

**ATTACHMENT:** July 28, 2021  
**Federal Authority Advice Record: Designation Request under IAA**  
**Response due by August 18, 2021**  
Touquoy Mine Expansion 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?

ECCC has reviewed information from the proponent to determine whether a Schedule 2 amendment under the Metal and Diamond Mine Effluent Regulations might be required. ECCC has not further considered, exercised a power or performed a duty, or taken any course of action as part of the Project.

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?

Based on the information provided in the provincial EA Registration, 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.

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?

ECCC does not expect to exercise any powers or perform a duty or function under any Act of Parliament in relation to the Project that will involve public and Indigenous consultation.

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?

ECCC has specialist or expert information that may be relevant to the impact assessment in the areas listed below. For 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 those ECCC administered regulations that may be relevant to 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); GHG mitigation measures and determination of Best Available Technologies/Best Environmental practices (BAT/BEP); credible plans 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 related to effects on 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; 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:** priority species and places as outlined in the *Pan-Canadian Approach to transforming species at risk conservation in Canada*<sup>1</sup>; migratory birds, their nests, eggs, and habitat; COSEWIC<sup>2</sup> assessed species, species at risk, individuals, their residences, habitat and critical habitat including recovery strategies, action plans and management plans; ecological function of wetlands; ecotoxicology.

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<sup>1</sup> <https://www.canada.ca/en/services/environment/wildlife-plants-species/species-risk/pan-canadian-approach/species-at-risk-conservation.html>

<sup>2</sup> Committee on the Status of Endangered Wildlife in Canada

**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 and weather

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

On January 29, 2021, ECCC acknowledged the proponent's intention not to seek a Schedule 2 amendment under the MDMER. This was based on information provided by the proponent and the assertion that none of the waste materials associated with the expansion will overprint waters frequented by fish.

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?

### **Water Quality and Quantity**

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 effect water quality at all mining stages, including post-closure. Water quality could also be impacted by other mine-related releases, including sewage, chemicals, and other wastes.

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 tailings disposal areas 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.

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

### **Air Quality**

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<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs), and particulate matter (PM<sub>2.5</sub>, PM<sub>10</sub> and PM). Activities which 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.

### **Greenhouse Gas Emissions and Climate Change**

The construction, operation, and decommissioning of the proposed project may result in greenhouse gas (GHG) emissions, 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.

The Strategic Assessment of Climate Change (SACC) (revised October 2020) provides guidance related to climate change throughout the impact assessment process. The SACC outlines information that the proponent should provide during the process on GHG emissions, including: the impact of the Project on carbon sinks; the impact of the Project on federal emission reduction efforts and on global GHG emissions; GHG mitigation measures; 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 will be required.

More detail will be provided in the *Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of new GHG emissions and impacts on carbon sinks, mitigation measures, net-zero plan, and upstream GHG assessment* when published in its draft form in summer 2021.

## **Wildlife and Wildlife Habitat**

The activities linked to the construction, operation, and decommissioning of a mine and associated infrastructure could have negative effects on terrestrial wildlife, 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.

Individual mortality and the destruction of nests and eggs or any other structure necessary for the reproduction and survival of species at risk could occur during all project phases. Exploration and construction of mines and associated infrastructure usually contribute to 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, nest and eggs of migratory birds and species at risk.

There is a higher risk that these effects would be more severe for migratory birds that are also species at risk and species where habitat is sensitive to disturbance (e.g., wetlands) or where there is already a high degree of cumulative effects to habitat or individuals. Destruction and/or disturbance of habitat can have increased impacts on species at risk individuals, residence and their critical habitat, which can lead to changes in prey and predator dynamics, loss of food resources, loss of breeding areas, changes in migration or movement, and increased risk of mortality. For example, certain species at risk (e.g. turtles) and migratory birds (e.g. Bank swallows, Common nighthawk) may nest in large piles of soil left unattended/unvegetated during the most critical period of breeding season. Other species at risk (e.g. bats) rely on summer and fall roosts and winter hibernacula that may have conditions (e.g. humidity) disturbed by blasting and vibration associated with underground mining activities.

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 waste water (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.

### **Environmental Emergencies**

There is potential for adverse environmental effects from accidents and malfunctions. Adverse effects to air quality, water quality, wildlife and wildlife habitat could result from the accidental release of high concentrations of ammonia, hydrocarbons, 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.

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: The potential to cause adverse effects in areas of federal jurisdiction, including water quality, fish and fish habitat, species at risk, migratory birds, and Mi'kmaq of Nova Scotia.

ECC does not have any additional programs or authorities related to this project or the issues raised.

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?

ECCC is not aware of any information at this time.

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.

Environmental Code of Practice for metal mines (<https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/code-practice-metal-mines.html>)

MDMER factsheets (<https://www.canada.ca/en/environment-climate-change/services/managing-pollution/sources-industry/metal-diamond-mining-effluent.html>)

Fisheries Act FAQs (<https://www.canada.ca/en/environment-climate-change/services/managing-pollution/effluent-regulations-fisheries-act/frequently-asked-questions.html>)

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Title of responder

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Date: August 18, 2021