

Federal Authority Advice Record Form

Eskay Creek Revitalization Project – Skeena Resources Ltd.

Response due by September 7, 2021Please submit the form to: EskayCreek@iaac-aeic.gc.ca

Agency File: 005791 Registry Reference No.: 82839

Department/Agency	Natural Resources Canada – Industry and Economic Analysis Division
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Alternate Departmental Contact	

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1. Is it probable that your department or agency may be required to exercise a power or perform a duty or function related to the Project to enable it to proceed?

NRCan may be a Regulator under the *Explosives Act*. Should the Proponent require the manufacture or storage of explosives for the project, NRCan will review the information and determine whether a license would be required

2. Is your department or agency in possession of specialist or expert information or knowledge that may be relevant to the conduct of an impact assessment of the Project?

NRCan is in possession of the following expertise:

Economic

- Social and economic conditions and sustainable economic development;
- Economic conditions of the Indigenous peoples of Canada;
- Changes to social or economic matter within the legislative authority of Parliament;
- Changes in social or economic conditions and positive and negative consequences caused by carrying out the project;
- The economic feasibility of mitigation measures;
- Economic feasibility of alternative means and/or technologies of carrying out the project; and,

Geochemistry / Acid Rock Drainage

- Tailings and waste rock characterisation used to assess potential for acid and neutral mine drainage.
- Assessment of mine waste management alternatives including but not limited to, waste rock segregation, above and below ground waste rock and tailings storage and disposal
- Environmental dispersion and risk of contaminants used to set expectations on waste characterisation
- Mining effluent treatment
- Geotechnical engineering

Geology

- Groundwater quantity
 - Slope Stability
 - Seismicity
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3. Has your department or agency considered the Project; exercised a power or performed a duty or function under any Act of Parliament in relation to the Project; or taken any course of action that would allow the Project to proceed in whole or in part?

No

4. Has your department or agency had previous contact or involvement with the proponent or other party in relation to the Project? (for example, enquiry about methodology, guidance, or data; introduction to the project)

No

5. Does your department or agency have additional information or knowledge not specified, above?

No

6. From the perspective of the mandate and area(s) of expertise of your department or agency, what are the issues that should be addressed in the impact assessment of the Project, should the Agency determine that an impact assessment is required?

For each issue discussed, provide a concise, plain-language summary that is appropriate for inclusion in the Summary of Issues and Engagement.

Geochemistry / Acid Rock Drainage

As there appears to have been a backfill plan, the Proponent should indicate if past tailings were used as backfill for the underground workings and if not, discuss plans to backfill these mine workings.

As a waste characterisation program is on-going to inform on mitigation, please ensure that the waste rock segregation program used to identify potentially acid generating (PAG) rock is adequately described in the Detailed Project Description.

Ensure that the metal leaching acid rock drainage management plan, the source term model and the site wide water balance and quality model include not only predictions of water quality but sediment quality as well. Omitting the sediment quality component introduces much uncertainty in the water quality predictions as the reviewer will not know how much metal released from the facility were estimated to naturally deposit in the sediment.

The Proponent should explain, using MEND 1.20.1, why column tests are not planned since PAG waste rock would eventually be submerged in water. Currently only static and kinetic tests are planned.

The Proponent should explain why the south pit could not be developed in the early mining phase to accommodate for tailings and or PAG waste rock disposal. In-pit is increasingly used to minimise surface disposal MEND 2.36.1b) and in this case, the height of the proposed dam infrastructure and long-term inspection of tailings dams.

Please describe how the tailings management facility will be rehabilitated and elaborate on whether engineered covers or backfill use.

The design and construction of dams should also follow the Canadian Dam Association guidelines with adaptation of climate change at operation, closure and post-closure phase of the project.

Please provide information on how the waste rock pile will be rehabilitated, including whether a cover will be installed with vegetation.

Design of tailing dam, and slope stability of waste rock disposal at storage facilities at closure and post-closure phases should have lining systems and plugging of fracture rock with stable materials, including long-term monitoring systems underneath tailings and storage facilities to control seepage.

Geology / Hydrogeology / Seismicity

Please see attachment entitled "NRCan - Geology, Hydrogeology, Seismicity - Comment table – FAAR.pdf" for a list of issues relating to geology, hydrogeology and seismicity that should be addressed.

Maximilien Genest

Name of Departmental / Agency Responder

Impact Assessment Officer

Title of Responder

September 7, 2021

Date

Table 1: Description of the potential effects of the Project

Comment ID	Document Reference	Valued Component	Project Component	Description of the Potential Effect (Context and Rationale)	Instructions to the Proponent
NRCan-1	Initial Project Description (IPD): - Section 3. - Section 4.0 - Section 7.1 - Section 8.0 Table E.2 Preliminary Summary of Potential Environmental Effects, Pg. 54	Groundwater	Dewatering, water diversion, groundwater inflow to the open pit mine, management of groundwater from historical underground workings, seepage from mine storage facilities	The Project is the revitalization of the existing Eskay Creek underground mine. The underground mine is currently in care and maintenance, which includes the dewatering of the historical underground workings to 735 m asl (page 11 of the IPD). The revitalization will include but is not limited to the development of an open pit, expansion of the Tom MacKay Storage Facility (TMSF), development of a waste rock storage facility (WRSF), in-pit disposal of waste rock, and groundwater wells for potable water supply (Section 4.1). The Proponent indicates that the Project may effect groundwater quantity and groundwater-surface water interactions through groundwater inflow to the open pit, seepage from tailings and waste storage facilities, and dewatering and seepage from the historical underground workings (Figure 4.1-5 (Page 33), and Table 10.2 (Page 99)). As stated in Section 3.3 (Page 13), as a previously operating mine, it is expected that groundwater effects monitoring data collected during the construction, operations, and care and maintenance phases of that Project will be used to support the assessment of effects for the proposed project. NRCan notes that an appropriate groundwater model will be needed to assess the potential effects of the proposed open pit and the storage of mine rock and tailings on groundwater, groundwater-surface water interactions, and receiving environments. Details of mitigation measures have not been provided in the IPD. The Proponent lists examples of proposed mitigation measures on Table 1-2 (Pages 99 to 100), which includes the use of groundwater monitoring and management to support adaptation of the project to changes observed during construction and operation.	Monitoring data and conceptual interpretations from the construction, operation, and care and maintenance phases of the previously operating underground mine should be integrated into the description and conceptual understanding of groundwater flow and the assessment of the effects of the proposed project. This monitoring data may include, but is not limited to, pumping rates, groundwater level data, and stream and lake gauging data collected as part of the ongoing dewatering of the underground workings. This information should be presented within the Impact Statement. An appropriate groundwater model will be needed to assess the effects of the project on groundwater quantity and groundwater-surface water interaction, and forecast groundwater seepage. If an appropriate model for the site was constructed for the previously operated underground mine, the proponent may choose to update this model for the proposed project. Should that approach be chosen, it is expected that full details of the model construction and calibration will be presented within the Impact Statement. Details on the current groundwater monitoring program, and any expected expansion of this program to support the Impact Assessment would be useful at this time.

Comment ID	Document Reference	Valued Component	Project Component	Description of the Potential Effect (Context and Rationale)	Instructions to the Proponent
NRCan-2	Initial Project Description (IPD): • Executive Summary • Sections 3.0–3.5 • Section 4.0 • Section 7.0 and 7.1 • Section 7.3.7 • Section 8.0 • Section 10.0	Natural Hazards	Seismicity	The Proponent has indicated that natural hazards could impact the project operations and infrastructure, seismic hazards being one of the environmental factors. It is expected that details on natural and induced seismicity would be provided as the project moves forward.	• The occurrence rate of historical seismicity in the Project region should be included in the description of Physical Environment (Section 7.1) and as part of the baseline studies in Table 7-1. • The list of potential effects on public and environmental safety in Section 7.3.7 should include both natural and induced seismicity. • In Table 10-2 (Preliminary List of Possible Project Effects and Mitigations), two additional items should be added to the “Physical Environment” category, namely, “Natural Earthquakes” and “Mining-induced Earthquakes.”

Comment ID	Document Reference	Valued Component	Project Component	Description of the Potential Effect (Context and Rationale)	Instructions to the Proponent
NRCan-3	Initial Project Description (IPD) - Executive Summary - Section 7.0 and 7.1 - Section 7.3.7 - Section 8.0 - Section 10.0	Slope Stability	Terrain geohazards	The proponent indicates that the effects from landslide accidents or malfunctions would be assessed in the impact assessment (Section 7.3.7, Bullet 12). NRCan notes that accidents or malfunctions could arise as a result of additional terrain geohazards that are not specifically listed, including (but not limited to): - Steep creek hazards, which are present along the Eskay Mine Access Road in the Volcano Creek drainage basin. - Hydrotechnical hazards (e.g. bank erosion), which are potentially present along watercourses adjacent to the Eskay Creek Access Road. - Potential slope instability from terrain modification, such as in road cut or fill slopes or along the Tom Mackay Creek north slopes as a result of pit diversion tunnel construction. The proponent also indicates that the impact assessment would assess the effects of natural hazards on the project (Section 8.0, Bullet 5), however does not mention terrain geohazards. NRCan notes that terrain geohazards, which are common in mountainous terrain of British Columbia, could pose a risk to valued components of the project, and in particular to project linear infrastructure. Terrain modifications during construction, operations and mine closure could potentially affect terrain geohazards.	- The assessment of potential effects from accidents or malfunctions (Section 7.3.7, bullet list) should include: steep creek hazards; hydrotechnical hazards; slope instability slope in road cuts/fills; and potential instability along the Tom Mackay Creek valley slopes, including potentially from construction of the Pit Diversion Tunnel. - Section 8.0 lists potential effects of the environment on the project that will be assessed in the Impact Statement. Bullet 5, which mentions natural hazards, natural seismic events, extreme weather events, and fire, should also include reference to terrain geohazards. NRCan notes that the assessment of terrain geohazards should include an assessment of terrain stability, an assessment of risks from potential terrain geohazards to project valued components, and a summary of potential mitigations, where applicable. - Table 10-2 (Preliminary List of Possible Project Effects and Mitigations; Geology, Soils, and Terrain), should note that the project could affect stability of natural slopes or landslide run-out paths from terrain modification during construction and operations.