



Conservation and Climate

Environmental Stewardship Division
Environmental Approvals Branch
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October 27, 2020

File: 6059.00

Re: Town of Beausejour Water Supply System – Environment Act Proposal

Thank you for your correspondence regarding concerns about the Town of Beausejour's water supply system project. All public comments and comments from our Technical Advisory Committee that reviewed the project proposal have been posted on the public registry webpage for the project at <https://www.gov.mb.ca/sd/eal/registries/6059beausejour/index.html>.

All public comments received expressed concerns about the proposed disposal of concentrate wastewater from the water treatment plant component of the project. A few other concerns were also identified involving groundwater effects.

The Town of Beausejour held a public open house to provide information on the project and its expected environmental effects, particularly concerning concentrate disposal. The open house was held on Thursday, August 27 between 6:30 and 9:00 at the Sun Gro Centre in Beausejour.

In view of the open house and the requests made in the comments provided, I will not be recommending a public hearing for the project. A hearing will not add additional information on the environmental effects of the project, nor on our understanding of the use of the Brokenhead River for recreational and other purposes near the proposed concentrate discharge point. The comments clearly reflected the uses of the river and the concerns about the project. My decision not to recommend a public hearing can be appealed to the Minister of Conservation and Climate within 30 days of the date of this letter.

To recap from the proposal, the proposed water supply system involves two new wells south west of the community, a raw water pipeline to a new water treatment plant located close to the existing plant, a treated water reservoir at the treatment plant, and a concentrate disposal pipeline to the Brokenhead River running east along Park Avenue and PTH 44. The water treatment process includes two parallel processes – a manganese greensand filter, and two reverse osmosis filters. The raw water capacity of the treatment plant would be 42 litres per second. Of this, 8.5 litres per second would be treated in the greensand filter, and the remaining 33.5 litres per second would be treated in the reverse osmosis filters. Of the 33.5 litres per second, 5.4 litres per second (16% of the flow) would be rejected as concentrate, and 28.1 litres per second would become treated water. Combining the treated water from the greensand

filter (8.5 litres per second) and the reverse osmosis filters (28.1 litres per second), the treated water capacity of the plant would be 36.6 litres per second. The difference between this value and the raw water capacity is 5.4 litres per second, the concentrate flow rate. Backwash water from the greensand filter would be discharged to the town's wastewater treatment lagoon.

There are two potential types of environmental effects with a concentrate discharge to the environment as proposed – water quantity and water quality. With respect to water quantity, the additional water added to the receiving waterway could increase water levels during open water periods, and form additional ice during frozen conditions. There is considerable experience with this concentrate disposal method throughout southern Manitoba with waterways ranging from much smaller than the Brokenhead River to waterways much larger. This experience indicates that the additional flow during open water conditions is un-noticeable, and icing is not an issue when the concentrate discharge point is below the ice. With respect to water quality, all constituents removed from the treated water and therefore concentrated in the concentrate would be dissolved. Accordingly, there would be no visible difference between the concentrate and the treated (potable) water. The dissolved constituents would be within water quality guidelines once discharged into the river, even with minimal river flows.

An obvious alternative to discharging concentrate water to the environment would be to discharge it to the wastewater treatment lagoon, along with the greensand filter backwash water. This is not commonly done in Manitoba for two related reasons. All constituents in the concentrate water are dissolved, and so are not removed in a lagoon. Lagoons can remove organic material by oxidation, and can remove suspended solids by settling. However, dissolved material will pass through a lagoon unchanged. Because lagoons are not discharged during frozen conditions, additional storage capacity would be needed to accommodate the additional volume added by winter concentrate flows if this disposal method was used.

Reverse osmosis is a commonly used water treatment process in Manitoba, and it is simple to calculate the concentrations of removed constituents in the concentrate water when the concentrations are known in the source water. This is particularly the case when the source water is groundwater, which is generally not turbid and has little to no seasonal variation. As a result, environmental effects are well understood and predictable for a reverse osmosis treatment system.

With all of this in mind, we are prepared to make a licensing decision on the proposed project in the near future. Everyone who commented on the project will be notified and provided with a link to further information on the decision on the public registry.

Hopefully this information is helpful to you. If you have follow-up questions, please contact Bruce Webb at Bruce.Webb@gov.mb.ca or at 204-945-7021.

Yours truly,

'Original signed by'

Shannon Kohler
Director

c. Public Registries
Bruce Webb

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