Crawford Nickel Project IPD Review

Comments from Environment and Climate Change Canada on Enclosure 2, Table 1: Key Issues and Solutions that are Material and Relevant to Decision-making

Project: Crawford Nickel Project

Proponent: Canada Nickel Company

CIAR No.: 83857

Response due by: September 9, 2022 (as per deadline extension granted to ECCC for submission of Table 1)

Department/Agency: Environment and Climate Change Canada	
Date of Advice: September 9, 2022	
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Enclosure 2: Federal Authority Advice Record – Summary of Issues, and Potential Tailored Impact Statement Guidelines and Permitting Plan

2. Key Issues and Solutions

Respond to the following **using Table 1**

(a) From the perspective of the mandate and area(s) of expertise of your department or agency, what are the key issues that are material and relevant to decision-making and should be addressed? In identifying key issues, be mindful of the Project's context (size, scope, geography, policy) and the definitions of *effects*,[1] *sustainability*[2] and *public interest*.[3]

(b) For each **key** issue:

i. Identify the relevant valued component(s) within your mandate and describe the key pathway of effect, or describe the nature of the issue. This may consider[4] positive and negative effects on components of the environment or on health, social and economic conditions.

ii. Identify any clarifications or commitments the Proponent could make in its Detailed Project Description and Response to the Summary of Issues that would build confidence that issues can be addressed and managed without further impact assessment[5], or that can help focus the Tailored Impact Statement Guidelines[6], if an impact assessment is required.

iii. Identify, at a very high-level, any information or studies that should be required of the Proponent in the Tailored Impact Statement Guidelines, if an impact assessment is required.[7]

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

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[1] Note: effects, direct and incidental effects, and effects within federal jurisdiction are defined in section 2 of the *Impact Assessment Act,* which can be found at *https://www.canada.ca/en/impact-assessment-agency/corporate/acts-regulations/legislation-regulations.html*

[2] Guidance: Considering the Extent to which a Project Contributes to Sustainability *https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering.html*

[3] Policy Context: Public Interest Determination under the *Impact Assessment Act https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/public-interest-determination-under-impact-assessment-act.html*

[4] Other considerations may include sources of high uncertainty that complicate predictions; the purpose and need for the Project and selected alternatives.

[5] This could mean that mitigation measures that the proponent has committed to in the Detailed Project Description are referenced in the Tailored Impact Statement Guidelines.

[6] For example, regulatory instruments, operational guidance or well-understood mitigation and monitoring measures of proven effectiveness.

[7] Federal authorities are being asked what should be included in the Tailored Impact Statement Guidelines with specific rationale that is commensurate to the project context. Please also identify studies that are not necessary based on the information provided by the proponent and based on project context.

Table 1: Key Issues and Solutions that are Material and Relevant to Decision-making

Comment ID	Document Reference	Valued Component	Description of Key Issue (Context and Rationale)	Solutions for the Proponent	Summary of Issues
Please identify comments by organization and comment number. *e.g.: IAAC-01*	*If the comment is related to a specific section of the Initial Project Description, please provide a reference.* *You may also choose to copy the relevant text here.*	*Identify the valued component(s)—within the mandate of your department or agency—to which the effect or issue applies.* *This may include components of the environment, health, social or economic conditions.*	*Provide context for the effect or issue. Describe, to the extent possible:* • *The positive or negative pathway of effect or nature of the issue* • *Any **powers, duties or functions** that your department or agency has that may **mitigate, manage, or set conditions** related to the effect* • ***Operational guidance** or standard and well-understood **mitigation or monitoring measures** that would address the effect* • *Any **established or emerging policies or directives** that are relevant* • *The potential for **residual effects** after mitigation has been applied*	*Where applicable and necessary,* • *provide instructions for how the Proponent would build confidence about the management of the potential effect, in the Detailed Project Description and Response to the Summary of Issues, and/or* • *identify, at a high-level, required information or studies to assess the effects, should an impact assessment be required (or templated requirements that are not relevant to the Project).*	*For issues and effects to be included in the Summary of Issues, provide a concise, plain language synopsis.*
ECCC-01	**Initial Project Description** C.6.7 Species of Conservation Concern, p33 *Several species of conservation concern have been identified within the study area through desktop review and field observations at the Project site and local area.* *Field studies initiated in 2021 have not identified the presence of Woodland Caribou in the area, although the Project is located along the southern boundary of the Kesagami Caribou Range for Woodland Caribou.* C.6.5.4 Breeding birds, p32 *Data collected at acoustic monitoring stations specifically targeted avian species of conservation concern (Canada Warbler, Rusty Blackbird, Common Nighthawk, Eastern Whip-poor-will, Evening Grosbeak, Olive-sided Flycatcher, and Yellow Rail).* C.6.5.3 Bat Surveys, p31 *In general, snag density was highly variable, with findings indicating that nearly all deciduous or mixed forests in the investigation area have a*	Species at Risk	**Caribou** The IPD states that the proposed project is located along the southern boundary of the Kesagami Range for Woodland Caribou. Potential effects (direct and indirect) to caribou and caribou habitat are not provided in the IPD. In addition, mitigation and/or monitoring measures are not provided in the IPD. Therefore, ECCC cannot provide expert opinion on these measures. ECCC has reviewed the project shapefiles and found that the majority of the proposed mine is located within the Kesagami range. The recovery of the Kesagami Range local population is considered biologically and technically feasible. In addition, all areas within the boundary of each boreal caribou range are potential critical habitat. Therefore, potential effects to caribou and caribou habitat should be assessed. Habitat disturbance within the Kesagami range currently exceeds the 35% disturbance threshold in the *Woodland Caribou, Boreal population Amended Recovery Strategy*, and the local population is considered Not Self-Sustaining. **Bats** The IPD states that there is a relatively high number of cavity trees to support bat maternity roosts, potentially for SARA listed bats. Potential effects are not well articulated. The clearing of trees for mine site development will likely remove maternity roosting habitat for SARA listed bats, in addition to potential indirect effects. Mitigation measures to address direct and indirect effects to SARA listed bats should be described. The IPD states that none of the locations of exposed bedrock identified through desktop mapping was assessed during field surveys as suitable overwintering habitat for bats. However, the project will occur in an area with existing underground workings that may provide hibernacula for SARA listed bat species. Surveys as outlined in Bat and Bat Habitats: Guidelines for Wind Power Projects (2011) should be undertaken. Available at: https://www.ontario.ca/page/bats-and-bat-habitats-guidelines-wind-power-projects **Migratory Birds**	Provide information on the potential occurrence of species at risk (SAR) at the project site, including species listed on Schedule 1 of SARA and species assessed as at risk by the Committee on the Status of Wildlife in Canada (COSEWIC), such as a list of species known to occur or with the potential to occur within the study area. Seasonal and annual variations in species at risk abundance, distribution and habitat use should be considered. Explicitly address whether the biophysical attributes of SAR critical habitat occur within the project site or whether there is the potential to be indirectly impacted by the project. Describe any potential effects (even if minimal) related to the project on those individuals, residences, and habitat; or provide a detailed rationale and supporting evidence as to why there are no anticipated effects. If there is the potential for any effects, describe avoidance and mitigation measures to lessen the effects as well as monitoring measures. Provide information on the potential for residual effects after mitigation has been applied. Provide the federal and provincial listing for each of the species of conservation concern.	Potential direct and indirect effects on species at risk individuals, residences, and habitat, including Woodland Caribou, bats, and migratory birds, during all project phases. Need for baseline information on species at risk at the project site, including seasonal and annual variation, distribution, and habitat use. Need for the federal and provincial listing for each of the species of conservation concern that may be impacted by the project. Need for information on mitigation measures for potential effects to species at risk. Need for information on potential residual effects on species at risk individuals, residences, and habitats.

	relatively high number of cavity trees to support bat maternity roosts. None of the locations of exposed bedrock identified through desktop mapping were assessed during field surveys as suitable overwintering habitat for bats. Table E.2: Preliminary Summary of Potential Environmental Effects, p67 *Wildlife may be affected by site activities and disturbances, including noise.* *Mine site development may displace existing terrestrial habitat for species of conservation concern, including Species at Risk, if present.* *If Species at Risk or associated habitat are present, an Overall Benefits Agreement and associated compensation measures will be negotiated with the province, if appropriate.*		A list of species of conservation concern is provided in Section C.6.7 of the IPD, but does not include all species at risk birds listed in Section C.6.5.4 (Breeding Birds): eastern whip-poor-will, rusty blackbird, and evening grosbeak. Furthermore, two other SAR with potential to occur in the study area, barn swallow and bobolink, are missing from the list of species of conservation concern.		
ECCC-02	**Initial Project Description** C.6.5.4 Breeding Birds, p32 *A total of 81 bird species were recorded during targeted surveys for breeding birds in 2021.* Table E.1: Preliminary List of Changes to the Environment under Federal Jurisdiction, p65 Table E.2: Preliminary Summary of Potential Environmental Effects, p67	Migratory Birds	It is acknowledged in Table E.1 of the IPD that potential changes to migratory birds and their habitat from this Project include habitat loss, disturbance of species, increased risk of collision or mortality, and habitat redevelopment. Mitigation measures provided in the IPD include avoiding tree clearing during the breeding bird season, and reclaiming the site after mining. However, the list of migratory birds known to occur on the site, mitigation measures for the other potential effects to migratory birds and their habitats (including clearing of other vegetation, disturbance of birds, risk of collision or mortality, and risk of accidents and spills) are not included in the IPD. Therefore, ECCC cannot provide expert opinion on these measures. The *Migratory Birds Convention Act 1994* (MBCA) and its regulations (MBR 2022) protect migratory birds and prohibit the disturbance or destruction of migratory bird nests when they contain a viable egg or a migratory bird themselves (young or adult). Schedule 1 of MBR 2022	Provide recent information on the potential occurrence of birds at the project site such as a list of species known to occur or with the potential to occur within the study area. Describe and justify the specific timing windows and other mitigation measures that are being considered. Provide supporting information to show that the mitigation measures outlined in the IPD related to accidents and spills will mitigate potential disturbance or harm to birds and their habitats. Provide information on the potential for residual effects after mitigation has been applied.	Potential effects on migratory birds and their habitat, including habitat loss, alteration or fragmentation, mortality, or disturbance due to site alteration, vegetation clearing, vehicle operation, accidents and spills, and increased noise levels and light pollution, during all project phases. Need for baseline information on migratory birds known to occur and with the potential to occur at the project site. Need for information on mitigation measures for potential effects to

			provides year-round nest protection for 18 species. The legislation and regulations apply to all lands and waters in Canada, regardless of ownership. The main sensitive period to consider is the breeding season. With respect to disturbance or harm to nesting birds, the principal risk factors are location and time of year. More information on the MBR 2022 can be found on the ECCC web site (https://www.canada.ca/en/environment-climate-change/services/migratory-game-bird-hunting/status-update-modernization-regulations.html). Migratory birds, the nests of migratory birds and/or their eggs can be inadvertently harmed or disturbed as a result of many activities, including but not limited to clearing trees and other vegetation, draining or flooding land, or using fishing gear; this is known as incidental take. This inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs is prohibited under the MBCA. Incidental take, in addition to harming individual birds, nests or eggs, can have long-term consequences for migratory bird populations in Canada, especially through the cumulative effects of many different incidents. For further details, please refer to the Avoiding Harm to Migratory Birds website at: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds.html. The active season for migratory birds is from the end of March to the end of August.		migratory birds and their habitats, including timing windows. Need for information on potential residual effects on migratory birds and their habitats.
ECCC-03	**Initial Project Description** C.6.5.1 Flora and Vegetation Communities, p31 *Twenty-five distinct plant communities (upland and wetland) were recorded. Coniferous forest and swamp communities dominate the area within the Property Boundary.* Table E.2: Preliminary Summary of Potential Environmental Effects, p67 *Open pit dewatering will affect the local groundwater levels and may affect surface water flows.* *Groundwater quality could be affected by the seepage from the impoundments at surface and in the pit.*	Wetlands	Potential effects to wetlands are not provided in the IPD, in terms of the amount of wetland loss expected and the functions that may be impacted (directly or indirectly). In addition, mitigation and/or monitoring measures are not provided in the IPD. Therefore ECCC cannot provide expert opinion on these measures. Avoidance and minimization of wetland loss may not always be possible. Additional information on specific measures being proposed may be required prior to determining if the loss of wetland habitat and function attributable to the Project has been adequately addressed. The Federal Policy on Wetland Conservation advocates for no net loss of wetland functions: http://publications.gc.ca/collections/Collection/CW66-116-1991E.pdf	Describe any potential effects to wetlands, including direct and indirect effects from project components or activities, including changes to wetland functions. If there is the potential for any effects to wetlands, describe avoidance and mitigation measures to lessen the effects as well as monitoring measures. Provide supporting information to show that the mitigation measures outlined in the IPD related to surface water, ground water, sedimentation, and accidents and spills will mitigate potential indirect effects to wetlands or wetland functions. Provide information on the potential for residual effects to wetlands after mitigation has been applied.	Potential direct and indirect effects on wetlands and wetland functions during all project phases. Need for information on mitigation measures for potential effects to wetlands and wetland functions. Need for information on the potential residual effects on wetlands and wetland functions during all project phases.

	Risk groundwater could be affected by sills and fuel storage.				
ECCC-04	**Initial Project Description** B.6 List of Potential Alternatives, p22 *At this stage, a single corridor enclosing the related Highway 655, rail spur, relocated 500 kV and the new 230 kV transmission line is the preferred option. This represents the shortest route with no major crossings as the project is constrained by the Mattagami River to the West and the 115 kV transmission lines and West Buskegau River to the East.*	Species at Risk; Migratory Birds; Wetlands	A preliminary list of project components with alternative means is provided in the IPD, as well as a brief list of components that are not expected to have viable alternative methods (i.e., mining methods and ore processing methods). The IPD states that the corridor for the new transmission line, relocated Highway 655, rail spur, and relocated 500 kV line is the preferred option, but does not state that potential alternatives will be considered.	Identify potential alternatives for the new transmission line corridor, relocated Highway 655, rail spur, and relocated 500kV line prior to stating the preferred option.	Need for information on alternative means for the new transmission line corridor, relocated Highway 655, rail spur, and relocated 500kV line, prior to stating the preferred options.
ECCC-05	Initial Project Description "Note that the tailings management facility will be designed to account for the potential changes that could occur due to climate change." (p. A126) "This IPD has considered the Strategic Assessment of Climate Change as developed by Environment and Climate Change Canada (ECCC), including assessment of net greenhouse gas emissions associated with the Project (see Section E.5)." (p. 9) *(Note that E.5 should be E.6 in this quote)	Climate Change effects on project and valued components of Fish and Fish Habitat and Water Quality	The safety and effectiveness of water management infrastructure depends greatly on the accuracy of the design storms used to size said infrastructure. If the design events (and their corresponding return frequency, duration, precipitation volume, and extreme heat predictions) selected to inform the design of the water management infrastructure (including the tailings management facility) do not incorporate climate change, then there is a risk of under-designed infrastructure and subsequently uncontrolled releases of mine contact water. The proponent does not describe how climate change will be incorporated into the design of water infrastructure, nor how climate change could affect the frequency and severity of uncontrolled mine contact water releases. Other water-dependent decisions are also vulnerable to climate change. For example, the time needed for mine pit filling or potential supplemental water intakes from nearby rivers for ore processing may be negatively affected by extreme dry periods. The proponent indicates in the IPD that the tailings management facilities will be designed to account for potential changes that may occur due to climate change. Climate change effects on other project components could not be located in the IPD. The proponent indicates that they have considered the *Strategic Assessment of Climate Change* (SACC) in the IPD. ECCC notes that this consideration focuses on the GHG emissions aspect of the SACC but that the requirement to consider a project's resilience to climate change is also outlined in the SACC (See section 5.1.5).	Provide a list of water management infrastructure and processes that are vulnerable to climate change. Use climate change data (i.e. changes to intensity, duration, and frequency of precipitation and extreme heat) to inform the safety and effectiveness of water management infrastructure over the life of the project including post-closure as appropriate. Ensure the initial design of the tailings management and water management facilities uses estimates that incorporate climate change effects, including increases in severity and frequency of storms and severe heat events. Refer to the SACC, and the associated draft technical guide on climate change resilience, for guidance to evaluate how "the project is resilient to and at risk from both the current and future impacts of a changing climate" (SACC, p. 15). Draft technical guide related to the Strategic Assessment of Climate Change: Assessing climate change resilience - Canada.ca	Potential effects of climate change on the safety, resilience and effectiveness of water and tailings management infrastructure, water-dependent decisions and water quality during all project phases and post-closure, including the effects of storms and extreme heat effects. Need for information on mitigation measures related to the effects of the environment on the project, including how climate change will be incorporated into the design of water and tailings management infrastructure and other water-dependent decisions. Need for information on the potential effects of climate change on water and tailings management infrastructure and other water-dependent decisions.
ECCC-06	Initial Project Description	Fish and Fish Habitat	The use of natural water bodies frequented by fish for the disposal of mine waste may negatively affect fish and fish habitat.	The proponent should identify all waterbodies to be impacted by the project, including by mine waste disposal.	Potential effects of use of natural water bodies frequented by fish for

			The information that follows provides regulatory context for ECCC's interest in the use of waters frequented by fish for mine waste disposal, and associated guidance that will also be of assistance in assessing impacts on fish and fish habitat. Environment and Climate Change Canada (ECCC) is responsible for the administration of subsection 36(3) to (6) of the *Fisheries Act* and the implementation of the *Metal and Diamond Mining Effluent Regulations* (MDMER). Subsection 36(3) of the *Fisheries Act* prohibits the deposit of a deleterious substance in waters frequented by fish unless authorized by regulations. The MDMER authorizes the deposit of a deleterious substance under specified conditions, including deposits into a Tailings Impoundment Area (TIA) that is a water or place set out in Schedule 2 of the Regulations. The use of waters frequented by fish for mine waste disposal can only be authorized by amending the MDMER to list the water body in Schedule 2 of the Regulations. Section 27.1 of the MDMER requires the development and implementation of a fish habitat compensation plan (FHCP) to offset the loss of fish habitat that would occur as a result of the use of a fish-frequented water body for mine waste disposal. The owner or operator of a mine is also required to submit a financial guarantee (e.g. irrevocable letter of credit or an equivalent guarantee such as a performance bond) to cover the plan's implementation costs. The mining proponent must also demonstrate that the disposal of tailings (including effluents) in these water bodies is the best approach from an environmental, technical, economic and socio-economic perspective in accordance with Environment and Climate Change Canada's "Guidelines for the Assessment of Alternatives for Mine Waste Disposal." Providing this information during the impact assessment can reduce the time required for the regulatory amendment process under the MDMER, following the completion of the impact assessment. The timing of the submission of the assessment of alternatives and the FHCP, is however, determined by the proponent. **Operational guidance:** - Tailings Impoundment Areas - Canada.ca - Guide To The Regulatory Process For Listing Water Bodies Frequented By Fish In Schedule 2 Of The Metal And Diamond Mining Effluent Regulations - Canada.ca - Guidelines for the assessment of alternatives for mine waste disposal - Canada.ca - Approvals process for metal mines impoundment areas - Canada.ca	The proponent should consider developing an assessment of alternatives to mine waste disposal during the IA to further ensure impacts on fish and fish habitat are assessed and mitigated. The information that follows provides additional regulatory context for ECCC's interest in waterbodies impacted by mine waste disposal and requirements related to assessment of alternatives, mitigation, compensation, and consultations. Proposals to amend Schedule 2 of the Regulations must meet various requirements before the Minister of the Environment can recommend the amendment to the Governor in Council. It is the Proponent's responsibility to: • Identify all waterbodies impacted by the mine waste disposal, confirm the presence or absence of fish in these waterbodies, provide the methodology used to document the presence or absence of fish, and provide information related to the connectivity of these waterbodies to other waterbodies frequented by fish. Please note that Environment and Climate Change Canada will make a determination as to whether a waterbody is considered a water frequented by fish based on the information provided by the proponent and in consultation with Fisheries and Oceans Canada; • Develop an Assessment of Alternatives for mine waste disposal in accordance with Environment and Climate Change Canada's Guidelines for the Assessment of Alternatives for Mine Waste Disposal; • Develop a Fish Habitat Compensation Plan to offset the loss of fish habitat resulting from the disposal of mine waste in waters frequented by fish. The Fish Habitat Compensation Plan must comply with the requirements of section 27.1 of the Regulations and Fisheries and Oceans Canada's Policy for Applying Measures to Offset Adverse Effects on Fish and Fish Habitat Under the Fisheries Act; and	the disposal of mine waste on fish and fish habitat. Need additional information (including maps or figures) identifying the water bodies to be impacted by the projected, including those to be used for the disposal of mine waste. Need additional information (including baseline fish studies) on the presence of fish in areas that may be impacted by the project, including by the disposal of mine waste.

				• Participate in public and Indigenous consultations on the proposed addition of water frequented by fish to Schedule 2 of the Regulations. These consultations are initiated when the Assessment of Alternatives report and Fish Habitat Compensation Plan have been reviewed in consideration of Environment and Climate Change Canada, as well as Fisheries and Oceans Canada policies, guidelines and regulations. Providing this information during an Impact Assessment can reduce the time required for the regulatory amendment process under the Regulations. Please contact MDMER-REMMMD@ec.gc.ca for additional guidance.	
ECCC-07	Initial Project Description	Water Quality Fish and Fish Habitat Migratory Birds Air Quality	Information on potential accident and malfunction scenarios was not provided in the IPD. Reagents / chemicals, propane tanks and diesel fuel tanks will be present on site. The volume of these products were not provided, and so an Environmental Emergencies plan (E2 plan) under the *Environmental Emergencies Regulations* may be required to ensure that the Proponent has taken all the appropriate measures to reduce the risk of accidental spills into the surrounding environment.	ECCC encourages Proponents to demonstrate, in their environmental or impact assessment submission, how they have evaluated their project's environmental risks and what they have done to prepare for and mitigate spills or releases of hazardous or deleterious substances that are likely to result from unplanned accidents and malfunctions.	Potential effects of accidents or malfunctions, including spills of hazardous substances or uncontrolled release of pollutants to the environment, including from transportation of hazardous materials, storage of reagents/chemicals/propane/diesel, and failures of project components, on water quality, fish and fish habitat, migratory birds and air quality. Need for information on mitigation measures to prepare for and prevent accidents and malfunctions and releases of hazardous materials during all project phases. Need for information on emergency response plans and procedures based on potential accidents and malfunctions and release of hazardous materials into the surrounding environment during all project phases
ECCC-08	Initial Project Description C.6.1- Climate, Air Quality (p.28)	Air Quality	The Proponent has provided some information about the sources of air emissions from the project (fugitive, point sources and fuel combustion), pollutants that will be generated from activities (dusts and criteria air contaminants), mitigation measures and a monitoring	Provide air quality assessment results for all phases of the project, including: baseline, emission estimates, dispersion modelling, an inventory of all equipment, and a complete list of substances/air	Potential effects on air quality during all phases of the project, including from fugitive, point source and fuel combustion air emissions.

	E.7.1 4.1.1 – Atmospheric Emissions (p.58) Table E-2 (p66) Appendix A (p. A94)		plan, but they have not articulated the effects on air quality nor discussed the related mitigations and monitoring. The Proponent has not provided emissions estimates and dispersion modelling. They have not provided existing or new air quality data, modeling results, or an assessment of air quality impacts, the details of mitigation measures or a monitoring plan. This information is required to understand air quality effects from the project and to determine appropriate mitigation and monitoring. The Proponent has stated the following: An air quality monitoring station has been installed on site to run for a minimum of 1-year to gather baseline data, which will be used comparatively with ongoing collection during operation and to support modelling of changes in air quality at the project boundary. Design of the project will ensure that all applicable ambient air quality criteria are met at the project limit.	pollutants that will be generated from the project, which includes: nitrogen dioxide, sulphur dioxide, dust (total suspended particles), PM_{10}, $PM_{2.5}$, carbon monoxide, ozone, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and any other substances that may be released. An air quality assessment should also include: Best Management Practices (BMPs) and a follow-up (FUP) and monitoring plan for all components and all phases of the project, planned emissions measurements or air quality monitoring, a list of substances to be measured or monitored, and details on the sampling location, duration and frequency. The Proponent will be required to compare the results of an effects assessment of air quality impacts, based on predictions of dispersion modelling, with the *Canadian Ambient Air Quality Standards* (CAAQS). The CAAQS are health- and environmental-based outdoor air quality objectives for pollutant concentrations in air. https://www.ccme.ca/en/air-quality- report#slide-7	Need for information on impacts to air quality, including emissions estimates and dispersion modelling. Need for information on proposed mitigation measures for effects on air quality, including best management practices, and monitoring plans. .
ECCC-9	Initial Project Description B.3.2 Proposed Mine Facilities and Infrastructure E.7.2 Liquid Discharges, Mine Water and Surface Contact Water Figure B.1 Preliminary Site Plan Layout	Water Quality Fish and Fish Habitat	In B.3.2, the proponent states that “Ditching will collect runoff from the TMF for direction to collection ponds for further management” which gives the impression that only runoff from the TMF will be collected. However, the IPD elaborates that “Precipitation and surface runoff that come into contact with mine-related facilities will be collected in ditches / secondary collection ponds and also pumped to the primary collection pond.” The proponent makes no mention of the collection of seepage during operations and is vague about which mine-related facilities that come into contact with precipitation resulting in surface runoff will be targeted for collection. With respect to construction of haul roads, the document in B.3.2 also provides that “haul roads will be established within the site as needed… new roads will be constructed of aggregate or mine rock, which is non-acid generating and does not show a high potential for metal leaching as preliminary baseline geochemical assessments suggest.” Limited to the discussion of closure and with no mention of operations the proponent states in B.3.2 that the “primary potential closure concern with respect to reclamation of mine rock and tailings storage areas is the quality of runoff and seepage from the facilities.	The water quality assessment should include the potential effects of discharge, runoff and seepage. The proponent should provide details on the water management facilities and drainage works for all phases of the project. This should include how they will collect and monitor all of the contact water runoff from the mine, and collect and monitor all of the seepage derived from ore stockpiles (run of mine, low grade, etc), waste rock, and tailings. Update Figure B.1 Preliminary Site Plan Layout to include the run of mine ore stockpile.	Potential effects of seepage and runoff on water quality and fish and fish habitat. Need for more information on water management facilities and drainage works for all phases of the project, including how and where seepage and mine contact water will be collected, monitored, and treated as necessary. Need for further information on potential residual effects of seepage and runoff (of all mine contact water during all project phases). Need to update Figure B.1 Preliminary Site Plan Layout to include the run of mine ore stockpile.

			Preliminary geochemical investigations indicated that these materials are not potentially acid generating." Finally, under E.7.2 Liquid Discharges, Mine Water and Surface Contact Water, the IPD states: "The majority of site runoff (contact water other than mine water) is not anticipated to pose a water quality concern. Runoff from the ore, mine rock, TMF, and overburden stockpiles may contain suspended solids as well as some level of dissolved metals (ore, tailings, and mine rock only). Preliminary geochemistry results suggest very low dissolved metal concentrations; water quality monitoring will include a wide range of parameters including arsenic, copper, lead, nickel, zinc, selenium, mercury, chromium, cobalt, and iron." E.7.2 therefore does not indicate an intention to collect and monitor all of the contact water runoff from the mine, or to also collect and monitor all of the seepage derived from ore stockpiles (run of mine, low grade, etc), waste rock, and tailings. Limiting the discussion about the material used in construction of haul roads to acid generating potential and high potential for metal leaching does not preclude some metal leaching from the waste rock used in construction of the roads or take into account the material that is being hauled on those roads, its characteristics, and the risk that runoff (derived from those roads that, in particular, also contain the dust collected on these roads derived from the ore and waste rock) has for risks for effects to water quality particularly if is not collected. In Figure B.1 Preliminary Site Plan Layout, the run of mine ore stockpile is not identified.		
ECCC-10	Table E.2: Preliminary Summary of Potential Environmental Effects, p66 *"Air emissions (point source at the plant or diffuse from roads and blasting) have the potential to generate dust, or products of petroleum hydrocarbon combustion that could potentially affect human health, and plant and animal health.* *Due to the presence of chrysotile within the formation, there is a potential that airborne dust from the mining operations and the TMF might contain chrysotile."*	Migratory birds; Species at Risk	The anticipated footprint of the Project is large. Given the scale of land disturbance expected, that include mine features, such as the tailings management facility, open pits, ore stockpiles and waste rock piles (Figure B1, p25), it is expected that fugitive dust could be a relevant source of metal exposure to wildlife and wildlife habitat in the surrounding environment. Fugitive dust is acknowledged by the Proponent as an emission source; however, it is not evaluated in the context of effects on natural vegetation and wildlife (Table E.2., p67). Furthermore, the presence of chrysotile is identified as a contaminant of concern that could be potentially associated with dust given its known presence within the formation. Additional elements present within the formation such as metals, should also be included in environmental effects assessments. Metals are identified as a particular concern given that metal mining extraction activities have the propensity to concentrate and release metals to the environment.	Provide information associated with the Project as a potential emission source of metals to the surrounding environment. Characterize the concentrations of metals present in fugitive dust for all phases of the Project. Explicitly address potential effects associated with metal exposure to various wildlife receptor species (e.g. migratory birds, species at risk) and wildlife habitat surrounding the Project. If no adverse effects are anticipated, ensure that a detailed rationale and supporting evidence is provided. If there is the potential for any effects, describe avoidance and mitigation measures to lessen the effects as well as monitoring measures. Provide information on the potential for residual effects after mitigation has been applied.	Potential effects of metal exposure in fugitive dust to vegetation and wildlife receptor species, including migratory birds and species at risk, and their habitats. Need for information on potential effects of metals in fugitive dust on vegetation and wildlife, including migratory birds and species at risk and their habitats. Need for information on mitigation measures and monitoring plans to prevent adverse effects of metal exposure in fugitive dust on vegetation and wildlife, as required.