

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

Question IAAC-01

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Abbreviations and Acronyms

EIS	environmental impact statement
hp	horsepower
NO _x	nitrogen oxides

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EIS Guideline Reference: 7.4. Mitigation Measures

EIS Reference: 6.2.4.2 Change in Ambient Air Quality – Project Mitigation Measures; 6.2.4.4 Change in Acoustic Environment

Context and Rationale

Section 7.4 of the EIS guidelines require that “mitigation measures will be 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” and that “the EIS will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures”.

Many of the mitigation measures included in the EIS do not provide sufficient detail to enable full understanding of potential residual effects. For example:

Section 6.2.4.2 (pg. 50) Change in Ambient Air Quality, Project Mitigation Measures states “Project off-road construction equipment will comply with emission standards in the Canadian Off-Road Compression-Ignition Engine Emission Regulations”.

Section 6.2.4.2 (pg. 50) Change in Ambient Air Quality, Project Mitigation Measures states that “equipment will not be operated...that shows excessive emissions of exhaust gases”.

Section 6.2.4.4 (pg. 69) Change in Acoustic Environment, Project Mitigation Measures states “if noise abatement barriers are ineffective, a temporary reduction in the intensity of construction activities...”

Clarity is required, for all phases of the project, to conclude on the significance of environmental effects related to changes to the atmospheric environment.

Information Requests

- a) For mitigation measures proposed to address impacts to the atmospheric environment, provide sufficient detail to enable full understanding of potential residual effects. Include:
 - i. Whether all construction equipment will meet Tier 4 emission standards or if a fleet with a mix of Tier 4 and less stringent emission criteria will be deployed;
 - ii. What is meant by “excessive emissions of exhaust gases” and indicate how this will be determined, including any inspections and the related frequency; and
 - iii. The design and locations of the noise abatement barriers and describe what information will be used to determine if they are working effectively.

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a) See responses below.

- i. Manitoba Infrastructure expects that many of the construction equipment will consist of vehicles that meet the Tier 4 Canadian off-road compression-ignition engine emission standards; however, as detailed construction planning and award of construction contracts are not yet complete, Manitoba Infrastructure cannot guarantee that 100% of construction vehicles will be Tier 4 compliant. A requirement that all construction vehicles be Tier 4 compliant is unreasonable and commercially restrictive and may limit opportunities for local and Indigenous construction contractors and other firms from participating in the Project.

For the purpose of the environmental impact statement (EIS), combustion emissions from off-road construction vehicles were conservatively estimated assuming all Project construction off-road diesel construction equipment was manufactured in the year 2012 with engines certified to meet Tier 3 Canadian off-road compression-ignition engine emission standards. More stringent Tier 4 standards for off-road diesel engines came into effect in 2014 with a transitional period for some engine categories starting in 2012. This assumption results in a conservative estimate of Project emissions. For example, for diesel engines rated between 175 horsepower (hp) and 600 hp, which represents the majority of the engine sizes and emissions associated with the construction fleet, the Tier 4 emission standard represents an 89% reduction in NO_x emissions compared to Tier 3.

- ii. The term “excessive emissions of exhaust gases” refers to emissions greater than expected for the specific type and emission standard (tier) of engine. This can be caused by vehicle engines in need of routine maintenance or by engine or exhaust system component failure. Modern construction vehicles are equipped with diagnostic systems to identify when equipment failure occurs and when an engine requires routine maintenance. Other common indicators of engines in need of repair include poor engine performance, excessive noise, excessive oil consumption, or excessive exhaust smoke. Vehicle diagnostic systems and the previously mentioned common indicators of engine problems will be used to identify vehicles in need of maintenance or repair. Manitoba Infrastructure will require that construction contractors ensure that engines and exhaust systems be properly maintained, that emission control systems are not removed or bypassed, and that vehicles in need of repair will not be used until corrective repairs or adjustments are made.
- iii. At this time, the construction schedule has not been finalized and construction equipment has not been selected. As construction planning progresses, the selected types of noise mitigation will be identified through the environmental protection measures that are adopted on this Project (e.g., environmental compliance monitoring during construction) or the complaint investigation process. This may, for example, require that additional noise abatement measures be added to the Environmental Protection Plan that is provided to the contractor(s).

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MI will establish a noise complaint investigation process (also see IAAC-03) to manage noise impacts during construction, which will have adaptive mitigation measures appropriate to the situation, e.g., placement of barriers to reduce sound emissions extending outward from construction sites. The noise complaint investigation process will be shared with regulators, Indigenous groups and other stakeholders. This process may include, as appropriate, stakeholder/resident communication, proactive notifications of high noise intensity construction activities, noise complaint logging and initial response, noise complaint investigation, sound level measurements, and complaint resolution and adaptive mitigation. Noise modelling may be used as one of the tools for complaint investigation, where deemed appropriate, to assist in mitigation planning, including the requirement for additional noise abatement measures.

The effectiveness of a barrier depends, among other things, on the location of the source, location of the receptor, and the atmospheric and ground conditions. Regular communication with the potentially affected residents and keeping track of their concerns represent the best information on whether the barrier is working effectively. In some cases, measurements can be performed (usually in response to specific complaints) to assess barrier performance (i.e., attenuation provided by the barrier). However, from a practical perspective, it is often difficult to replicate the atmospheric and ground conditions that existed at the time of the complaint.