

LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT
RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS

Question IAAC-15

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Abbreviations and Acronyms

AEMP	Aquatic Effects Monitoring Plan
CEMP	Construction Environmental Management Program
DMP	Debris Management Plan
EA	environmental assessment
ECCC	Environment and Climate Change Canada
EIS	environmental impact statement
EMP	Environmental Management Program
EOC	emergency outlet channel
FMP	Follow-up and Monitoring Program
GWMP	Groundwater Management Plan
LMOC	Lake Manitoba outlet channel
LSMOC	Lake St. Martin outlet channel
MI	Manitoba Infrastructure
OEMP	Operational Environmental Management Program
PER	Project Environmental Requirement
SMP	Sediment Management Plan
SWMP	Surface Water Management Plan
TSS	total suspended solids

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EIS Guideline Reference: 7.4 Mitigation Measures; 3.2.2 Operation

EIS Reference: 3.5.3.4 Water Management; 3.7.2 Construction Environmental Management Program;
6.4.7.7 Changes in Regional and/or Local Surface Water Quality

Context and Rationale

Section 7.4 of the EIS Guidelines details the requirements for the Proponent's description of mitigation measures. Section 3.2.2 of the EIS Guidelines also requires water management through each Project component, including a detailed water management plan.

The EIS indicates that mitigation measures for the protection of surface water will be included in various plans and programs.

The EIS does not provide the required detailed water management plan, nor any other management plans. Instead, the EIS indicates that plans will be developed in the future to address key aspects of surface and groundwater management during construction and operations. As these plans have not been provided for review, ECCC is not able to evaluate surface water quality mitigation measures for this Project, including key items such as management of sediment, shoreline erosion, management and monitoring of total suspended solids (TSS). In addition, the EIS does not appear to consider how to prevent impacts to water quality related to the use, storage, transport, and handling of ammonia-based explosives. These topics should be discussed with respect to potential effects on water quality and planned mitigation measures.

Information Requests

- a) Provide all proposed plans or details of draft plans that include mitigation measures for surface water quality, including the Surface Water Management Plan and the Sediment Management Plan. Specify how the following are or will be addressed in management/monitoring plans:
- i. temperature changes in surface water as a result of groundwater-surface water interactions;
 - ii. temperature changes in surface water as a result of water diversion and retention;
 - iii. changes to surface water quality, including seasonal changes in runoff entering watercourses;
 - iv. changes to total suspended solids (TSS), total dissolved solids, turbidity, oxygen level, water temperature, pH, dissolved oxygen, water quality including metals, methyl mercury, nutrients, algae blooms, dissolved/total organic carbon, biochemical oxygen demand (BOD)/carbonaceous biochemical oxygen demand (CBOD), pesticides, aquatic indicators, sediment quality;

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- v. changes to water quality and sediment quality during all phases of the Project associated with Project-related to:
- drainage areas, flow paths, and seepage of groundwater into surface water;
 - erosion and sedimentation;
 - excavation, blasting, and stock-piling of materials and waste rock;
 - wastes, wastewater, fuels, chemicals, hazardous materials, contaminated soils, including run off from agricultural lands;
 - spills and releases;
 - mercury methylation.
- b) If any of the details requested above cannot be provided at the time of response, present a discussion of the gap in information, related uncertainty with regards to potential effects and mitigation, and any additional mitigation measures and/or monitoring and follow up that will be implemented on a precautionary basis.

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Response for (a)

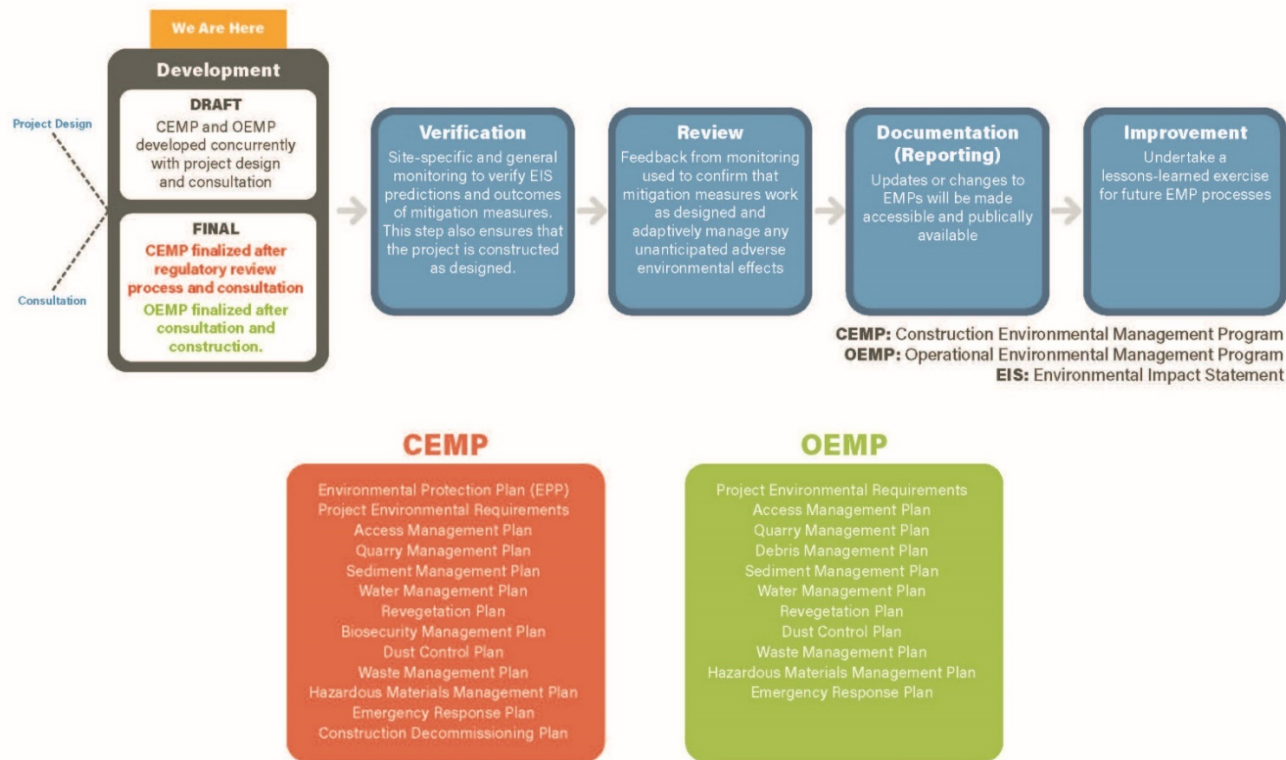
Manitoba Infrastructure (MI) is developing an Environmental Management Program (EMP); Figure IAAC-15-1 illustrates the process by which the program and associated plans will be implemented. These plans are being developed as components of the Construction Environmental Management Program (CEMP) and the Operational Environmental Management Program (OEMP) to provide mitigation measures and Best Management Practices (BMPs) to be applied during Project construction, operation and maintenance activities in a manner that will effectively reduce or avoid potential adverse effects. The Follow-up and Monitoring Program (FMP) will include plans that outline verification (monitoring) activities that will be undertaken to confirm Environmental Impact Statement (EIS) predictions and ensure that Project activities are carried out in compliance with applicable environmental legislation and Project environmental licensing requirements (see the “Review” box in Figure IAAC-15-1). If the results from follow-up and monitoring activities determine that there is a need to adaptively manage a previously unforeseen residual effect, then appropriate mitigation will be identified, implemented, and assessed for efficacy. The EMP and associated plans will subsequently be revised accordingly to include additional measures required to effectively address unforeseen project effects. Changes to the EMP or subsequent plans will be communicated to the regulator and implemented during Project construction and operation as deemed appropriate.

As noted in the EIS (Volume 2, Section 6.4.7.7, pg. 6.208), the Project does not retain water and the diversion of water is not expected to substantially change the water temperature in the lakes and rivers in the region, or have adverse effects on overall surface water quality. These and other EIS predictions will be verified through the use of monitoring plans, as outlined in part b) below.

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Environmental Management Program (EMP) Process



**LAKE MANITOBA
LAKE ST. MARTIN**
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Figure IAAC-15-1 Environmental Management Program Process

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Each monitoring plan will focus on a targeted environmental component, such as surface water and sediment. Although completed or exact management plan details are not available at this time (e.g., regarding specific monitored constituents), MI has outlined a process for their development, verification, review, documentation (reporting), and improvement. Each step of this process has been identified as a means to assure that anticipated environmental effects are avoided, minimized and/or mitigated, and that unanticipated residual environmental effects are identified and addressed in the best manner possible. The parameters, thresholds and adaptive management actions to be taken will be outlined in each monitoring plan.

A general description of the EMP and the associated monitoring plans is provided in part b) below.

Response for b)

Environmental Management Program Overview

The following is a summary of the EMP that demonstrates how environmental programs and associated plans will be developed to avoid, minimize and/or mitigate Project effects. It also describes how monitoring will verify whether mitigation measures are functioning as intended, and identify whether adaptive management is required, and how unanticipated effects will be identified or addressed. Monitoring will also be used to test some key predictions outlined in the EIS.

Mitigation measures for anticipated potential effects are presented throughout the EIS, and in the Project Environmental Requirements (PERs; EIS Volume 1 Appendix 3F). These measures and others will inform the development of targeted environmental management plans for the construction and operational phases of the Project. A description of the EMP is provided in EIS Volume 1 Section 3.7, which outlines the environmental management processes that will be followed during construction and operation. One of the functions of the EMP will be to demonstrate and outline how Project construction and operation activities will be performed in a manner that complies with the various federal and provincial environmental regulatory requirements and commitments made in regard to potential environmental effects presented in the Project EIS. Environmental compliance inspection and environmental effects verification monitoring are key components designed to assure that environmental commitments are met; this includes how those components are executed, monitored, evaluated for effectiveness, and how that information could be used to review, modify or adjust practices in order to achieve desired objectives, as required. The EMP will provide an overview of the programs and plans associated with Project development and, at minimum, will outline:

- MI's commitment to management and existing internal policies;
- how pertinent legislation, regulations and guidance documents support the structure and content of the EMP;
- MI's general organizational structure associated with construction and post-construction phases of the Project;

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- an overview of the Construction Environmental Management Program, Operational Environmental Management Program and the plans that support those programs (described in further detail below);
- an overview of the Follow-up and Monitoring Program;
- key inputs of engagement and Indigenous Consultation; and,
- reporting and review processes.

The EMP will be supported by a CEMP and an OEMP as described in Volume 1, Sections 3.7.2 and 3.7.3 of the EIS and as illustrated in Figure IAAC-15-1 (based on EIS Volume 1, Figures 3B-16 and 3B-17, respectively). While the EMP will provide an overview of MI's environmental management framework, the CEMP and OEMP will provide more specific details about environmental protection measures and will be supported by a number of targeted environmental management plans. The objectives of these programs and various environmental management plans are to identify measures to avoid, minimize or mitigate potential effects related to construction and operation of the Project, including processes to adaptively manage and address unforeseen environmental issues.

The EMP, CEMP and the environmental management plans that support it are being developed concurrently with Project design so as to avoid, minimize or mitigate specific adverse effects during the construction phase. Along with the EMP these will be finalized after completing the regulatory review processes including issuance of the necessary provincial and federal Project approvals and authorizations. As outlined in the Indigenous Consultation Approach and Current Status report (Volume 1, Appendix 5C of the EIS), discussion regarding the contents and implementation of draft plans that may comprise the EMP or the CEMP will also be discussed with potentially affected Indigenous groups to provide them an opportunity for input and feedback into the environmental programs and plans that will subsequently be finalized.

Once finalized, the CEMP and relevant environmental management plans will be appended to construction contract documents used by contractors. The CEMP and associated environmental management plans will direct contractor(s) to implement desired environmental BMPs and mitigation measures. Associated environmental management plans that will be appended to construction contract documents include, but are not limited to, a Water Management Plan and Sediment Management Plan. Please see IAAC-18 for additional information on groundwater management.

Similar to the CEMP, which focuses on the Project's construction phase, the OEMP will describe the long-term operation and maintenance procedures and environmental protection measures to be implemented throughout the operational phase of the Project (i.e. after construction is complete) (Volume 1, Section 3.7.3). The focus of the OEMP will be on post-construction conditions, which includes both operational (i.e. flood conditions) and non-operational periods (i.e. non-flood conditions). The OEMP will be supported by plans developed to manage potential effects during the Project operational phase (or post-construction). The objectives of those plans will be similar to those described in Volume 1, Section 3.7.2 of the EIS with respect to construction activities. For example, the Sediment Management Plan would focus on minimizing the impacts of in-stream suspended sediment directly attributable to Project operation; whereas, the Water Management Plan would focus on items such as Project-related

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surface water drainage, and associated potential effects. Similar to the CEMP, the OEMP and the environmental management plans which comprise it will be developed to a draft stage, but purposely not finalized until input is sought from potentially affected Indigenous groups. Finalization of the OEMP and associated plans is currently expected to occur prior to the completion of construction.

Environmental Follow-up and Monitoring Program Overview

A key component of the EMP will be environmental follow-up and monitoring, shown as Verification in Figure IAAC-15-1. Further description is provided in Volume 5, Chapter 12 of the EIS. Follow-up and monitoring will be designed and implemented in a manner that is consistent with Section 9 of the Canadian Environmental Assessment Agency (CEAA) EIS Guidelines for the Project (CEAA 2018), which states: the purpose of the program is to verify the accuracy of predictions and the effectiveness of mitigation measures, and to assure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of Project development.

As noted in Volume 5, Section 12.4.1.3 of the EIS, MI is also developing an Aquatic Effects Monitoring Plan (AEMP) for the Project, which will include adaptive collection and analysis of surface water samples from regional and local waterways that will provide information on surface water quality in the Project area during Project construction, operation and relevant maintenance activities. The purpose and objective of surface water quality monitoring will be to document existing surface water quality conditions prior to the commencement of clearing or construction of the proposed outlet channels, and provide ongoing monitoring of watercourses and waterbodies in the Project area during Project construction, operation or maintenance activities.

Verification of predictions identified in the EIS will primarily involve testing key predictions related to the valued components (VCs) and will assure that measures implemented as part of Project construction and operation are functioning as intended to mitigate effects that may extend beyond the Project Development Area (PDA). Aquatic effects monitoring, for example, will include a regional water quality monitoring component to assure that water quality is not impacted by the Project, and therefore verify that the CEMP, OEMP, or other applicable plans and the measures they contain are functioning as intended. Environmental assessment verification monitoring will also help to identify whether unanticipated adverse environmental effects are occurring as a result of the Project. Regular reporting and review of results from environmental assessment verification monitoring can be used to determine whether further review or adaptive modification to measures specified in the CEMP, OEMP, and associated environmental management plans are required.

Compliance-related monitoring (Volume 1, Chapter 3, Appendix 3F) will involve inspecting construction sites to assure that mitigation measures identified in the CEMP, OEMP and associated environmental plans are being implemented and are functioning as intended on a site-specific scale (e.g. erosion and sediment control, or spill prevention and response). Environmental compliance monitoring, and regular site inspection will also help to identify unanticipated adverse environmental effects resulting from Project activities, and will enable timely proactive or reactive response in order to avoid, minimize or mitigate these potential effects at a site-specific scale.

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The results from environmental compliance monitoring and environmental assessment verification monitoring may provide information that identifies the need for and means of adaptively managing unanticipated environmental effects related to the Project. However, the general approach for development of the Project's EMP, and the specific management and monitoring plans that comprise it, provides a proactive means of adaptively managing unanticipated adverse environmental Project effects. As described earlier and in the EIS, management and monitoring plans are being developed in conjunction with ongoing engineering design, but will also include input from potentially affected Indigenous groups. That input may, for example, include: expressed concern over additional potential environmental Project effects and requests or recommendations for additional proactive monitoring; or confirmation that proposed measures and objectives are adequate and agreeable. Similarly, ongoing engagement with potentially effected Indigenous groups and other stakeholders will facilitate the effective implementation of adaptive management measures associated with such factors as surface water and sediment.

Overall, MI's proposed approach to environmental management, environmental monitoring, reporting, review, and ongoing engagement is meant to further assist in identifying and addressing potential information gaps, uncertainties related to potential effects, implementation of mitigation, and continual review and improvement on environmental performance.