

Information Request Form Crystal Springs Lagoon Project

**Information Request
Number:**

REPLY Second Request - Information Request No. 6

Submitted by:

The Proponent

Date Submitted:

March 20, 2026

Subject Matter:

Emergency Discharge

Reference document:

N/A

Request 1: In Ontario within the Lake Erie Watershed, if the lagoon systems are overwhelmed hydraulically and the lagoon operator requests an emergency discharge, the lagoon operator will add alum near the discharge pipe to reduce the amount of phosphorus being unloaded. Provincial data and emergency reports indicate that at least 50 municipal wastewater lagoons across Manitoba (primarily in the Red River Valley and Interlake regions) were granted emergency discharge authorizations or "Licence Suspensions" by the Province in 2022. Has the Proponent prepared an emergency management plan that contemplates, *inter alia*, the addition of alum near the lagoon discharge pipe in the event of an emergency discharge? If not, why not?

Reply 1: All Provincial territories have their own regulations for environmental protection that vary from Province to Province. To the best of BMCE's knowledge, and based on review by the provincial regulator, Manitoba

Environment and Climate Change, the wastewater lagoon that is the subject of this proceeding has been designed to meet applicable Manitoba Provincial Regulations.

The Proponent is unaware of the lagoon design and specific circumstances related to each of the referenced 50 lagoons that required an emergency discharge. The subject lagoon has been designed with safety factors to minimize the potential that an emergency discharge is required at all.

For example, the lagoon was designed for a full build out of the community with an occupancy load of 250 persons, while most colonies never exceed 175 before they split to a new site. The initial colony population is anticipated to be approximately 75 to 100 people, less than 50% of the lagoon design capacity.

The potential for emergency discharge, while highly improbable, could exist under the most extreme conditions. The Proponent states that if the CEC and MCC feel appropriate, a condition of the license could include a requirement that the Proponent develop and maintain an Emergency Response Plan that would be submitted to and accepted by MCC.

Follow-Up Information Request 1: The Proponent has indicated that the lagoon has been designed with safety factors such that the need for emergency discharge is considered highly improbable. For clarity, can the Proponent indicate:

a) The key design assumptions and safety factors relied upon in reaching this conclusion; and

Reply to Follow-Up Request 1(a): As mentioned in Reply 1 above, the Colony is unlikely to exceed a population of 200 people. The Proponent's engineers have designed for a population of 250 people to be utilizing the system at full capacity. This assumption provides a 20% over design of the domestic wastewater influent rate which is the primary contributor to hydraulic loading. The design also includes conservative loading from a truck wash, WTP and a 15% wet weather infiltration loading.

Emergency discharges normally occur due to inclement weather or inability to meet treatment objectives and subsequently discharge, resulting in hydraulically overloaded cells. As the lagoon has been designed in conformance with Provincial design standards and includes the above-mentioned conservative design factors, treatment objectives are expected to be met by the system.

Additionally, as per the Design Objectives for Wastewater Treatment Lagoons in Manitoba, a freeboard of 1.0m is to be maintained within both the primary and secondary cells. This additional 1.0m of space within both cells has a combined

capacity of 26,100 m³, resulting in a maximum capacity of 63,125 m³ within the primary and secondary cell prior to overtopping the berms, 2.5 times the maximum annual hydraulic load. This additional capacity could be utilized in a scenario where flooding has occurred, and discharge is not possible for an extended period.

Based on the above items, it is the Proponent's opinion that an emergency discharge of the proposed lagoon is highly improbable, however as previously stated in Reply 1, should the CEC and MCC feel appropriate, a condition of the license could include a requirement that the Proponent develop and maintain an Emergency Response Plan that would be submitted to and accepted by MCC.

b) Whether any analysis was undertaken to evaluate lagoon performance under extreme hydraulic or climatic conditions. If so, please provide particulars of the analysis performed and the results of the analysis. If not, please indicate why not.

Reply to Follow-Up Request 1(a): No analysis was undertaken to evaluate the lagoon's performance under extreme hydraulic or climatic conditions.

As discussed in part a) of the Follow up Information Request above, the assumed inflow into the lagoon includes a 20% over designed domestic wastewater inflow. These parameters serve to provide a factor of safety against unexpected or higher than average inflow into the system during operation. These assumptions, paired with the available freeboard will allow the lagoon to handle extreme conditions on a temporary basis.

Furthermore, the Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG) were originally developed in 2011 based in part on scientific literature and regulatory approaches adopted in other jurisdictions, including Ontario.

(a) Please identify whether the Proponent reviewed any updates to nutrient management standards, guidance, or regulatory frameworks in other jurisdictions since the publication of the MWQSOG in 2011.

Reply to Follow-Up Request 1(a): BMCE has not reviewed any standards, guidance, or regulatory frameworks in other jurisdictions since the publication of MWQSOG in 2011. These are the current standards that lagoons in Manitoba are designed to.

(b) If so, please describe how those updates were considered in the Proponent's assessment of nutrient management and potential impacts to receiving waters.

Reply to Follow-Up Request 1(b): N/A

(c) If not, please explain why reliance on the 2011 MWQSOG remains appropriate given developments in scientific understanding and regulatory practice related to nutrient loading and freshwater lake protection since that time.

Reply to Follow-Up Request 1(c): As discussed, the lagoon has been designed to meet current regulatory standards in place in Manitoba. This is the standard of care for lagoon design and licensing within Manitoba.