will take approximately three years. Progressive reclamation will start in the latter part of Operations and will continue during the Closure phase. Monitoring of the closed facility is expected to be a requirement of future permits and licences.

## Project Location

The Project is located within the territory of the Tahltan Nation and the asserted traditional territory of the Tsetsaut Skii km Lax Ha. Three Tahltan communities are located north/northeast of the Project:

- Iskut (135 km north; 170 km via road);
- Dease Lake (190 km northeast; 253 km via road); and
- Telegraph Creek (142 km north; 362 km via road).

The Project is within the Regional District of Kitimat-Stikine (RDKS) on provincial Crown land mineral tenures held by Skeena Resources. The coordinates of the centre of the mineral deposit are approximately 56° 39′ 13.9968″ N and 130° 25′ 44.0004″ W. The existing tenures held by Skeena Resources, comprising a total of 5,745.5 hectares (ha), include 43 mineral claims, four gravel lot claims, eight mineral leases, and two surface leases with the areas adjacent to the Project under other ownership (Section 7.3). Canarc Resources Corp. (Canarc) has a 33% carried interest in several mining leases. All operating decisions related to the property are exclusively those of Skeena Resources. Skeena Resources, as the operator, has acquired historical liabilities from Barrick Gold Inc. Canarc carries severed liability for the property.

No federal lands will be used to carry out the Project. The Project is not near First Nation land as defined in subsection 2(1) of the *First Nations Land Management Act*. The Project will be within a 136 to 224 km distance to the Federal Lands (Indian Reserves) of the Indigenous communities of Iskut, Tahltan, and Gitanyow.The mine site is 16.8 km from the Nisga'a Nass Area, 49.9 km from the Nass Wildlife Area, and 157.8 km from the Nisga'a Lands, as defined in the *Nisga'a Final Agreement Act*. Any seasonal or temporary residences identified by Indigenous groups or community members will be identified and included in the environmental assessment undertaken to fulfill TCG, EAO, and IAAC requirements.

## Alternatives to and Alternative Means of Carrying out the Project

Skeena Resources is considering potential alternatives to the Project that are technically and economically feasible and directly related to the Project. The possible alternatives are:

- Not undertaking the Project;
- Changing the timing of the Project; or
- Changing the location of the Project.

The 'no Project' alternative will not provide the positive social and economic effects associated with the Project's development and will not fulfill the purpose of the Project. The second alternative will generally have the same environmental effects as those associated with proceeding with the Project as proposed. The third alternative, changing the Project's location, is not possible. The environmental, social, and economic effects associated with the alternatives to the Project will be further reviewed through the assessment process.

An initial alternatives assessment was completed during the Preliminary Economic Assessment (PEA) in 2019, and a suite of trade-off studies were undertaken during the Pre-feasibility Study (PFS) to assess alternatives and refine the approaches to carry forward into the ongoing FS. Alternative means for carrying out the Project that are technically and economically feasible and directly related to the project were considered and included: ore processing; tailings and waste rock storage management, location and technology; camp facilities; waste and water management; on-site materials transport; and worker transport and rotation. Alternative ways to undertake the Project will continue to be assessed during the FS and environmental assessment process. Skeena Resources will collaborate with THREAT to complete an alternatives assessment for Project components. The outcomes of the assessment will be presented in the Application. Skeena Resources will adapt methods for the alternatives assessment from the *Guidelines for Assessment of Alternatives for Mine Waste Disposal* (ECCC 2016).

## Project Need, Purpose, and Benefits

The Project is needed to supply precious metals to global markets to support industrial development needs, including the technology, health, automotive, and aerospace sectors, as well as consumer and investment demand.

The purpose of the Project is to undertake responsible and sustainable resource extraction of gold and silver concentrate from a previously mined deposit (i.e., redevelopment of a brownfield mine). The Project will foster economic growth and prosperity in BC, particularly northwestern BC, while supporting capacity building, employment, and benefits to local Indigenous Peoples and communities in alignment with the objectives of the BC Mining Jobs Task Force (2018). The Project will be designed, constructed, operated, and decommissioned to meet all applicable BC and Canadian environmental and safety standards and practices.

Skeena Resources is committed to developing the Project in a sustainable manner that will contribute to the local, provincial, and national economies, and will create employment opportunities locally, regionally, and beyond. Skeena Resources is nearing completion of an FS for the Project and, due to securities regulations which limit disclosure, will provide updates to the economic estimates appearing in this report once this study is completed and publicly released. Based on the previously released Prefeasibility Study, the Project's estimated capital cost is $455 million Canadian (CDN). An additional $81 million in sustaining capital expenditures is expected during the life of the Project, for a total capital cost of $536 million. The expected annual operating cost is $135 million CDN. Much of these costs would be spent in northern British Columbia, employing local and Indigenous contractors and employees. The Project will generate tax revenue for local, provincial, and federal governments. Skeena Resources' current estimate of direct Project employment is 338 person-years during pre-production, 880 person-years during Construction, and 3,870 person-years during Operations (a total of 5,088 person-years); as well as additional contractor/consultant employment. Additional employment benefits will be created for workers in supplier industries and in businesses benefiting from workers spending their income. Once the FS is released publicly, the Project benefits estimates will be updated.

## Engagement

Skeena Resources is committed to early, inclusive, and meaningful engagement with Indigenous Peoples, governments, communities, and other stakeholders during the federal and provincial assessment processes. To date, Skeena Resources has engaged with TCG, federal and provincial government agencies, as well as the following Indigenous groups: the Tahltan Nation, Tsetsaut Skii km Lax Ha, Nisga'a Nation, Gitanyow Nation, and Métis Nation British Columbia.

Skeena Resources initiated engagement on its exploration program with the Tahltan Nation in January 2015. Since then, Skeena Resources' engagement with the Tahltan Nation has developed into a multifaceted relationship with TCG and Tahltan members. Skeena Resources hosted two virtual information sessions with members of the Tahltan Nation in June 2021 and a Tahltan Community Engagement Session was hosted in partnership with TCG, IAAC, and EAO during the public comment period in September 2021. Skeena Resources works closely with community leadership on planning in-person community visits.

Skeena Resources initiated engagement with Tsetsaut Skii km Lax Ha in spring 2018 and had an opportunity to engage in-person in August 2020. Skeena has continued dialogue into May 2022, providing Tsetsaut Skii km Lax Ha with the draft Initial Project Description for review and comment in the first quarter of 2021, and also requesting TSKLH's input on preferred method for engagement on draft documents.

Skeena Resources held introductory meetings with Nisga'a Lisims Government in March 2021, and in April 2022, initiated participation in an assessment under Section 10 of the Nisga'a Final Agreement. Skeena Resources finalized a Confidentiality Agreement with Nisga'a Lisims Government in May 2022 and will continue to work with this government as part of its assessment process.

Skeena Resources held introductory meetings with the Gitanyow Nation during which the Gitanyow Hereditary Chiefs Office expressed interest in the Eskay Creek Revitalization Project participating in the Pilot Program for the Gitanyow Wilp Sustainability Assessment Process. Skeena Resources will continue to work with Gitanyow Hereditary Chiefs on applying this process to the Project and addressing their interests and concerns.

Skeena sent an introductory letter to Métis Nation of British Columbia in June 2021 but has not received a response. Métis Nation of British Columbia did not submit comments during the public comment period on the Initial Project Description.

In total, since July 2021, Skeena Resources has had over 119 engagements with federal and provincial government agencies, the Tahltan Nation, Tsetsaut Skii km Lax Ha, Nisga'a Nation and Gitanyow Nation and the public. This includes over 99 meetings with Tahltan leadership, four presentations to local governments and two public virtual information sessions hosted by TCG, EAO and IAAC. In July 2021, Skeena Resources developed a website to provide updated information on the Project and engagement opportunities. Skeena Resources also set up a dedicated e-mail address for public comments, monitored daily by Skeena Resources' Engagement Coordinator. An Engagement Plan submitted in July 2021 (Skeena Resources

2021b) has helped guide activities to date and will continue to inform engagement for the regulatory processes to come.

In the list below, Skeena Resources provides a brief synthesis of what it understands to be the key themes in the issues and comments received, as identified by IAAC and EAO in the JSOIE. Skeena Resources has tracked and responded to each of these comments separately, and provides responses to the summary of comments in the JSOIE prepared by IAAC and EAO (in Appendix I) and has revised the DPD to provide some of the additional information requested by reviewers. Skeena Resources anticipates that many of the comments and recommendations in the JSOIE will be addressed in subsequent phases of the Project's environmental assessment process. The Hybrid Application Information Requirements (Hybrid AIR) is currently being developed and will be finalized in the Process Planning phase.

- **Indigenous Nation Information Exchange:** Interest in receiving additional information regarding the Project itself and in sharing information—including Indigenous Knowledge—to be considered in the process, as well as considerations and approaches for appropriately reflecting that knowledge in the EAC Application and other process documents.
- **Tahltan Nation Assessment Process:** Requirements for the assessment process itself as well as the EAC Application in alignment with Tahltan Knowledge and values, risk assessment, and decision-making by the Tahltan Nation, and regulatory role in the environmental assessment process.
- **Accidents, Malfunctions, and Public Safety:** Concerns about the potential for impacts to the environment (including air quality, water quality, wildlife), contamination of drinking/ recreational water and traditional foods, vehicle accidents, open pit flooding and tailings storage facility failure, incident communications and geotechnical stability.
- **Alternative Means of Carrying Out the Project:** Concerns about waste management, mining techniques (i.e., open pit vs underground), and pit development alternatives, as well as some recommended approaches for the alternatives assessment to be provided in the EAC Application.
- **Atmospheric Environment:** Recommendations for parameters and approaches that should be used in the effects assessment for air quality to be provided in the EAC Application. Request for clarification regarding the overland conveyor and an amendment to the list of potential mitigations.
- **Greenhouse Gas Emissions:** Suggestions for methodology for calculation of the Project's GHG emissions and potential contribution to climate change, interest in mitigations of emissions, and recommendations for the approach to effects assessment to be used in the EAC Application.
- **Cumulative Effects:** Concerns about impacts to Indigenous communities and the Project's additions to cumulative effects of resource development in the region, as well as recommendations for the approach to effects assessment to be used in the EAC Application.
- **Differential Impacts on Diverse Persons and Groups:** Several recommendations relating to relevant data and methodologies to be used as part of the effects assessment in the EAC Application.

- **Economic Conditions:** Requests for workforce projections and additional social and economic information to be included in the EAC Application and considerations for Skeena Resources for enhancement of economic opportunities for Indigenous and local groups.
- **Effects of the Environment on the Project, including Climate Change:** Recommendations relating to the effects assessment approach used in the EAC Application, consideration of the impacts of climate change on the Project, and concerns about the sufficiency of baseline information.
- **Fish and Fish Habitat:** Concerns about impacts to fish (including salmon and hooligan/ eulachon) and fish habitat from potential effects on water quality in short and longer time periods; potential for impacts tied to trucking and shipping, accidents, and transboundary impacts; and reliance on specific data sources. Recommendations for monitoring approaches and mitigation measures to be considered in the EAC Application. Additional concerns expressed regarding the potential consequences to Indigenous interests should the Project affect fish populations or fish habitat directly or through effects to water quality.
- **Geology, Geochemistry, and Geological Hazards:** Requests for additional detail and clarifications on the Project design.
- **Human Health:** Concerns relating to potential Project effects on noise, vibration, and air quality and recommendations on approaches to assessing these and other effects to human health (including Health Impact Assessment).
- **Water Quality and Processes:** Concerns about effects to surface and groundwater quality and quantity, including drinking water, the potential for transboundary effects, inquiries regarding water treatment and management options being considered, and recommendations on approaches for water balance modelling and approaches to be used in the EAC Application.
- **Post-operation Condition of the Project:** Concerns raised about potential long-term effects to land and water, mitigation approaches, reclamation and closure conditions, geotechnical and geochemical stability, water quality, and Tahltan land uses.

## Emissions, Waste and Discharges

Greenhouse gas (GHG) emission calculations were updated based upon estimates from the Feasibility Study in progress. GHG emissions will be generated directly by the Project from construction and mining activities and calculations were completed following the *Strategic Assessment of Climate Change*. Based on the direct and acquired energy GHG emissions for the Construction, Operations and Reclamation and Closure phases of the Project, the total net GHG emissions summed over all years of the Project are 768,506 t $CO_2$e. The maximum annual net GHG emissions for the Construction phase of the Project are in Year -1 (32,924 t $CO_2$e). The maximum annual net GHG emissions during the Project are in Year 3 (90,977 t $CO_2$e). Annual net GHG emissions for decommissioning and closure are estimated to be the same for all years with 23,107 t $CO_2$e. Section 4.5.1.2 further outlines the calculations undertaken and the total net emissions for the Construction (79,867 t $CO_2$e), Operations (619,319 t $CO_2$e), and Closure (69,320 t $CO_2$e) phases.

Air emissions from the Project will be limited to a few point sources, which will require an *Environmental Management Act* permit (e.g., garbage incinerator, assay lab exhaust, dust collector exhausts, ventilation fans from process tanks, propane dryer for concentrate). There will also be dispersed sources which will not require permits, including GHG emissions from mobile and stationary equipment, and fugitive dust. A management and mitigation plan will minimize air emissions and fugitive dust and mitigate potential effects to biophysical and human receptors.

Project construction, processing, and mining activities will generate air contaminants, which may include:

- point source emissions potentially containing particulates (e.g., dust fans, ventilations systems) as Total Suspended Particulates (TSP), and size fractions $PM_{10}$ and $PM_{2.5}$;
- fugitive dust, consisting of TSP, $PM_{10}$ and $PM_{2.5}$, with metals constituents among the particulate load associated with disturbance of fine materials in various activities (e.g., including vehicle traffic, construction, concentrate hauling, maintenance, as well as mining activities such as blasting, dumping, quarrying, road building, stripping, stockpiling, grading, snow clearing); wind and rain erosion may also generate fugitive dust from stockpiles and surfaces; and
- criteria air contaminants, including oxides of nitrogen (NOx), $PM_{10}$, $PM_{2.5}$, sulphur dioxide ($SO_2$), volatile organic compounds (VOCs), diesel particulate matter (DPM) and carbon monoxide (CO), due to the combustion of diesel, gasoline, and propane fuels by vehicles, non-road equipment, process plant, power supply (backup diesel generators) and heating units.

Waste generated by the Project will include:

- waste rock;
- tailings;
- other wastes from both hazardous and non-hazardous sources (e.g., office, domestic waste and vehicle maintenance wastes);
- sewage; and
- hydrocarbon contaminated soil (in the event of spills or leaks).

Hazardous waste materials such as spoiled reagents, waste petroleum products and used batteries will be generated throughout the life of the Project. Storage facilities will facilitate the segregation and inventory of the various hazardous waste streams generated during the Project.

The Project will manage releases of contact water (e.g., seepage from the WRSF, process water, tailings and pit dewatering, treated sewage) separately from diversion of non-contact water from upstream catchments that has not been in contact with mine workings. Water discharge monitoring will be a fundamental component of the Environmental Management System and permit management. Water discharge monitoring will be informed by the lengthy record of effluent discharge monitoring at the three permitted discharge locations (sites TM1, W20, and D7). Water

emissions will meet existing or future provincial permit limits and national (i.e., MDMER) standards prior to discharge.

Water management planning, water quality/quantity modelling, and mitigation planning is underway by Skeena Resources to inform the early stages of the environmental assessment process (e.g., Water Model Plans), potential effects and related mitigation measures (e.g., source term controls), and to inform Indigenous peoples, reviewers, and designers of the outcomes. Skeena Resources is committed to sharing of early information with the Tahltan Nation and reviewers to appreciate mitigation approaches, model structures and approaches, early results, and innovations to address potential impacts. Skeena Resources will engage with the Technical Advisory Committee (TAC) and specialist sub-groups to discuss development of the Project, modelling approaches, outcomes and mitigations, and create an approach to fulfill the requirements for both the EAC Application and regulators. By engaging with oversight committees or specialist sub-groups of the TAC, Skeena Resources anticipates a comprehensive dialogue to support information sharing and consideration of Tahltan sustainability and risk requirements.

## Project Environment and Human Context

Sections 8.1, 8.2, and 8.3 provide an overview of existing physical, biological, and human environment conditions in the Project area based upon a suite of historic and recent information. Biophysical studies were completed to support the 1993 application for a Mine Development Certificate (as described in Section 5.2.1) for the Eskay Creek Mine and later permit amendments. Skeena Resources completed a gap assessment of these early 1990s studies and monitoring data over the past two decades and undertook additional environmental, social, economic, heritage, and health studies in 2020 and 2021 to address refinement of the Project design and to reflect current regulatory requirements in support of provincial and federal environmental assessment submissions. Environmental studies for other projects also exist and provide regional information and context to inform the regulatory applications. Tahltan information and knowledge for the territory will be incorporated into the process and applications as Skeena Resources and THREAT develop information sharing agreements.

### Physical Environment

The Project is located on the Prout Plateau, as shown on the report cover photo. The Prout Plateau is a rolling subalpine upland, with an average elevation of 1,100 masl, on the eastern flank of the Boundary Ranges of the Coast Mountains between the Unuk River (just south) and Iskut River (north of the Project). The Iskut River and upper Unuk River watersheds in the area near the mine site is characterized by steep mountains with isolated plateaus, high precipitation, shallow soils, many steep small tributaries, and the large river corridors draining westward to the ocean. Relief (or variation in elevation) over the Prout Plateau ranges from 500 m in the TMSF area to over 1,000 m between the Unuk River and Ketchum Creek valleys and highest points. The Project is at approximately 800 m elevation in the Tom MacKay Creek watershed. Mountain slopes are heavily forested while the subalpine terrain around the Project reflects sparser forest cover and parkland forest type.

The mean annual total precipitation at the Project area is estimated to be 2,700 mm, based on updated monitoring and modelling information from past two years (TEEM 2021). The majority (55% to 71%) of annual precipitation falls as snow between September and May. The average temperature ranges from -10.4 degrees Celsius (°C) in January to +15 °C in July (EC 2013). Expected extreme temperatures range from -40 °C to +30 °C (SRK 2019).

## Biological Environment

There are three biogeoclimatic ecosystem classification (BEC) zones in the Project area around Prout Plateau: Mountain Hemlock (MH) and Engelmann Spruce-Subalpine Fir (ESSF) zones around the mine site and Volcano Creek, and transitional Interior Cedar Hemlock (ICH) zone at lower elevation along the Eskay Creek Mine Access Road (BC FLNRORD 2021b; Government of BC 1988). The Project is situated near the transition from the wetter coastal Mountain Hemlock and Coastal Western Hemlock zones to the relatively drier interior zones (ESSF and ICH), which still have significant precipitation.

The Project area provides habitat for a variety of wildlife species. Large wildlife species recorded within the Project area of the Iskut and Unuk rivers include black bear, moose, and mountain goat. Small mammals recorded in the Project area include American marten, wolverine, voles, and hoary marmot. Furbearing mammals with suitable habitat in the Project area include grizzly bear, wolf, lynx, ermine, mink, fisher, least weasel, and snowshoe hare (HKP 1993). Mid and lower elevation areas provide habitat for porcupine, northern flying squirrel, and red squirrel. Plovers, Canada goose, harlequin duck, and numerous passerine species have been recorded in the area. Raptors recorded in the area include bald eagle, sharp-shinned hawk, and owls. Upland breeding birds (migratory birds) include varied thrush, pine siskin, fox sparrow, hermit thrush, Wilson's warbler, dark-eyed junco, Townsend's warbler, yellow-rumped warbler, ruby-crowned kinglet, sooty grouse, golden-crowned sparrow, and Pacific wren.

Biophysical inventory mapping identified the Project area is potentially suitable for woodland caribou and moose (MOE 1982). While there have been incidental observations of caribou in the regional area, there are no known herds in the region, as caribou do not use ICH and ESSF BEC zones for habitat. The mine site is not overlapped by any caribou herd ranges shown on provincial range mapping (Government of BC 2019).

Since the 1990s, no fish have been observed or captured in the upper tributaries of the Unuk River in the immediate vicinity of the Project during multiple sampling events, typically due to the lack of fish access from low elevation fish bearing stream reaches, which contain extensive barriers and cascades. Sampling over the past three decades occurred in headwater lakes (Albino Lake, Little Tom MacKay Lake, and the TMSF), Eskay Creek, Ketchum Creek, Tom MacKay Creek, and other small streams immediately adjacent to the mine site and downstream. Salmon species (pink, chum, chinook, and sockeye), Dolly Varden, and cutthroat trout were observed 7-8 km downstream of the former Eskay Creek Mine Site in the Unuk River but cannot migrate up Ketchum Creek to the mine site.

## Human Context

The Project is located at the southern boundary of Electoral Area D of the RDKS and the northern edge of Electoral Area A. Electoral Area D includes the Eskay Creek Mine Access Road and transmission line in the Iskut River watershed, Bob Quinn Lake Aerodrome, Iskut, Telegraph Creek, Tatogga, as well as several Tahltan reserve communities (Iskut 6, Telegraph Creek 6/6A and Guhte Tah 12), covering an area of 28,137 km$^2$ (Statistics Canada 2017d). Electoral Area A includes the mine site within the Unuk River watershed. Electoral Area F includes the northern section of Tahltan territory and Tahltan communities, but not the mine site. While not an exhaustive summary of all communities in the northwest area which may interact with the Project's workforce or supply chain, an overview of key communities is provided and additional communities will be included in the EAC Application.

Many of the smaller communities in Electoral Areas A and D have predominantly Indigenous populations that are spread across the large territory as well as situated in the main regional centres of Smithers and Terrace. Approximately one-third of the 40,000 to 45,000 people in the region are Indigenous, which is higher than the provincial average (MSBEC 2005).

Economic activity in the Project area is strongly tied to the mineral exploration and mining sectors. Exploration activity and interest in mineral resources in Northwest BC dates back to the mid-1800s (Visual Capitalist 2016) and much earlier for the Tahltan Nation. The first major discovery was the Premier Gold Mine in 1918, the Snip Gold Mine in 1964, and the underground Eskay Creek Mine in 1988. Presently, primary resource industries, principally mining and forestry, comprise a key proportion of the larger regional (northwest and west central BC) employment market at 4.6% and 2.6% respectively and are important to Tahltan communities and members working in regional communities (WorkBC, Regional Labour Market Information 2020; Pretium 2014). Public sector services (Band administration, health and social services) provided a high proportion of employment in Tahltan territory prior to 2013, followed by mining and exploration, and support services (SNDS 2007, *in* Pretium 2014).

There is well-developed infrastructure in the region, including a paved road that intersects with Highway 16 near Kitwanga and extends to the Yukon border (Highway 37) and to port facilities in Stewart (Highway 37A). The 335 km Northwest Transmission Line, built in 2012, runs from Terrace to Bob Quinn Lake and north to the Red Chris Mine. There are three hydroelectric facilities (Forrest Kerr [about 16 km northwest of the Project], Volcano Creek [about 12 km northwest), and McLymont Creek [about 42 km north]) owned by Axium Infrastructure Inc., in which Tahltan Nation has an equity position.

Tahltan community surveys, interviews, and review of government data was undertaken in 2021 (after the IPD was submitted) to gather baseline social, economic, land use, and cultural information for Tahltan territory into baseline reports. These included both online and in-person surveys of Tahltan communities and members by surveyors with sensitivity training and experience. The 2021 survey was a joint undertaking by Skeena Resources, TCG representatives, and Newcrest to document social and economic conditions, opinions, and concerns around mining projects, and identify issues or barriers which can be influenced by mining projects.

The Project is located within the North West Regional Hospital District (NWRHD), the largest of 23 Regional Hospital Districts in the Province. The Hospital District has the same boundaries as the entire RDKS, North Coast Regional District (formerly Skeena-Queen Charlotte Regional District), and the western portion of the Regional District of Bulkley-Nechako, serving approximately 80,000 residents in three regional districts. Collectively there are 26 municipalities and electoral areas plus the Nisga'a Nation. The NWRHD supports two health authorities (Northern Health and Nisga'a Valley Health) and 16 community facilities. The Project is within the Northwest Health Service Delivery Area and the Snow Country Local Health Area.

## Potential Effects

Table 3 presents a list of potential effects of the Project (a duplicate of the first columns of Table 10-2 of the DPD). Note the bolded text indicates text that has been revised or added since the submission of the IPD. As part of the Application Development and Review stage of the environmental assessment process, analysis will focus on the Project's effects on specific components, which will be identified in collaboration with Indigenous Peoples, government agencies, and the public. Feedback to date on potential effects and mitigations has been incorporated into the table since the IPD. Tahltan values will be identified and incorporated into the assessment through collaboration with THREAT, particularly as part of the Hybrid AIR document.

*Table 3 Preliminary List of Potential Effects of the Project (duplicate of the first two columns of DPD Table 10-2)*

*Bolded text has been added or revised since the submission of the IPD.*

| Component | Potential Effect |
|---|---|
| **Indigenous Interests** | |
| Physical and Cultural Heritage, Current Use of Lands and Resources for Traditional Purposes, Sites of Historical, Archaeological or Cultural Importance, Indigenous Rights and Title | • Generally, these potential effects are related to the Project's potential impacts to the biophysical environment, the Project's footprint, **ancillary activities, and resulting use or value by Indigenous Peoples of those resources as part of social, cultural, and related interests.** These could, in combination, potentially affect exercising of **Indigenous Rights, impact Indigenous Title,** and influence land uses in and around the Project.<br>• **Examples of these effects could include (note some of which overlap or are a consequence of the biophysical effects listed later in this table):**<br>▪ **loss of food security (traditional foods);**<br>▪ **loss of lands with native habitats and associated wildlife;**<br>▪ **impacts to soils, waters and fish habitat;**<br>▪ **loss of habitat for migratory birds;**<br>▪ **localized climatic changes due to potential emissions during construction, operation and decommissioning;**<br>▪ **loss of access and consequential inability to conduct activities in the Project area;**<br>▪ **impacts to sacred sites and other cultural and heritage-sensitive areas; and**<br>▪ **cumulative effects.** |

| Component | Potential Effect |
|---|---|
| **Indigenous Interests** (*cont'd*) | |
| Indigenous Peoples' **Environmental, Cultural,** Health, Social or Economic Conditions | • Generally, these potential effects are related to the Project's potential impacts to the biophysical environment and to social and economic factors (e.g., related to food security, transmission of knowledge, employment). These could, in combination, potentially affect legal, spiritual, and cultural practices; transmission of traditional culture**,** knowledge, and law; **relationship of the land to Tahltan way of life and future generations**; and improve employment and economic opportunities.<br>• **Examples of these effects on Indigenous interests or communities could include (note some of which overlap or are a consequence of the biophysical effects listed later in this table):**<br>▪ **loss of food security (traditional foods);**<br>▪ **loss of lands with native habitats and associated wildlife;**<br>▪ **impacts to soils, waters and fish habitat;**<br>▪ **loss of habitat for migratory birds;**<br>▪ **localized climatic changes due to potential emissions during construction, operation and decommissioning;**<br>▪ **social well-being and economic prosperity; and**<br>▪ **cumulative effects.** |
| **Nisg<u>a</u>'a Nations Treaty Rights and Obligations Under *Nisg<u>a</u>'a Final Agreement*** | • **Potential effects on treaty protected rights from Project traffic and shipping in the Nass Area, Portland Canal or NWA which may be related to biophysical, wildlife or accidents and malfunctions pathways and may be addressed via those assessments.** |
| **Physical Environment** | |
| Air Quality and GHG Emissions | • **Metal and** fugitive dust emissions from material handling, ventilation of buildings/crushers, blasting, vehicle travel, shipping and processing can increase ambient particulate matter concentrations that can negatively affect human and wildlife health, and increases in dust fall deposition can affect vegetation, **wildlife, migratory birds, aquatic life**, and waterbodies.<br>• **Emissions from the incinerator and combustion emissions** from vehicles and equipment can result in increases in ambient concentrations of nitrogen dioxide ($NO_2$), sulphur dioxide ($SO_2$) and other contaminants that can negatively affect human health and vegetation.<br>• **Removal of vegetation can result in impacts on carbon sinks (to be specified by area in next iteration of DPD with FS engineering data).**<br>• **Potential impacts on the Province being able to meet its targets under the *Greenhouse Gas Reduction Targets Act*.** |
| Noise and Vibration | • Noise from mining can result in increases in noise levels for human and wildlife receptors**, including migratory birds.**<br>• Vibrations from blasting and equipment may affect human and wildlife receptors, **including migratory birds.**<br>• Specific impacts of noise on human health will be identified as part of the Human Health Risk Assessment.<br>• Vibration can impact geotechnical stability near mine site infrastructure. |

| Component | Potential Effect |
|---|---|
| **Physical Environment** (*cont'd*) | |
| Geology, Soils and Terrain | • Loss of soil profile and changes to terrain from vegetation removal, overburden removal, waste storage rock, and development of open pit mine.<br>• Changes to soil quality due to changes in soil chemical and physical characteristics during mining and reclamation activities.<br>• Long-term storage of soils leading to loss of soil productivity.<br>• **Natural and mining induced earthquakes.**<br>• **Changes to the stability of natural slopes and landslide run out paths from construction and operations.** |
| Groundwater | • **Changes to groundwater quality and quantity from ML/ARD (e.g., waste piles, pits, underground mine), seepage and downstream effects, chemical contamination (e.g., fuel spills), or overextraction.**<br>• **Changes to potable water source.**<br>• Changes to groundwater quality and quantity from mining interaction with groundwater table resulting from changes to topography, including disturbance to bedrock and surficial materials.<br>• Changes to groundwater quality interactions between groundwater and mine-influenced surface water.<br>• Changes to groundwater quality from water infiltration (e.g., through waste rock, pit walls, mine pits). |
| Hydrology and Surface Water Quality | • Changes in water quality downstream of the mine site within the Unuk River or Volcano Creek watersheds from discharge of treated mine contact water **(e.g., from re-opening or dewatering of underground workings),** site runoff erosion and sedimentation, blasting residue leaching, interactions with groundwater, accidents and malfunctions, or ML/ARD risks.<br>• Potential effects could change concentrations of key parameters including metals, physical parameters (e.g., pH, temperature, turbidity, TSS), which affect suitability to downstream uses, toxicity to aquatic life, and nutrient levels.<br>• Changes in flow regime, **hydrograph timing and magnitude, impoundment storage,** and sediment loading in watercourses which may influence erosion and deposition.<br>• Changes in groundwater-surface water interactions.<br>• **Potential changes in surface water quality related to malfunctions or accidental release of products or chemicals during hauling, trucking or shipping.** |

| Component | Potential Effect |
|---|---|
| **Biological Environment** | |
| Fish and Fish Habitat/Aquatic Resources | • Direct loss or change in quantity of aquatic habitat due to mine infrastructure (including the TMSF) **or accidental releases.**<br>• Change in quantity and quality of aquatic habitat resulting from alteration of stream flows.<br>• **Change in fish mortality or productivity due to changes in fish habitat.**<br>• Change in water quality **downstream of mine site** resulting in potential health effects to aquatic resources and aquatic species (e.g., fish **[including salmon and hooligan/eulachon]**, benthic invertebrates, amphibians, and birds).<br>• Change in amount, suitability, migration, and distribution of habitats (including sediment quality) for fish or aquatic organisms from road upgrades, sediment/erosion inputs at stream crossings, or along the transmission line right-of-way.<br>• **Potential changes to marine aquatic resources from marine shipping incidents.**<br>• **Potential changes to freshwater aquatic resources from mine site or transportation accidents and malfunctions.**<br>• **Potential changes to rare, sensitive, or culturally important species and ecosystems.** |
| Vegetation and Ecosystems | • Loss or alteration of ecosystems, vegetation, and wetlands **(including rare, sensitive, or culturally important vegetation, species, and ecosystems)** from land clearing and mine construction, **which can result in impacts to carbon sinks.**<br>• Health effects on vegetation due to changes in air, water, soil quality, and dust deposition.<br>• Deposition of dust on plants and soil, which can result in uptake of metals to plants, which are then consumed by wildlife. |
| Wildlife and Wildlife Habitat (including Species of Conservation Concern) | • Loss or alteration of wildlife habitats, **including rare, sensitive, or culturally important ecosystems and** migratory bird habitat, from land clearing and mine construction. Sensory disturbance to wildlife (light, helicopters, and noise).<br>• Disruption of wildlife (e.g., bears, small furbearers) seasonal movement patterns in regional and local landscapes.<br>• Direct mortality of wildlife due to vehicle-wildlife collisions **from Project-related traffic.**<br>• **Direct mortality due to greater human access to seasonally important habitat areas.**<br>• Indirect mortality from mine operations.<br>• Changes to population dynamics, potentially including moose, bears, and small furbearers due to changes to predator-prey dynamics.<br>• Health effects on wildlife due to changes in air, water, vegetation, and soil quality.<br>• **Other changes to rare, sensitive, or culturally important species, including Species at Risk.**<br>• Loss of riparian habitats affecting water birds and amphibians that use lentic and lotic environments.<br>• **Loss or alteration of ecosystems, vegetation, and wetlands, including wetland function and extent.**<br>• **Potential changes to wildlife or wildlife habitat from accidents and malfunctions at the mine site.** |

| Component | Potential Effect |
|---|---|
| **Social** | |
| Community Health and Well-being | • Changes to and/or maintenance of community and individual health and well--being (e.g., COVID-19).<br>• Provincial and local economic stimulus.<br>• Employment, income, local government revenue generation and gross domestic product benefits.<br>• Health and safety of workers and public.<br>• Changes to wage and non-wage economy, and traditional practices, due to Project-driven changes in hunting, trapping, and gathering.<br>• Changes to local population and demographics due to Project-driven labour market changes.<br>• Changes to local community services and infrastructure due to either Project demand or Project-driven population change**, including effects of additional traffic on local roads and highways**.<br>• Potential effects to families from rotational work schedules and travel distance from home.<br>• **Changes that are experienced differently by gender or diverse populations, and subgroups within those populations (GBA Plus consideration).** |
| **Health** | |
| Human Health | • Change to particulate matter concentrations (e.g., $PM_{2.5}$ and $PM_{10}$) which may cause health risk to workforce.<br>• Deposition of dust to plants and soil, which can result in uptake of metals to plants which are then consumed by people.<br>• **Potential impacts to access, availability and quality of foods harvested from the landscape (e.g., plants, animals).**<br>• Health effects due to changes in water quality.<br>• Increased levels of noise and traffic causing stress or harm, such as sleep disturbance.<br>• Changes to and/or maintenance of individual health (e.g., COVID-19).<br>• **Changes that are experienced differently by gender or diverse populations, and subgroups within those populations (GBA Plus consideration).** |
| **Human and Terrestrial Wildlife Health** | • **Deposition of dust to water, plants and soil, which can result in uptake of metals and chemicals (e.g., polycyclic aromatic hydrocarbons) from mining to plants, wildlife, and fish which are then consumed by people and wildlife (e.g., amphibians, terrestrial and aquatic birds, mammals) and may impact their health.**<br>• Water runoff may contribute to changes in water quality to downstream waterbodies which may impact health of humans, fish, and wildlife.<br>• **Changes that are experienced differently by gender or diverse populations, and subgroups within those populations (GBA Plus consideration).** |

| Component | Potential Effect |
|---|---|
| **Economic** | |
| Economic | • Provincial and local economic stimulus via Project procurement and contracting for goods and services, and via personal services and consumer spending of employees.<br>• Changes to employment, employment income, and training.<br>• Changes to gross domestic product (GDP).<br>• Changes to local government revenues and expenditures.<br>• **Changes that are experienced differently by gender or diverse populations, and subgroups within those populations (GBA Plus consideration).** |
| Commercial and Public Land Use | • Changes to opportunities associated with public and tenured land and resources, including changes to use of, or access to, certain public lands and waters, and availability of certain species.<br>• **Changes that are experienced differently by gender or diverse populations, and subgroups within those populations (GBA Plus consideration).** |
| **Heritage** | |
| Heritage Resources | • Effects to heritage resources during **construction, operation, or decommissioning,** including land clearing, mining, and associated infrastructure**.**<br>• **Potential impacts to culture from loss or degradation of heritage resources and culturally sensitive sites.** |
| **Components of the Environment that Are within the Legislative Authority of the Federal Government** | |
| Fish and Fish Habitat | • Direct loss or change in quantity of aquatic habitat due to mine infrastructure.<br>• Change in quantity and quality of aquatic habitat resulting from alteration of stream flows.<br>• **Change in fish mortality or productivity due to changes in fish habitat.**<br>• Change in water quality resulting in potential health effects to aquatic resources and aquatic species (e.g., fish ***[including salmon and hooligan/ eulachon]*****,** benthic invertebrates, amphibians, and birds).<br>• Change in amount, suitability, migration, and distribution of habitats (including sediment quality) for fish or aquatic organisms from road upgrades, sediment/erosion inputs at stream crossings, or along the transmission line right-of-way. |
| Aquatic Species as defined by SARA | • There are no SARA-listed species in the vicinity of the Project. |
| Migratory Birds | • Loss or alteration of migratory bird habitat from land clearing and mine construction **and operation**. |

| Component | Potential Effect |
|---|---|
| **Potential Effects Outside of BC and Canada** | |
| Potential Effects outside of BC within Canada | • No potential effects are anticipated outside of BC within Canada **and evaluation of potential effects will be scoped for assessment in the Hybrid AIR, during Process Planning, and presented in the EAC Application**. |
| Potential Effects on Federal Lands | • No potential effects are anticipated on Federal lands. |
| Potential Effects Outside of Canada | • No potential effects to air, water, other VCs, or wildlife extending outside of BC. |

## Closing

The DPD builds on the provincial and federal IPD document submitted by Skeena Resources. It satisfies the requirements of the provincial and federal environmental assessment processes under EAA and IAA. Skeena Resources will continue to engage to further evaluate and shape the Project design and the development of the EAC Application.