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**SUBJECT: Technical Review of the Environmental Impact Statement for the Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Project – Information Request Package 1**

Dear Mr. Osiowy:

The Canadian Environmental Assessment Agency (the Agency) and federal authorities are conducting a technical review of the Environmental Impact Statement (EIS) for the Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Project (the Project) received from Manitoba Infrastructure on April 4, 2019. Indigenous groups and federal authorities are also reviewing the EIS and have contributed technical expertise and Indigenous knowledge.

The EIS Guidelines issued on September 18, 2017 describe the information required to support the assessment of effects described in the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and section 79 of the *Species at Risk Act*, and to inform Canada's Crown consultation obligations, to the extent possible, during the environmental assessment (EA).

While the subject areas identified in the EIS Guidelines are addressed in the EIS, the Agency and federal authorities identified gaps in the information provided. This information is necessary to determine whether the Project is likely to cause significant adverse environmental effects and to inform the Agency's preparation of the EA Report under CEAA 2012.

The Agency prepared the attached Information Request Package 1 to allow Manitoba Infrastructure to continue gathering essential information in a timely manner. This attachment includes sixteen items with context and rationale for the required information. A second information request package will follow and is being developed in collaboration with federal authorities and in consultation with Indigenous groups to address additional information gaps. When responding to information requests, the Agency expects Manitoba Infrastructure to consider the context and rationale for the required information for every question.

Comments from federal authorities, Indigenous groups, and the public were considered in the development of these information requests.

In accordance with CEAA 2012, time taken by Manitoba Infrastructure to provide the required information is not included in the legal timeframe within which the Minister of the Environment and Climate Change must make her EA decision. Although issuance of this Information Request Package pauses the timeline at day 107 of 365, the Agency and federal authorities will continue to work on the Project EA, with a focus on Indigenous consultation to improve the Agency's understanding of the environmental effects of the Project. The Agency recognizes the importance of timely decision making based in science and Indigenous knowledge.

Upon request, the Agency is available to meet with you to discuss the information requirements. If you have any questions regarding this letter, please contact the undersigned.

Sincerely,

<Original signed by>

Chelsea Fedrau  
Project Manager  
Prairie and Northern Region  
Canadian Environmental Assessment Agency

Attachments:

1. Information Request Package 1 – Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Project, 2019-06-26

Cc: Elise Dagdick, Manitoba Sustainable Development  
Janet Scott, Canadian Environmental Assessment Agency  
Gordon Chamberlain, Manitoba Infrastructure

# **Information Request Package 1**

## **Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God’s Lake First Nation Project**

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## List of Acronyms and Short Forms

Agency	Canadian Environmental Assessment Agency
ASR	All-season road
CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
EA	Environmental assessment
EIS	Environmental Impact Statement
EIS Guidelines	Environmental Impact Statement Guidelines
EP	Environmental Protection Procedures
ES	Environmental Protection Specifications
GHG	Greenhouse gas
IR	Information Request
Keyask Project	Keyask Power Generation Project
LAA	Local Assessment Area
MI	Manitoba Infrastructure
MSCN	Manto Sipi Cree Nation
Project	Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God’s Lake First Nation
Project 4	Project 4 – All-Season Road Connecting Berens River to Poplar River First Nation
RAA	Regional Assessment Area
ROW	Right of way
VC	Valued component

**IR#: IR1-01**

**Topic: Alternative Means – Culverts and Major Bridge Crossings**

**Sources:**

EIS Guidelines Part 2, Section 2.2 and 5.1

EIS Chapter 2, Section 2.2.3

EIS Chapter 3, Section 3.3.2, Section 3.4.1, Table 3.2, and Appendix 3-7

Fisheries and Oceans Canada – Project 6 Technical Review Comments

Transport Canada – Project 6 Technical Review Comments

**Context and Rationale:**

The EIS Guidelines require the proponent to identify and consider the environmental effects, as per the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), of alternative means of carrying out the Project that are technically and economically feasible, including the location and type of any permanent or temporary bridges and culverts.

The EIS describes the preferred location and design of permanent bridge crossings and culverts. However, the EIS does not provide the alternative locations or designs of temporary and permanent bridge crossings and culverts that were considered. Additionally, the EIS does not describe the environmental effects of alternative locations or designs for permanent and temporary bridge crossings and culverts.

The EIS describes how “additional factors will be weighed [during the detailed design phase] to determine the details of the culvert size and design such as the potential impact on fish habitat, and hydraulic and geotechnical investigations. Crossing type and design may change based on this analysis”. However, it is unclear what aspects or conclusions of the analysis with respect to fish habitat, and hydraulic and geotechnical investigations would result in a change to the design and/or type of culvert utilized or how the design may change.

The EIS notes that culvert design alternatives will be considered and appropriate designs will be selected using guidance from the *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat* (1996). However, the design criteria within this guidance document is no longer relevant as Fisheries and Oceans Canada published updated criteria for fish passage, as outlined in the [Fish Swimming Performance User Guide](#) (2016) and the [Swim Performance Online Tool](#). Additionally, under the current *Navigation Protection Act*, navigation safety and access should be considered in the design and maintained throughout the construction and lifecycle of works, including bridges, culverts, and temporary water crossings in and around

navigable waterways. It is unclear whether the proponent considered these publications when selecting the designs for bridges, culverts, and temporary stream crossings.

Information regarding the potential environmental effects of alternative bridge and culvert locations and designs is required to assess potential effects to fish and fish habitat and effects to Indigenous peoples as defined in subsection 5(1)(c) of CEAA 2012.

**Information Request:**

- a) Describe the alternative locations and design options for bridges and culverts that were considered prior to final selection, including both permanent and temporary crossings. Include figures showing the alternative bridge and culvert locations considered.
- b) Describe the potential environmental effects including to valued components (VCs) of alternative bridge and culvert locations and designs, and provide a rationale for why the final options were chosen. This rationale must include the views and concerns expressed by Indigenous peoples and the ranking system used to select preferred locations/designs.
- c) For each alternative bridge and culvert location characterize:
  - relationship<sup>1</sup> to fish and fish habitat;
  - relationship to migratory birds and their habitat;
  - relationship to species at risk and their habitat;
  - any hazardous materials or potential contaminants that may be present on the site(s), including their characteristics and approximate volumes;
  - relationship to wetlands and other waterbodies;
  - terrestrial or riparian habitat loss (area) by vegetation cover type;
  - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
  - relationship to sites of cultural and heritage value;
  - relationship to species of importance to Indigenous peoples and their habitat;
  - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
  - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.

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<sup>1</sup> “Relationship” should consider factors including, but not limited to: the Project component or activity’s proximity to VCs, potential Project effects to VCs, the pathway of potential effects, and characteristics of VCs (e.g. number of fish, quality of fish habitat, duration of use, etc.). In terms of proximity, this characterization should include not only the location of the nearest VC, but should consider other factors such as the proximity of the Project component or activity to sensitive receptors (e.g. describing only the distance of a potential quarry to the nearest residence, for instance an intermittently occupied cabin located 250 metres away, may mischaracterize potential Project effects should a group of permanent residences exist 300 metres away).

- d) Describe the specific circumstances under which culvert design and type may change during detailed design (i.e. what aspects or conclusions of the analysis with respect to fish habitat, and hydraulic and geotechnical investigations would result in a change to the design and/or type of culvert utilized). Should a change be required, describe how the type and/or design of the culvert would change.
- e) Update proposed permanent and temporary culvert and bridge designs to be consistent with the criteria and information outlined in the *Fish Swimming Performance User Guide* and the Swim Performance Online Tool.
  - Update applicable sections of the EIS to use the current criteria noted above for assessing and protecting against potential Project effects to fish passage, instead of using the *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*.
- f) Update proposed culvert and bridge designs to demonstrate that factors to protect navigation safety and access as outlined in the *Navigation Protection Act* have been considered, and describe how these factors were considered when selecting final or potential culvert and bridge designs. Examples of factors that should be considered in bridge and culvert design selection to maintain accessibility and safe travel past Project works include, but are not limited to:
  - characteristics of the waterway;
  - frequency of navigation;
  - types of vessels transiting through the area including their maneuverability, clearance requirements, and typical speeds;
  - timing of navigation including:
    - time of day and whether travel occurs at night or in low visibility conditions,
    - times of year, if navigation occurs frequently during high or low water conditions, and
    - navigation activities of special importance such as travel for hunting, fishing, recreational tournaments, etc.;
  - type of work; and
  - construction methodology.
- g) Update the effects assessment for all VCs, as required, given consideration of any additional potential effects identified above, including the assessment of residual Project effects.

**IR#: IR1-02**

**Topic: Alternative Means – All-Season Road Alignment**

**Sources:**

EIS Guidelines Part 2, Section 2.2

EIS Chapter 2, Section 2.2.2

EIS Chapter 6

**Context and Rationale:**

The EIS Guidelines require that the proponent identify and consider the environmental effects, as per CEAA 2012, of alternative means of carrying out the Project that are technically and economically feasible, including alternative routes for the all-season road (ASR). Where the proponent has not made final decisions concerning the placement of Project infrastructure, the technologies to be used, or when several options may exist for various Project components, the proponent shall conduct an environmental effects analysis at the same level of detail for each of the various options available (alternative means) within the EIS.

Alignment of an approximately 8 kilometre section of the ASR near the Manto Sipi Cree Nation (MSCN) reserve has not been finalized, with four alignment options being considered by Manitoba Infrastructure (MI) and MSCN. The EIS describes potential adverse environmental effects of the ASR as a whole, but does not provide details regarding the potential environmental effects of each alternative route option for the 8 kilometre section of the alignment near MSCN under consideration.

This information is required to understand the potential effects of each alignment option to VCs included in section 5 of CEAA 2012.

**Information Request:**

- a) Conduct an environmental effects analysis for each of the four alignment options for the 8 kilometre section of the ASR near the MSCN reserve.
  - If, at the time of responding to this information request, a preferred alignment has been chosen, provide a rationale for why the final option was chosen, which describes consideration of potential environmental effects to VCs, the views and concerns expressed by Indigenous peoples, and the ranking system used to select the preferred route.



**IR#: IR1-03**

**Topic: Alternative Means – Quarries, Access Roads, and Construction Camps**

**Sources:**

EIS Guidelines Part 1, Section 3.1

EIS Guidelines Part 2, Section 2.2 and 5.1

EIS Chapter 2, Section 2.2.4 and 2.2.5

EIS Chapter 3, Section 3.2.4, 3.3.5, 3.4.2.8, and Appendix 3-7

**Context and Rationale:**

The EIS Guidelines require that the proponent identify and consider the environmental effects, as per CEAA 2012, of alternative means of carrying out the Project that are technically and economically feasible, including alternative locations of borrow areas, rock quarries, gravel pits, and any permanent or temporary access roads. The scope of the environmental assessment (EA) for the Project is also to include construction camps and laydown areas. Where the proponent has not made final decisions concerning the placement of Project infrastructure, the technologies to be used, or when several options may exist for various Project components, the proponent shall conduct an environmental effects analysis at the same level of detail for each of the various options available (alternative means) within the EIS.

The EIS describes the location of 62 potential quarry locations, noting that only 19 quarries will be required for Project construction, with up to 6 quarries remaining active during operation of the Project for road maintenance. While the EIS lists factors to be considered in the site selection for quarries, borrow areas, permanent and temporary access roads, construction camps, and construction staging areas and describes general effects associated with these Project components, there is no evaluation of the environmental effects associated with each alternative location. Information regarding the location and potential environmental effects of these Project components is required to understand the potential effects of quarries, borrow areas, temporary and permanent access roads, construction camps, and construction staging areas to VCs listed in section 5 of CEAA 2012.

The EIS also describes how certain quarries and/or construction camps nearest to each of the communities of God's Lake First Nation, Manto Sipi Cree Nation, and Bunibonabee Cree Nation may be retained during Project operation as maintenance yards, should additional storage for road maintenance equipment be required beyond available storage space at the existing maintenance facility owned by MI's Remote Road Operations, Winter Road Program. Additional information is required regarding the location and environmental effects that may be associated

with these potential permanent facilities to assess potential effects to VCs listed in section 5 of CEAA 2012.

**Information Request:**

- a) Describe the potential locations of temporary construction camps, staging areas, and temporary and permanent access roads.
- b) For each potential location for temporary and permanent quarries, borrow areas, temporary construction camps, staging areas, and temporary and permanent access roads, characterize:
  - relationship to fish habitat;
  - relationship to migratory birds and their habitat;
  - relationship to species at risk and their habitat;
  - any hazardous materials or potential contaminants that may be present on the site(s), including their characteristics and approximate volumes;
  - relationship to wetlands and other waterbodies;
  - terrestrial habitat loss (area) by vegetation cover type;
  - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
  - relationship to sites of cultural and heritage value;
  - relationship to species of importance to Indigenous peoples and their habitat;
  - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
  - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
- c) If final locations have been chosen, describe the location of temporary and permanent quarries and borrow areas. Provide a rationale for how the final locations were chosen, including a consideration of potential environmental effects to VCs, the views and concerns expressed by Indigenous peoples, and the ranking system used to select preferred locations.
  - If preferred options have not been chosen, describe how the location of temporary and permanent quarries and borrow areas will be selected.
- d) Describe the potential locations of those quarry sites and/or construction camps that may permanently remain on the landscape during Project operation and be converted to maintenance yards. For each location, characterize:
  - infrastructure that will remain on the site(s) permanently;
  - any hazardous materials or potential contaminants that may be present on the site(s), including their characteristics and approximate volumes;

- relationship to fish and fish habitat;
- relationship to migratory birds and their habitat;
- relationship to species at risk and their habitat;
- relationship to wetlands and other waterbodies;
- terrestrial habitat loss (area) by vegetation cover type;
- relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
- relationship to sites of cultural and heritage value;
- relationship to species of importance to Indigenous peoples and their habitat;
- potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
- potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.

**IR#: IR1-04**

**Topic: Project Schedule - General**

**Sources:**

EIS Guidelines Part 2, Section 3.2

EIS Chapter 3, Table 3.4 and 3.8

EIS Chapter 3, Sections 3.4.1.3 and 3.2.3

**Context and Rationale:**

The EIS Guidelines require that the EIS provide a schedule, including time of year, frequency, and duration for all Project activities during site preparation, construction, and operation.

The EIS includes a general schedule of the start and completion dates (i.e. year) for the main activities (i.e. planning/design, construction, operation/maintenance, and decommissioning, where applicable) associated with major Project components and notes that the Project will be constructed in segments in order to optimize construction scheduling and resource use. These schedules, however, lack specificity regarding the time of year, frequency, and duration of activities associated with major Project components, and the timing of specific activities associated with each Project phase (e.g. vegetation clearing and water management activities during construction). This EIS also does not describe the anticipated schedule for blasting associated with road and bridge construction.

Information regarding scheduling is required to understand the timing of potential environmental effects to VCs listed in section 5 of CEAA 2012, as the timing of Project activities may affect the severity of potential effects.

**Information Request:**

- a) Update Table 3.8 to describe the schedule of Project activities by:
  - time of year (e.g. month);
  - frequency; and
  - duration (e.g. 2 months in Year 1, 24 hours per day).
- b) As the ASR will be constructed in segments, include information regarding the timing, frequency, and duration of activities associated with the construction and operation of each segment.
- c) Update Table 3.8 to include all activities associated with the construction, operation, and decommissioning (where applicable) of all Project components. Provide additional detail regarding the timing of specific Project activities, including but not limited to those listed

in Table 3.4 (e.g. the timing, frequency, and duration of vegetation clearing and water management activities associated with road construction).

- Describe the timing associated with any restricted activity periods (e.g. migratory bird nesting period) and/or seasonal periods of higher potential for effects to fish and fish habitat, migratory birds, species at risk, and current use activities (e.g. hunting, trapping, fishing, and gathering) that will be adhered to.
- d) Should changes to the timing of construction, operation, and maintenance activities be required from the schedule proposed in the EIS and which was considered in the effects analysis, indicate whether there would be additional effects to the environment as listed in section 5 of CEAA 2012, and if so what those effects would be, and what mitigation measures would be implemented to address those effects.
- Should changes to the timing of activities be required that may result in additional effects to VCs, or if any Project activities associated with construction, operation, or decommissioning of the Project overlap with restricted activity periods or seasonal periods of higher potential risk to VCs, revise the residual effects assessment, including any change to the conclusions with respect to residual effects levels.

**IR#: IR1-05**

**Topic: Mitigation Measures**

**Sources:**

EIS Guidelines Part 2, Section 6.4 and 7

EIS Chapter 6 (Inclusive)

EIS Chapter 6, Section 6.4.1.1.1 and Appendix 6-4

EIS Chapter 7, Appendix 7-1

EIS Chapter 8, Appendix 8.2 and 8.3

EIS Appendix A to D

**Context and Rationale:**

The EIS Guidelines require that the proponent, in the EIS, consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project. These measures must be specific, achievable, measurable and verifiable; described in a manner that avoids ambiguity in intent, interpretation, and implementation; and written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation measure is designed to address. The EIS Guidelines also require that the proponent summarize all key mitigation measures and commitments made to mitigate any significant adverse effects of the project on VCs (i.e. those measures that are essential to ensure that the Project will not result in significant adverse environmental effects).

The EIS describes the proponent's proposed mitigation measures to address potential adverse environmental effects of the Project. However, some mitigation measures described are ambiguous, not specific or verifiable, or absent. For example, mitigation measures proposed to limit adverse environmental effects associated with increases in fugitive dust during construction, operation, and maintenance activities include "implementing dust suppression measures and restricting vehicle speed limits", as per MI's Environmental Protection Procedures (EP) 18 and Environmental Protection Specifications (ES) 130.11. However, no specific details are provided regarding how vehicle speed limits will be enforced, what speed limits will be, and how speed limits would limit fugitive dust emissions. The procedures described in EP18 are limited to dust suppression on roadways and do not provide details of how mitigation measures will be implemented, such as when dust suppressants will be applied. As another example, EP130.11 states, "all work shall be conducted by methods that minimize the raising of dust from construction operations" and "all stock piles or spoil piles shall be maintained as to minimize wind erosion". However, no specific details are provided regarding how these mitigations will be

implemented, such as how work will be conducted to minimize the raising of dust (i.e. what methods will be used) or which methods will be implemented to ensure that stockpiles are maintained so as to minimize wind erosion. For specific Project activities, such as blasting, there are no specific mitigation measures described to limit fugitive emissions.

The deficiencies described above also apply to other sections of the EIS related to mitigation measures proposed to address potential Project effects:

- to other aspects of the atmospheric environment (e.g. noise, vehicle emissions);
- from spills and hazardous materials;
- from soil loss and erosion;
- to groundwater quality and availability;
- from vegetation clearing (e.g. buffers between the right-of-way (ROW) and any Project developments);
- to wildlife, including migratory birds and species of importance to Indigenous peoples (e.g. sensory disturbance, vehicle collisions, habitat loss or alteration, disease, etc.);
- to species at risk; and
- with respect to Indigenous peoples (e.g. land and resource use, human health and safety, noise, country foods, etc.).

Specific details of the mitigation measures that the proponent is proposing to implement to address potential adverse environmental effects of the Project are required to understand the nature and severity of potential residual adverse environmental effects to VCs listed under section 5 of CEAA 2012 and to assess the appropriateness of the mitigation measures proposed.

**Information Request:**

- a) Review and revise all mitigation measures and commitments described in Chapter 6, Chapter 7, Chapter 8, Appendix 6-4, Appendix 7-1, Appendix 8-2, Appendix 8-3, Appendices A to D, and in any other applicable sections of the EIS to remove ambiguity and to confirm that proposed mitigation measures and commitments are detailed, specific, achievable, measurable, and verifiable.
- b) Provide a detailed summary table listing all mitigation commitments in language that is detailed, specific, achievable, measurable, and verifiable.

**IR#: IR1-06**

**Topic: Atmospheric Environment – Greenhouse Gases**

**Sources:**

EIS Guidelines Part 2, Section 6.2.1

EIS Chapter 6, Section 6.1.1.3, 6.2.1.2, 6.4.1.2, and 6.5.1.2

EIS Appendix A

CEAA Annex 2: Early Technical Issues, August 27, 2018

**Context and Rationale:**

The EIS Guidelines require that the proponent describe the predicted changes to the environment as a result of the proposed Project in relation to each phase (i.e. construction, operation, decommissioning, and abandonment), including potential changes to the atmospheric environment. The assessment of potential changes to the atmospheric environment must include an estimate of the direct greenhouse gas (GHG) emissions associated with all phases of the Project, and a comparison and assessment of estimated direct GHG emissions to the regional, provincial, and federal emissions targets.

While the EIS describes the current federal emissions target and compares Project emissions to this target, a similar comparison is not included for provincial and regional emissions targets.

The EIS describes how the GHG emissions during Project operation will be less than current baseline GHG emissions associated with use of the winter road and other alternate travel routes. However, the assessment of GHG emissions during Project operation may not have accounted for the potential increase in vehicular traffic volume during operation of the all-season road, as baseline traffic levels, estimated in 2017 for the winter road, were assumed to remain the same during operation of the Project. With access to a more reliable and safe all-season road, local vehicular traffic may increase, in both volume and duration throughout the year. Additionally, with greater ease in travelling between communities that would be connected by the Project, vehicular traffic may increase as a result of use by community members and transportation of goods between communities by truck versus by air. It is also unclear whether the assessment of GHG emissions during Project operation accounted for GHG emissions associated with maintenance activities (e.g. grading, plowing, mowing, bridge maintenance, culvert cleanouts/steaming, quarry operation for road resurfacing or repair, etc.).

The EIS also describes how natural revegetation of the segments of the existing winter road corridors that will not be used for the ASR would act to reverse the effects of Project related GHG emissions over a long period, presumably by acting as a carbon sink. However, carbon



dynamics of boreal ecosystems, such as the ecosystem in which the Project is to be located, are complex and a non-static characteristic of these ecosystems (Bhatti et al. 2003). For instance, boreal forest ecosystems can act as either a net source or a net sink of carbon as a result of natural and anthropogenic changes over time, including changes to forest age-class structure, disturbance regime, and natural resource use. Considering potential ecosystem effects resulting from global climate change (e.g. altered temperature, precipitation, and disturbance regimes), carbon dynamics in boreal forest ecosystems may become even more unpredictable. As such, concluding that revegetation of the winter road corridor will result in a reversal of Project-related GHG emissions does not appear to be supported.

With respect to residual effects of GHGs associated with the Project, the EIS states: “[w]ith implementation of the mitigation measures indicated in Section 6.4.1.2 the level of adversity for greenhouse gas emissions (ex: SO<sub>x</sub>, NO<sub>x</sub>, diesel particulates) to the atmosphere from construction activities is unchanged”. It should be noted that SO<sub>x</sub>, NO<sub>x</sub>, and diesel particulates are not greenhouse gases and should not be considered in the GHG assessment for the Project.

A revised assessment of GHG emissions for the Project, including a more accurate estimate of emissions associated with increased road traffic for the life of the Project and information on anticipated carbon dynamics, is required to understand and assess potential transboundary effects of the Project and its contribution to global atmospheric carbon reserves.

**Information Request:**

- a) Provide the current provincial and regional emissions targets for GHGs. Compare estimated GHG emissions during all phases of the Project to these targets.
- b) Revise the operational GHG emissions estimate to include emissions associated with Project maintenance activities (e.g. grading, plowing, mowing, bridge maintenance, culvert cleanouts/steaming, etc.), potential increases in local vehicular traffic, both in volume and duration, and increases in traffic volume associated with transportation of goods to communities by truck versus by air.
- c) Revise the assessment and conclusions with respect to potential effects from GHGs during all phases of the Project, including but not limited to the conclusions noted in Chapter 6, Section 6.2.1.2.2 in consideration of the uncertainty in sequestration potential of natural revegetation of winter road corridors.
- d) Revise the assessment of potential residual Project effects to consider effects from GHGs (e.g. CH<sub>4</sub>, CO<sub>2</sub>, N<sub>2</sub>O), as opposed to SO<sub>x</sub>, NO<sub>x</sub>, and diesel particulates and to account for revisions to the GHG assessment and emissions estimates noted in the above questions.

**IR#: IR1-07**

**Topic: Hydrology – Drainage Basins and Effects of the Environment on the Project**

**Sources:**

EIS Guidelines Part 2, Section 6.1.5 and 6.6.2

EIS Chapter 6, Section 6.1.5.1.1

EIS Appendix C-1, Section 4.1.1.2

**Context and Rationale:**

The EIS Guidelines require that the proponent delineate drainage basins of waterbodies and watercourses, including intermittent streams, areas at risk of flooding, and boundaries of the watershed and subwatersheds in which the Project is located. These features must be overlaid by key Project components to understand the relationship of the Project to them. The EIS Guidelines also require the proponent to provide details of planning, design, and construction strategies intended to minimize the potential environmental effects of the environment on the Project.

The EIS briefly describes the overall drainage of surface waters in the region of the Project and describes the methodology that was employed to assess the upstream drainage area of waterbodies/watercourses crossed by the ASR. However, the EIS does not delineate the boundaries of drainage basins, watersheds, or subwatersheds of waterbodies and watercourses in the region or that may be affected by the Project, and does not present the results of the drainage analysis described. The EIS also does not include a description of the areas at risk of flooding.

This information is required to understand the relationship of the Project to local and regional hydrology, which may influence the extent and severity of Project effects through potential accidents and malfunctions, effects of the environment on the Project (e.g. flooding), and effects to fish and fish habitat, the health and socioeconomic conditions of Indigenous peoples, and current use of lands and resources by Indigenous peoples.

**Information Request:**

- a) Provide a description of flow pathways for all waterbodies and watercourses that may be affected by the Project. Include figures, at appropriate scales, showing the boundaries and connecting flow pathways for drainage basins, watersheds, and subwatersheds affected by the Project, including waterbodies and watercourses where crossings will be required, and overlay these features with key Project components.

- b) Describe and present in a figure the specific areas of the Project footprint that are at risk of flooding.

**IR#: IR1-08**

**Topic: Surface Water – Hydrological and Fish and Fish Habitat Baseline Data**

**Sources:**

EIS Guidelines Part 2, Section 6.1.5 and 6.1.6

EIS Chapter 6, Section 6.1.5.1.3 and 6.1.5.1.6

EIS Appendix C-1, Appendix 4 and 5

**Context and Rationale:**

The EIS Guidelines require that the proponent describe hydrological regimes, including monthly, seasonal, and annual water flow (discharge) data for waterbodies and watercourses with which the Project may interact. For each waterbody and watercourse potentially affected by the Project, the proponent is also required to describe the total surface area, bathymetry, maximum and mean depths, water level fluctuations, type of substrate (sediments), fish populations, and fish habitat present. The EIS Guidelines also note that certain intermittent streams or wetlands may constitute fish habitat or contribute indirectly to fish habitat and that the absence of fish at the time of the survey does not irrefutably indicate an absence of fish habitat.

The EIS notes that no active hydrometric data collection stations operated by the Water Survey of Canada are present on the watercourses and waterbodies intersected by the proposed ASR. As such, data from three Water Survey of Canada hydrometric stations present in the regional watershed were used. These stations are located on Back Lake adjacent to Bunibonibee Cree Nation, God's River near Shamatawa, and on the Hayes River. A figure showing the location of these stations relative to the Project is not provided, nor is a description of how data from the three hydrometric stations listed above relate to or may act as a proxy for understanding the hydrological regimes of the waterbodies and watercourses that may be affected by the Project.

The EIS describes the characteristics of fish-bearing watercourses and waterbodies where crossings will be required for the proposed Project, including channel width and depth, flow, bank stability, and streambed substrates. However, this information is not provided for non-fish-bearing watercourses and waterbodies which may contribute indirectly to fish habitat.

This information is required to support the proponent's baseline description of fish and fish habitat in the area of the Project and conclusions regarding the extent and nature of potential Project effects to current use of lands and resources by Indigenous peoples.

**Information Request:**

- a) Provide a figure depicting the location of the referenced hydrometric stations.

- b) Provide a rationale for how hydrometric data for Back Lake, Hayes River, and God's River apply to and/or acts as a proxy for all of the waterbodies/watercourses that may be affected by the Project.
- c) Describe the characteristics (e.g. channel width and depth, flow, bank stability, and type of substrates) for non-fish-bearing watercourses and waterbodies which may contribute indirectly to fish habitat and that may potentially be affected by the Project.

**IR#: IR1-09**

**Topic: Geology and Geochemistry – Acid Rock Drainage**

**Sources:**

EIS Guidelines Part 2, Section 6.1.2 and 8.0

EIS Chapter 6, Section 6.1.2.1, 6.2.2, 6.2.4.1.4, and 6.4.2

Environment and Climate Change Canada – Project 6 Technical Review Comments

**Context and Rationale:**

The EIS Guidelines require that the proponent describe the geochemical characterization of materials such as overburden and potential construction material to predict metal leaching and acid rock drainage potential; baseline concentrations of contaminants of concern within the local, regional, and downstream receiving environments; and geochemical characterization of leaching potential, including but not limited to, contaminants of concern from overburden and potential construction material. The EIS Guidelines also require that the proponent present a preliminary follow-up and monitoring program for all phases of the Project to verify the accuracy of the effects assessment and to determine the effectiveness of mitigation measures.

The EIS identifies the potential for sulphide mineralization and/or pyritic lithologies to be present at potential quarry sites and borrow areas, which could result in metal leaching and/or acid rock drainage. However, baseline concentrations of contaminants of concern and data characterizing the geochemical leaching potential within the Project footprint, Local Assessment Area (LAA), and Regional Assessment Area (RAA) were not collected as, according to the EIS, it is beyond the scope of the EA. The EIS goes on to state that “[g]iven the nature of the all-season road, there is little to no likelihood of significant adverse effects due to acid rock generation resulting from the Project”. However, no rationale is provided regarding why a characterization of acid rock drainage potential is outside of the scope of the EA and what characteristics of the Project would prevent significant adverse effects as a result of acid rock drainage. It is also unclear how MI concluded that there is little to no likelihood of significant adverse effects due to acid rock drainage, given that no baseline data were collected or presented to support this assertion.

The EIS indicates that, as the Project would result in little to no change to geology or geochemistry, no specific measures to mitigate potential environmental effects of acid rock drainage have been proposed. To mitigate for acid rock drainage, the proponent commits to assess materials at potential quarry sites for the presence of sulphide mineralization and/or pyritic lithologies prior to commencing excavation activities; areas with acid rock drainage potential will be avoided. The proponent has proposed to evaluate the potential for acid rock

drainage using visual inspection and/or laboratory testing of bedrock samples. However, no information is provided regarding the methods of laboratory testing of samples and visual inspection to detect the presence of sulphide is not an appropriate characterization method to classify rock as potentially acid generating or non-potentially acid generating for several reasons, such as:

- rock material with as little as 0.1 wt% sulphide can generate acid in the absence of neutralizing rock, and
- visual inspection of the rock surface is not necessarily indicative of materials below the surface, which would be exposed during excavation.

This information is required to understand and assess potential adverse environmental effects to surface water quality, and thus potential adverse effects to fish and fish habitat, migratory birds, the current use of lands and resources by Indigenous peoples, and the health of Indigenous peoples.

**Information Request:**

- a) Given uncertainty in the potential for acid generation from rock materials proposed for use in the Project, describe potential adverse environmental effects that may result to any receptors and VCs as a result of Project components and activities that may expose potentially acid generating rock, including a description of the pathway of effects in the event that acid rock drainage is generated.
- b) Describe in detail the follow-up and monitoring program that will be implemented to monitor for the generation of acid rock drainage and any adverse environmental effects that may result.
- c) In the event that monitoring indicates that acid rock drainage is being generated, describe mitigation measures that will be implemented to limit or eliminate potential adverse environmental effects to receptors and VCs. This should include measures to prevent or limit the generation of acid rock drainage and associated measures to mitigate potential adverse environmental effects should acid rock drainage be generated.
- d) As opposed to the visual inspection methodology proposed in the EIS to assess for the presence of potentially acid generating materials, conduct a complete characterization of all potential quarries, borrow pits, and sites where blasting is to occur using static (acid/base accounting) and kinetic (metal leaching determination) laboratory tests to determine whether the rock is potentially acid generating. Provide this data and an analysis of the data collected to inform the assessment of potential adverse environmental effects of the Project or provide a detailed description of how and when this work will be completed and how data from these tests will be used to inform quarry, borrow pit, and blasting site selection.

**IR#: IR1-10**

**Topic: Surface Water Quality – Baseline Data**

**Sources:**

EIS Guidelines Part 2, Section 6.1.5

EIS Chapter 6, Section 6.1.5.1.4 and 6.3.4.5.3

EIS Appendix C-1, Section 4.3.1

CEAA Annex 2: Early Technical Issues, August 27, 2018

Environment and Climate Change Canada – Project 6 Technical Review Comments

**Context and Rationale:**

The EIS Guidelines require that the proponent describe seasonal surface water quality, including analytical results (e.g. water temperature, turbidity, pH, dissolved oxygen profiles) and provide an interpretation of this data for representative tributaries and waterbodies, including all sites to receive Project runoff.

The EIS includes one-time baseline water quality data (i.e. temperature, dissolved oxygen, specific conductance, pH, total suspended solids, and turbidity) and nutrient profiles (i.e. ammonia, nitrate, nitrite, total nitrogen, total dissolved and particulate phosphorus, and organic carbon) collected from 24 of 53 stream crossings in the Project footprint. However, the EIS does not include seasonal baseline water quality sampling data from stream crossings in the Project footprint. With respect to this omission, the EIS states “while seasonal water quality sampling (i.e. multitude of sampling over the same year) was not conducted for the Project, such data is available for streams of similar physical characteristics within the same ecozone” and describes how baseline data collected for the Keeyask Power Generation Project (the Keeyask Project) in the Aiken River, Two Goose Creek, Portage Creek, and Tabbitt Creek may apply to the Project as these watercourses are similar to streams in the Project study area and are within the Boreal Shield Ecozone. However, the proponent has not provided the baseline data collected for the Keeyask Project, any other relevant data on the watercourses noted, or a comparison of water quality between the Project footprint and the sampled streams for the Keeyask Project to support the claim that this data can be used as proxy for baseline water quality data for the Project. Without this information, the appropriateness of this dataset as proxy baseline data for the Project cannot be assessed.

The EIS also does not provide baseline data for metals present within waterbodies or watercourses that will or may receive Project runoff. As the Project involves blasting, excavation, and storage of specific bedrock types that may contain materials subject to the



generation of geochemical leachate, the Project has the potential to generate acidic runoff that may cause metal leaching. While mitigation measures for avoidance of quarry development in areas with acid generation potential are presented in the EIS, there is potential for acid generation and metal leaching in areas of blasting or rock cutting other than quarries, however this information was not provided.

This information is required to support the proponent's characterization of potential Project effects to surface water quality, and thus potential adverse environmental effects to fish and fish habitat, migratory birds, the current use of lands and resources by Indigenous peoples, and Indigenous peoples' health.

**Information Request:**

- a) Provide the baseline water quality data collected for the Keeyask Project for watercourses that MI purports are representative of baseline water quality for the Project footprint, LAA, and/or RAA.
  - Provide an analysis of the baseline water quality data collected for the Keeyask Project, including an analysis of its applicability as proxy baseline data for the Project. This analysis must include a description and comparison of the physical characteristics of representative streams against streams within the Project footprint, LAA, and/or RAA to support the assertion that the physical characteristics of these streams are similar.
- b) Describe which waterbodies and watercourses will or may receive Project runoff and indicate the location where runoff may enter these features.
- c) Provide baseline water quality data for metals at sites that are to receive Project runoff from areas of blasting, rock cutting, and quarries, to support monitoring for the effectiveness of mitigation measures to avoid acid rock drainage and metal leaching.

**IR#: IR1-11**

**Topic: Noise Baseline Data**

**Sources:**

EIS Guidelines Part 2, Section 6.1.1

EIS Chapter 6, Section 6.1.1.4 and 6.2.1.3

Health Canada – Project 6 Technical Review Comments

**Context and Rationale:**

The EIS Guidelines require that the proponent describe the current ambient daytime and nighttime noise levels at key receptor points (e.g. Indigenous groups or communities), including the results of a baseline ambient noise survey.

The EIS includes the baseline ambient daytime and nighttime noise levels data collected for the Project 4 – All-Season Road Connecting Berens River to Poplar River First Nation (Project 4), which the proponent considers representative of conditions within the RAA of the Project. However, the EIS does not specify where the Project 4 baseline noise levels were measured (i.e. at the source or at key receptors), the hours during which the measurements were obtained, or the weather conditions and any seasonal variations at the time of measurement, as recommended in Health Canada’s 2017 *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise*.

This information is required to understand baseline conditions for noise at key receptors near the Project footprint and to assess potential Project contributions to the noise profile of the area that may affect the health of Indigenous peoples and other VCs, such as species at risk and migratory birds.

**Information Request:**

- a) Describe the conditions under which the baseline ambient daytime and nighttime noise levels data were collected for Project 4, including where measurements were taken (i.e. at the source or at key receptors), the hours during which the measurements were obtained, and the weather conditions and any seasonal variations at the time of measurement.
  - Describe how the locations for noise baseline data collection for Project 4 were selected (i.e. the criteria used to select where to take measurements).
- b) Provide a rationale for the assertion that the baseline ambient daytime and nighttime noise levels collected for Project 4 are representative of the baseline conditions for the Project (i.e. Project 6). This rationale should include a description of the distance between locations where baseline noise measurements were taken for Project 4 and key receptors

associated with Project 6, and a description of how the key receptors for Project 6 for this comparison were selected.

- Alternatively, describe the baseline ambient daytime and nighttime noise levels at key receptor points near or within the Project footprint, LAA, and/or RAA, including but not limited to nearby Indigenous communities.

**IR#: IR1-12**

**Topic: Environmental, Economic, and Social Benefits**

**Sources:**

EIS Guidelines Part 2, Section 2.1 and 5.1

EIS Chapter 1, Section 1.2.3

EIS Chapter 2, Section 2.1.3

CEAA Annex 2: Early Technical Issues, August 27, 2018

**Context and Rationale:**

The EIS Guidelines require that the proponent describe the predicted environmental, economic, and social benefits of the Project to potentially inform the justifiability of any significant adverse residual environmental effects as defined in section 5 of CEAA 2012, if such effects are identified. The EIS Guidelines also list Indigenous groups which the proponent must consider in its effects assessment, including its consideration of potential benefits of the Project. These Indigenous groups include Bunibonibee Cree Nation, Manto Sipi Cree Nation, God’s Lake First Nation, Manitoba Metis Federation, Norway House Cree Nation, Pimicikamak Okimawin, Garden Hill First Nation, Red Sucker Lake First Nation, St. Theresa Point First Nation, and Wasagamack First Nation.

The EIS includes general statements describing the assumed benefits of the Project, such as “Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God’s Lake First Nation will benefit from the improved linkage among their communities”. However, the EIS does not provide specific or quantitative information about those benefits or a discussion of the equity of benefits distribution across communities or within communities. Additionally, little information is included in the EIS with respect to potential benefits to Indigenous groups other than Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God’s Lake First Nation.

Additional information and quantitative data is needed to characterize the assumed benefits of the Project, particularly those benefits that the proponent assumes to be acceptable to Indigenous groups as accommodation measures for potential impacts to rights that may result from the residual effects of the Project and to those factors listed under section 5(1)(c) of CEAA 2012 (e.g., impacts to health and socio-economic conditions of Indigenous peoples as a result of direct Project effects to lands and resources, foods, trapping income, etc.).

**Information Request:**

- a) Provide specific and quantitative information regarding the predicted environmental, economic, and social benefits of the Project. In the description of potential benefits of the Project to Indigenous peoples, ensure that all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines are considered.
- b) Describe whether the potential benefits of the Project, notably those that may be proposed as accommodation measures for potential adverse environmental effects to Indigenous peoples and potential impacts to rights, were discussed with Indigenous groups during engagement activities for the Project to confirm that they are acceptable.
  - If so, provide a record of these engagement activities, including a description of what was discussed and the outcome of these activities.
  - If not, describe when and how these engagement activities will occur.

**IR#: IR1-13**

**Topic: Explosives Management Plan**

**Sources:**

EIS Guidelines Part 2, Section 3.2.1

EIS Chapter 1, Section 1.4.1.2

EIS Chapter 3, Section 3.3.9, 3.1.4.16, and 3.4.2.7

EIS Chapter 5, Table 5.9 and 5.10

EIS Chapter 6, Section 6.6.1.1 and 6.6.1.2

EIS Chapter 6, Table 6.42

EIS Chapter 8, Section 8.4.2.3

Natural Resources Canada - Project 6 Technical Review Comments

Environment and Climate Change Canada – Project 6 Technical Review Comments

**Context and Rationale:**

The EIS Guidelines require that the proponent describe the storage location(s) for explosives and describe how explosives will be managed during all phases of the Project.

The EIS indicates that contractors hired by MI to conduct blasting activities and/or any other work with explosives would be required to develop an Explosives and Blasting Management Plan. However, an Explosives and Blasting Management Plan has not been provided.

Information regarding the locations where blasting may occur, type(s) of explosives that may be used (i.e. packaged or bulk), and whether MI and/or its contractors intend to manufacture explosives on site for Project use has also not been provided.

Table 6.42 of the EIS indicates that the maximum probable quantity of ammonium nitrate explosives that may be stored at any given location within the Project footprint is 15,000 to 30,000 kilograms. The *Environmental Emergency Regulations* administered by Environment and Climate Change Canada regulate the use and storage of regulated substances, including ammonium nitrate explosives, in quantities in excess of 20 metric tonnes<sup>2</sup> (i.e. 20,000 kilograms) and that would be stored on site for more than 72 consecutive hours. As ammonium nitrate explosives associated with the Project may be stored for more than 72 hours in excess of the

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<sup>2</sup> This threshold is set out in Schedule 1 of the *Environmental Emergency Regulations*.

threshold of 20 metric tonnes, the Project may require that an Environmental Emergency Plan pursuant to the *Environmental Emergency Regulations* be developed.

This information is required to understand and assess the potential environmental effects of blasting and blasting materials associated with the Project to VCs defined in section 5 of CEAA 2012.

**Information Request:**

- a) Prepare and provide an Explosives and Blasting Management Plan and describe the type of explosives that may be used to support Project activities. Indicate the anticipated concentration of ammonium nitrate in solid and/or liquid explosives.
- b) Indicate whether MI and/or its contractors intend to manufacture explosives for Project use on site during construction, operation/maintenance, or decommissioning.
- c) Describe and include in a figure the locations where blasting may occur. For each of these locations, characterize:
  - relationship to fish and fish habitat;
  - relationship to migratory birds and their habitat;
  - relationship to species at risk and their habitat;
  - relationship to wetlands and other waterbodies;
  - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
  - relationship to sites of cultural and heritage value;
  - relationship to species of importance to Indigenous peoples and their habitat;
  - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
  - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
- b) Indicate the maximum number of consecutive hours that ammonium nitrate explosives will be stored within or near the Project footprint and confirm whether the maximum probable quantity of ammonium nitrate explosives will exceed the threshold of 20 metric tonnes (i.e. 20,000 kilograms) defined in Schedule 1 of the *Environmental Emergency Regulations*.
  - If ammonium nitrate explosives would be stored within the Project footprint for more than 72 consecutive hours in quantities in excess of 20 metric tonnes, develop an Environmental Emergency Plan pursuant to the *Environmental Emergency Regulations* and in consultation with Environment and Climate Change Canada.

**IR#: IR1-14**

**Topic: Human Health – Technical Guidance**

**Sources:**

EIS Guidelines Part 1, Section 4.1

EIS Chapter 6, Section 6.3.4

CEAA Annex 2: Early Technical Issues, August 27, 2018

**Context and Rationale:**

The EIS Guidelines encourage the proponent to consult relevant Agency policy and guidance on topics to be addressed in the EIS, as well as any relevant guidance from other federal departments.

The EIS describes how guidance was sought from the Agency's *Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the Canadian Environmental Assessment Act, 2012* and *Useful Information for Environmental Assessments*, published in 2010. However, more recent guidance documents from Health Canada on evaluating human health impacts in environmental assessments are available and should be reviewed and considered by MI in their assessment of potential Project effects to human health.

Consideration of more recent guidance documents would improve the assessment of potential Project effects to human health and may increase the strength of conclusions with respect to potential effects to the health and socioeconomic conditions of Indigenous peoples.

**Information Request:**

- a) Update the assessment of potential environmental effects of the Project to human health and the health and socioeconomic conditions of Indigenous peoples, following review and in consideration of the following updated guidance documents published by Health Canada:
  - Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise (2017);
  - Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality (2017);
  - Guidance for Evaluating Human Health Impacts in Environmental Assessments: Country Foods (2017);
  - Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality (2017); and



- Guidance for Evaluating Human Health Impacts in Environmental Assessment: Radiological Impacts (2017).

**IR#: IR1-15**

**Topic: Accidents and Malfunctions – Worst Case Scenarios**

**Sources:**

EIS Guidelines Part 2, Section 6.6.1

EIS Chapter 6, Section 6.6.1

EIS Chapter 8, Section 8.4.2.1

CEAA Annex 2: Early Technical Issues, August 27, 2018

**Context and Rationale:**

The EIS Guidelines require the proponent to identify the probability of potential accidents and malfunctions related to the Project, including an explanation of how those events were identified, potential consequences (including the environmental effects as defined in section 5 of CEAA 2012), the plausible worst case scenarios, and the effects of these scenarios. This assessment must also include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form, and characteristics of the contaminants and other materials likely to be released into the environment during the accident or malfunction. Potential spills of hydrocarbons and ammonium nitrate to fish-bearing waterways must also be considered in this assessment for all seasons.

The EIS does not describe in sufficient detail what would constitute the worst case scenarios or the potential environmental effects of worst case scenarios such as the accidental release of hazardous substances, accidental fires or explosions, accidental collisions, and accidental encroachments. The EIS generally describes that adverse environmental effects to VCs may result from accidents and malfunctions, including from worst case scenarios, but does not explain specifically how VCs may be affected, including the potential geographical and temporal extent of such effects. For instance, for hazardous material spills, stating that the extent of potential adverse effects to VCs would be a function of the nature, size and location of the release does not provide a clear description of the potential environmental consequences of such an event. Quantitative predictions (e.g. volumes of materials released) for all worst case scenarios should be estimated. The EIS also does not provide information regarding potential spills of ammonium nitrate to fish-bearing waterways.

In characterizing the probability of occurrence of accidents and malfunctions and the potential magnitude of effects, no rationale is provided regarding how conclusions on the probability of occurrence were reached. The assessment of the magnitude of an accident and/or malfunction only considers the degree or intensity of change, but not the quantity of material released, the mechanism of release, rate of release, form of release, or characteristics of the contaminants.

Additionally, this assessment was not conducted for potential accidental encroachments or potential spills of ammonium nitrate to fish-bearing waterways.

With regard to mitigation measures, the EIS describes measures that will be implemented to prevent or minimize the potential for accidents and malfunctions that may result in adverse environmental effects to VCs, including the development of a Waste Management Plan and Emergency Response Plan by the construction contractor. However, detail is not provided regarding the level of influence that MI will have to inform the Waste Management Plan and Emergency Response Plan, or measures that will be implemented to mitigate adverse environmental effects in the event that an accident or malfunction does occur.

This information is required to understand and assess the probability and magnitude of potential accidents and malfunctions and any associated adverse environmental effects to VCs listed under section 5 of CEAA 2012.

**Information Request:**

- a) Provide a description of what would constitute a worst case scenario for accidents and malfunctions related to an accidental release of hazardous substances, fires or explosions, collisions, encroachments, and spills of hydrocarbons and ammonium nitrate to fish-bearing waterways in all seasons. This description should include details regarding the location of the accident and/or malfunction and the magnitude of the event (i.e. clearly considering the quantity of material, mechanism of release, rate of release, form of release, and characteristics of the contaminants and other materials likely to be released into the environment during the event).
  - Describe the characteristics of hazardous substances that may be released and describe how those characteristics may contribute to or cause adverse environmental effects to VCs.
- b) For accidental releases of hazardous substances, fires and explosions, collisions, encroachments, and spills of hydrocarbons and ammonium nitrate to fish-bearing waterways, provide specific details regarding how VCs would be affected by the worst case scenarios in all seasons, the associated environmental consequences (such as potential species affected), the temporal and geographical extent of the effects, and the pathway of effects. Describe mitigation measures to limit or prevent any potential adverse environmental effects to VCs.
  - If no effects to a particular VC are anticipated, provide a clear and descriptive rationale for this conclusion.
- c) Provide a rationale or describe the methodology for how conclusions regarding the probability of occurrence of accidents and malfunctions were reached, including for accidental releases of hazardous substances, fires and explosions, and collisions.

- d) Conduct an analysis of the probability of occurrence for accidental encroachments and accidental spills of hydrocarbons and ammonium nitrate to fish-bearing waterways, and provide a rationale or describe the methodology for how conclusions were reached.
- e) Identify and describe contingency and response planning for hazardous material spills, including on-site response capacity and times, and spill notification procedures.
- f) Describe the relationship that MI will have with the construction contractor, specifically with regard to the development of a Waste Management Plan and Emergency Response Plan. For instance, will MI have the ability to influence or inform the measures included in the contractor's Waste Management Plan and Emergency Response Plan?
  - If MI will have the ability to influence the development of the Waste Management Plan and Emergency Response Plan, describe measures that MI will require be included in these plans to limit or prevent accidents and malfunctions, and to mitigate or prevent adverse environmental effects to VCs in the event that an accident or malfunction occurs.

**IR#: IR1-16**

**Topic: Accidents and Malfunctions – Liquid Discharges**

**Sources:**

EIS Guidelines Part 2, Section 3.2.2, 5.1, and 6.6.1

EIS Chapter 3, Section 3.4.1.12 and Table 3.3

EIS Chapter 6, Section 6.6.1

**Context and Rationale:**

The EIS Guidelines require that the proponent describe the planned storage and handling of reagents, petroleum products, chemical products, hazardous materials, and residual materials that may be required for the Project. The proponent must also identify the probability of potential accidents and malfunctions related to the Project, including an explanation of how those events were identified and any potential consequences (including the environmental effects as defined in section 5 of CEAA 2012). This assessment should include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form, and characteristics of the contaminants and other materials likely to be released into the environment during the accident and/or malfunction event.

The EIS describes how accidental releases and unplanned discharges may occur during construction and operation from concrete batch plants, camps (including septic waste), laydown areas, and operation of machinery and construction equipment. While the EIS does list some hazardous materials and fuels associated with Project components and activities that may be present, no information is provided regarding potential liquid wastes or discharges associated with concrete batch plants or machinery and construction equipment, including the types of liquids, characteristics of the liquids, volume of material, or the potential mechanism of the release of these materials. No information is provided regarding the anticipated volume of septic waste associated with construction camps or the potential mechanism of release. The EIS also does not describe potential adverse environmental effects should materials from concrete batch plants, machinery and construction equipment, or septic waste from camps be accidentally released or discharged.

With respect to the analysis of the probably and magnitude of potential accidents and malfunctions, including worst case scenarios, the EIS does not include liquid discharges from concrete batch plants, machinery and construction equipment, or septic waste from camps. The EIS also does not describe mitigation measures to limit or prevent discharges of these wastes or measures to mitigate or respond to an accidental release or discharge.

This information is required to understand and assess the probability and magnitude of potential liquid discharges and any associated adverse environmental effects to VCs listed in section 5 of CEAA 2012.

**Information Request:**

- a) Describe the type and approximate volume of liquids, including any liquid wastes, that may be accidentally released or subject to an unplanned discharge from concrete batch plants, the operation of machinery and construction equipment, and construction camps (i.e. septic waste).
- b) Describe the locations that may receive accidental releases from concrete batch plants and construction camps. For each location characterize:
  - relationship to fish and fish habitat;
  - relationship to migratory birds and their habitat;
  - relationship to species at risk and their habitat;
  - relationship to wetlands and other waterbodies;
  - terrestrial habitat that may be adversely impacted, by vegetation cover type;
  - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
  - relationship to sites of cultural and heritage value;
  - relationship to species of importance to Indigenous peoples and their habitat;
  - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
  - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
- c) Describe the locations that may receive accidental releases from machinery and construction equipment. If it is unknown at this time where these accidental releases may occur, identify environmentally and socially sensitive areas within the Project footprint where accidental releases from machinery and construction equipment would result in adverse environmental effects to VCs listed in section 5 of CEAA 2012 and describe what those effects may be. This description should consider:
  - relationship to fish and fish habitat;
  - relationship to migratory birds and their habitat;
  - relationship to species at risk and their habitat;
  - relationship to wetlands and other waterbodies;
  - terrestrial habitat that may be adversely impacted, by vegetation cover type;
  - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);

- relationship to sites of cultural and heritage value;
  - relationship to species of importance to Indigenous peoples and their habitat;
  - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
  - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
- c) For those hazardous materials listed in Table 3.3, describe the source and/or location of the potential release and characterize for each location:
- relationship to fish and fish habitat;
  - relationship to migratory birds and their habitat;
  - relationship to species at risk and their habitat;
  - relationship to wetlands and other waterbodies;
  - terrestrial habitat that may be adversely impacted, by vegetation cover type;
  - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
  - relationship to sites of cultural and heritage value;
  - relationship to species of importance to Indigenous peoples and their habitat;
  - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
  - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.

## References

- Bhatti, J.S., G.C. van Kooten, M.J. Apps, L.D. Laird, I.D. Campbell, C. Campbell, M.R. Turetsky, Z. Yu, and E. Banfield. 2003. Chapter 20: Carbon balance and climate change in boreal forests. In P.J Barton, C. Messier, D.W. Smith, and W.L Adamowicz (Eds), *Towards Sustainable Management of the Boreal Forest* (pp. 799-855). Ottawa, Ontario, Canada: NRC Research Press.