

ATTACHMENT August 18, 2022

Federal Authority Advice Record: Designation Request under IAA

Response due by **September 8, 2022**

Summit Mine 14 Project

Department/Agency	Environment and Climate Change Canada
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1. Has your department or agency considered whether it has an interest in 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 (including provision of financial assistance) that would allow the Project to proceed in whole or in part?

Specify as appropriate.

ECCC has not considered interest in the project, exercised a power or performed a duty, or taken any course of action as part of the Project.

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2. 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?

If yes, specify that power, duty or function and its legislative source.

Please note the following requirements that may apply to this project:

Based on the available information, ECCC does not expect that it will be required to exercise a power or perform a duty or function related to the Project to enable it to proceed. Once the scope of the Project and of the assessment are established by the Agency, this may change as additional activities or Project components could come into scope.

Since the Project is not located on federal lands and there are no Species at Risk Act (SARA) orders in place, only the SARA prohibitions pertaining to migratory birds would apply. These SARA prohibitions would not apply to critical habitat unless an order is put in place.

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3. If your department or agency will exercise a power or perform a duty or function under any Act of Parliament in relation to the Project, will it involve public and Indigenous consultation?

Specify as appropriate.

Based on the available information ECCC does not expect that it will be required to exercise a power or perform a duty or function related to the Project to enable it to proceed, therefore no consultation is anticipated. If further information is acquired that changes this position, consultation will be conducted as needed.

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4. Is your department or agency in possession of specialist or expert information or knowledge that may be relevant to any potential adverse effects within federal jurisdiction caused by the Project or adverse direct or incidental effects stemming from the Project?

Specify as appropriate.

ECCC has specialist or expert information that may be relevant to the impact assessment in the areas listed below; in each of these subject areas we have expertise related to establishing an adequate baseline, assessing potential effects to biophysical valued components, effectiveness of mitigation measures, methods for monitoring and follow-up, as well as information regarding federal policies, standards, and regulations that may be relevant to the assessment (Note: ECCC does not assess proposed projects for regulatory compliance, but instead provides technical input to the Agency to inform the assessment). Once the scope of the project and of the assessment are established by the Agency, this list may change if additional project activities or components should come into scope.

Air Quality: ambient air quality; sources of emissions; emissions estimation and measurement; atmospheric transport, transformation and dispersion modelling; and follow-up monitoring.

Greenhouse gas emissions and climate change: estimations of greenhouse gas (GHG) emissions (net and upstream); impact on carbon sinks; GHG mitigation measures and determination of Best Available Technologies/Best Environmental practices (BAT/BEP); credible plan to achieve net-zero GHG emissions by 2050; climate change science to inform evaluation of potential changes to the environment and project resilience to effects of climate change; climate change policies; and national GHG projections.

Water quality and quantity: surface water quality insofar as it could affect fish and fish habitat; water quality predictions and modelling; contaminant sources for surface water; wastewater, seepage and runoff effects; management of contaminated soils or sediments; marine and freshwater dredging; hydrology (streamflow rates data and modelling, flooding and extreme events management, drainage control, water levels, water balances); geochemistry; follow-up and monitoring.

Wildlife, species at risk, and habitat: migratory birds, their nests, eggs, and habitat; COSEWIC¹ assessed species, SARA listed species at risk, individuals, their residences, habitat and critical habitat including recovery strategies, action plans and management plans; ecological function of wetlands; ecotoxicology.

Environmental emergencies: emergency management planning and guidance; atmospheric transport and dispersion modelling of contaminants in air; fate and behaviour, hydrologic trajectory modelling of contaminants in water.

Climate and Meteorology: long-term climate patterns and norms; weather.

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5. Has your department or agency had previous contact or involvement with the proponent or other parties in relation to the Project?

¹ Committee on the Status of Endangered Wildlife in Canada

Provide an overview of the information or advice exchanged.

Based on information readily available, ECCC Prairie and Northern Region has not had any involvement with the Proponent or other parties that would be relevant to the assessment of this project.

6. From the perspective of the mandate and area(s) of expertise of your department or agency, does the Project have the potential to cause adverse effects within federal jurisdiction or adverse direct or incidental effects as described in section 2 of IAA? Could any of those effects be managed through legislative or regulatory mechanisms administered by your department or agency? If a licence, permit, authorization or approval may be issued, could it include conditions in relation to those effects?

Specify as appropriate.

Air Quality

Mining Projects

The construction, operation, and decommissioning of mines can result in adverse effects on air quality. Mining operations, processing (crushing and milling), and activities associated with combustion (including transportation) can result in the emission of contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and particulate matter (PM_{2.5}, PM₁₀ and PM). Activities that cause a physical disturbance to land and ore material, such as earth moving, land clearing, blasting, crushing, and transportation, can also introduce particulate matter (e.g., dust and soot) to the surrounding region. The emission of these air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as on sensitive ecosystem receptors. Furthermore, emissions of air contaminants as a result of this project may add cumulatively to the emissions from other activities, contributing to degradation of air quality in the region.

When contaminants settle out of the air in the surrounding environment, their deposition may result in adverse impacts to terrestrial and aquatic ecosystems. For example, metals and polycyclic aromatic compound (PAC) emissions from mining activities may result in elevated concentrations of these contaminants in water, soil, flora, and fauna. Emissions of NO_x and SO₂ may also lead to acidification and potential exceedance of ecosystems' critical loads. Air contaminant emissions can result in contamination of nearby land and waterbodies, and may affect sensitive ecosystem receptors.

Road and Rail Transportation emissions

Projects which involve an increase in capacity for rail traffic (e.g. intermodal yard expansion) and projects which will result in an increase in demand for rail traffic as a direct result of the project (e.g. mining projects where product will be transported by rail) have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels to power the rail engines can result in the emission of air contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and fine particulate matter (PM_{2.5}). Rail cars that are open at the top could lead to fugitive coal dust emissions, especially during hot and dry weather even with application of water or wetting agents. When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on sensitive ecosystem receptors.

Projects which involve on-road vehicles and mobile off-road machines for construction, operation and decommissioning, or that lead to an increase in road traffic (e.g. hauling of material by truck from mine to shipping terminal), have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels can result in the emission of air contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and fine particulate matter (PM_{2.5}). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air pollutants can result in local or regional degradation of ambient air quality, with potential impacts on sensitive ecosystem receptors.

Greenhouse Gas Emissions and Climate Change

The construction, operation, and decommissioning of the proposed project may result in greenhouse gas (GHG) emissions, or impact to carbon sinks, and may hinder or contribute to the Government of Canada's ability to meet its commitments in respect of climate change. Furthermore, the project has the potential to be affected by future climate change, possibly resulting in impacts to the environment. Climate change may alter the likelihood or magnitude of sudden weather events such as extreme precipitation that can contribute to flooding, as well as contribute to longer-term changes such as sea level rise, permafrost thaw and changes to migration patterns. Changes related to warming are already evident in many parts of Canada, and are projected to continue in the future with further warming. If not properly considered, such changes may cause issues such as equipment failures that can threaten the environment, human health and safety, interrupt essential services, disrupt economic activity, and incur high costs for recovery and replacement.

The Strategic Assessment of Climate Change (SACC) (published in October 2020) provides guidance related to climate change throughout the impact assessment process. The SACC outlines information that the proponent should provide during the impact assessment process on GHG emissions, impact of the project on carbon sinks, impact of the project on federal emissions reduction efforts and on global GHG emissions, GHG mitigation measures; and climate change resilience; the circumstances in which an upstream GHG assessment would be required; and the circumstances in which a credible plan to achieve net-zero emissions by 2050 would be required.

More details are provided in the draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment published in August 2021.

Climate Change Resilience

Given projected changes in future climate for the Project area, climate change considerations are relevant to the Project review. There is potential for climate change to effect the Project which, in turn, may have impacts on the surrounding environment (e.g., through accidents or malfunctions). Climate changes in the Project area, such as possible changes in mean and extreme precipitation and temperature and related environmental conditions, may alter baseline conditions, with implications for climate sensitive aspects of Project design and associated effects on the environment.

For example, project components and activities for which climate change resilience could be important for this project include (e.g., use of transportation road across a shrinking glacier). If the proponent is required to conduct an Impact Statement, further information would be required through the Tailored Impact Statement Guidelines (TISG) on how the Project is resilient to and at risk from both the current and future impacts of a changing climate.

Water Quality and Quantity

Mining Projects

The activities linked to the construction, operation, and decommissioning of mining projects can have adverse effects on the quality of groundwater and surface water, as well as on the hydrological regimes of watercourses and water bodies.

Mining projects often include the following activities: blasting, operating heavy equipment, ore processing, and land clearing etc. These activities could result in adverse effects to water quality through the release of suspended solids, ammonia, nitrate, hydrocarbons, and other contaminants to surrounding waters through erosion, sedimentation or runoff processes. Project activities may also produce airborne particulate matter, which could also be a source of surface water contamination upon deposition. Contact water (including but not limited to: wastewater, effluents, runoff, seepage, discharges and spills) contains contaminants that could potentially affect water quality at all mining stages, including post-closure. **There is not enough information to substantiate the claim that selenium is not of concern, notably with regards to groundwater interaction.** Water quality could also be impacted by other mine-related releases, including sewage, spills, and other wastes.

Furthermore, the construction, operation, and decommissioning of mines can result in adverse effects on water quality from the potential exposure of acid-generating rock to air and water. Through the natural

process of sulphide oxidation, water draining from areas of this exposed rock could acidify the aquatic receiving environment. Interaction between water, air and the exposed acid-generating rock could increase the leaching of metals into the aquatic receiving environment and water body, resulting in adverse effects to water quality.

Mining operations can expose rock that contain soluble minerals which can be mobilized by precipitation and/or weathering processes; this runoff could be released to the aquatic receiving environment thereby altering streambed composition chemistry and/or contaminant levels, which may result in adverse effects to water quality.

Surface water quality may also be degraded by interactions between groundwater and surface waters in the project area. The use of water in mine production has the potential for contaminants to enter groundwater through seepage from the holding ponds or other water impoundments. These contaminants could then be transported to aquatic receiving environments, resulting in possible adverse effects to water quality.

Mining projects may result in adverse effects to surface water quality by reducing the volume of inflows into nearby lakes and rivers. Surface flows can be altered through site re-contouring, surface water management (e.g., diversions of clean water around project areas), or other means. The “drawdown” of the water table – that is, lowering the elevation of subsurface water – can result from the construction and dewatering of open pits and underground mines. Drawdown can also result from the withdrawal of water from constructed wells for water-intensive operational processes at the mine. Reducing the quantity of surface and groundwater available to recharge surface water bodies could reduce the total volumes of water in nearby lakes or rivers and potentially increase the concentration of contaminants and natural elements in those water bodies. Drawdown could impact the mountain creeks surrounding the underground mine footprint, which may contain fish.

Adverse effects to water quality could, in turn, result in adverse effects to sensitive ecosystem receptors.

Proposed Coal Mining Effluent Regulations

ECCC is developing federal regulations for coal mining effluent. The latest ECCC public discussion document, Proposed Approach for Coal Mining Effluent Regulations – Discussion Document, was released in January 2022. Proponents are encouraged to consider the development of these potential regulations. Further information can be found at: <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/sources-industry/proposed-coal-mining-effluent-regulations.html>.

Linear Components and Associated Infrastructure

The activities linked to the construction, operation, and decommissioning of associated roadways can have adverse effects on the quality of groundwater and surface water, as well as on the hydrological regimes of watercourses and water bodies.

Constructing watercourse crossings, constructing and maintaining access roads, excavating or reworking of soils, sediments or rocks, and drilling and blasting may result in the deposit of contaminants to watercourses and water bodies and result in adverse effects on water quality.

Disturbing soils, rock, and streambanks during construction activities may cause erosion and result in deposition of soils and sediments to waterbodies. Soils and sediments can also enter waterbodies through streambed disturbance. These suspended solids can have adverse effects on water quality.

Disturbing soil and rock may also result in processes such as acid rock drainage, or metal leaching, which has adverse effects on water quality due to acidification and introduction of metal contaminants into the waterbody.

Contaminants may be introduced into waterbodies through wastewater discharge, groundwater resurgence, or spills resulting in adverse effects on water quality.

The deposition of airborne particulate matter generated by the project could also be a source of surface water contamination.

Water impoundment or withdrawals (for dewatering the mine or the various water management ponds) and disturbances to the natural flow of surface water (for example, watercourse crossings) could have effects on the quantity, availability and hydrological regimes of watercourses and waterbodies.

Adverse effects to water quality could, in turn, result in adverse effects to sensitive ecosystem receptors.

Cumulative Impacts

Changes to water quality of streams and lakes can be associated with contaminant loadings from various sources and activities. For example, loadings of various metal parameters (e.g. selenium) from developments in the region can affect aquatic ecosystems, and these impacts should be considered and quantified.

Wildlife, species at risk, and habitat

Mining Projects

The activities linked to the construction, operation, and decommissioning of a mine and associated infrastructure could have negative effects on terrestrial wildlife, including migratory birds and species at risk (e.g. amphibians, arthropods, birds, lichens, terrestrial mammals, mosses, reptiles, and vascular plants) listed on the Species at Risk Act (SARA), and their habitat (e.g. wetlands) and critical habitat.

The nature of effects to wildlife and habitat (including residences and critical habitat defined under the SARA) can vary based on a number of factors, including: project location, duration, scale, and configuration; ancillary project activities (e.g., land clearing, dredging, and flaring); existing cumulative effects; the type of habitat that may be disturbed; and sensitivity of species found in the project area. The pathway through which potential effects are conveyed will depend on the land, air, and water constituents associated with the site along with the behavioural adaptability, presence and interaction with the species limiting factor (e.g. habitat supporting staging, nesting, roosting or foraging) and population resilience.

Migratory birds and species at risk and their habitat

Individual mortality and the destruction of nests and eggs or any other structure necessary for the reproduction and survival of species of risk could occur during all project phases, including, exploration, construction, operation and decommissioning of the mine and associated infrastructure. Project related activities typically result in large-scale land clearing activities, which leads to destruction, disturbance and fragmentation of habitat (e.g., foraging, nesting, hibernating), habitat avoidance, sensory disturbance, and the inadvertent disturbance and destruction of individuals, nests and eggs of migratory birds and species at risk.

No species at risk critical habitat has been observed within or adjacent to the project area. However, a number of SARA listed species may be in the area (e.g. Whitebark pine, Olive sided Flycatcher, Rusty Blackbird, Northern and Little Brown Myotis, Western Toad, Common Nighthawk, and **Southern Mountain Caribou**).

Based on limited information provided, the project may add to existing cumulative effects of habitat loss in the immediate project area due to the existing HWY 40 surrounding the project on three sides and the City of Grande Cache nearby to the south, **and in the broader region due to oil and gas development, mining and forestry**. Further analysis would be required. **Although the project does not intersect any caribou ranges it** is uncertain whether the project could increase the risk of caribou highway mortality given the proximity of the A La Peche caribou range to the south and the Red Rock/Prairie Creek Caribou range to the north.

Where a mining project requires new road infrastructure or an increase in capacity to existing road networks, the increase in road traffic volumes are likely to result in an increase in wildlife injury, mortality, and the introduction of invasive species (e.g., Common Reed (*Phragmites australis*) and hunters/poachers. Although adverse direct effects to migratory birds and their nests are typically managed through appropriate scheduling of activities outside of the breeding season, collisions with vehicles and associated infrastructure can result in direct mortality of wildlife. Effects will be most acute during the operation phase as this is when the most pronounced and sustained increase in vehicle volume is expected.

The construction, operation and decommissioning of mines may impact wildlife directly and indirectly through impacts to habitat through changes in geomorphological processes (e.g., sedimentation processes, water quality and quantity). Additionally, birds that land on and/or frequent wastewater (e.g., submerged tailings in tailings ponds, pit water) have the potential to come into contact with toxic substances which can result in on and off site mortality. During construction, operation, maintenance and decommissioning, there is the potential for harmful substances to enter or be spilled into the receiving environment that may negatively affect wildlife. Depending on the nature of the release (e.g., toxicity, volume release, exposure pathways), effects to wildlife could be acute, chronic or both. Changes to water quality and quantity can affect migratory birds, wildlife, and their habitat.

Noise, vibrations and light from construction and operation activities may result in habitat disturbance which can lead to avoidance of use. Attraction to lights at night or in poor visibility conditions during the day may cause birds to collide with lit structures or their vertical support structures, resulting in injury or death. In other instances, birds can get disoriented while circling a light source, and may deplete their energy reserves and either die of exhaustion or drop to the ground where they are at risk from predation.

Wetlands

The activities linked to the construction, operation, and decommissioning of a mine could have negative effects on wetlands and their ecological functions that are important to migratory birds. Carrying out the project, particularly the activities related to construction, is likely to alter the existing hydrological regimes essential for maintaining wetlands and thus affect the quality or availability of habitat for migratory birds and other wildlife. The destruction and modification of wetlands is likely to cause negative effects on or harm migratory birds and species at risk that use these areas for breeding and migration, as well as for foraging or resting areas. The spread of invasive species may pose a threat to wetlands.

Environmental Emergencies

Mining Projects

The proposed mining project includes a tailing management facility, a wastewater-holding pond, hazardous materials, and a wastewater treatment facility. As such, there is potential for adverse environmental effects from accidents and malfunctions, such as a failure of the tailings dam, spills from the wastewater-holding pond, or failure of the water treatment system and spills from contaminants. Adverse effects to air quality, water quality, wildlife and wildlife habitat could result from the accidental release of, fuels such as diesel or gasoline, and other contaminants to surrounding waters. Optimized spill prevention, preparedness and response measures and systems will be important given the risk of spills of hazardous substances to the environment, especially to nearby waterways and environmentally sensitive areas.

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7. Does your department or agency have a program or additional authority that may be relevant and could be considered as a potential solution to concerns expressed about the Project? In particular, the following issues have been raised by the requestor:
- adverse effects on fish and fish habitat;
 - adverse effects on migratory birds and species at risk and their critical habitats. Concerns were raised about the yellow-bellied flycatcher, common yellowthroat, black-throated green warbler, harlequin duck, Cassin's vireo, barred owl, and western toad; the requester asserts that these species are known to be near the Project's vicinity;
 - changes to the environment that occur on federal lands, including Jasper National Park;
 - changes to the environment that occur in a province or territory other than the one where the Project is taking place, including British Columbia;
 - adverse effects to multiple waterways due to selenium contamination;
 - adverse cumulative effects due to historical and present coal development in the area;
 - adverse effects to critical wildlife habitat, including Bighorn sheep, Woodland caribou, grizzly bear and wolverines;
 - changes to the environment that could affect the Indigenous peoples of Canada and their ability to practice section 35 rights; and,
 - changes occurring to the health, social, or economic conditions of the Indigenous peoples of Canada.

If yes, please specify the program or authority.

Please see responses to Question 6.

8. Does your department or agency have information about the interests of Indigenous groups in the vicinity of the Project; the exercise of their rights protected by section 35 of the *Constitution Act, 1982*; and/or any consultation and accommodation undertaken, underway, or anticipated to address adverse impacts to the section 35 rights of the Indigenous groups?

If yes, please specify.

ECCC is engaging on the development of the Coal Mining Effluent Regulations (CMER) with a number of Indigenous communities in Alberta and British Columbia that could be impacted by this project. This includes communities under Treaty 8 as well as the Aseniwuche Winewak Nation that has expressed that Mine 14 could have adverse impacts on their rights. Engagement is ongoing with communities on the development of the CMER.

9. If your department has guidance material that would be helpful to the proponent or the Agency, please include these as attachments or hyperlinks in your response.

SARA Registry

- <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

Species at Risk Act Permits and Agreements

- <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/permits-agreements-exceptions/permits-agreements-information.html>

ECCC's Guidelines to reduce Risk to Migratory Birds

- <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>

Federal Sustainable Development Strategy

- <https://www.canada.ca/en/services/environment/conservation/sustainability/federal-sustainable-development-strategy.html>

Strategic Assessment of Climate Change

- <https://www.canada.ca/en/services/environment/conservation/assessments/strategic-assessments/climate-change.html>
- Draft technical guide related to the strategic assessment of climate change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment
<https://www.canada.ca/en/environment-climate-change/corporate/transparency/consultations/draft-technical-guide-strategic-assessment-climate-change.html>
- Draft technical guide related to the Strategic Assessment of Climate Change: Assessing climate change resilience
<https://www.canada.ca/en/services/environment/conservation/assessments/strategic-assessments/draft-second-technical-guide-strategic-assessment-climate-change.html>

<original signed by>

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A / Regional Director
Title of responder

October 12, 2022
Date