



Conservation and Water Stewardship

Environmental Stewardship Division
Environmental Approvals Branch
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File: 5389.00

March 11, 2014

Mr. Jason Bunn, P. Eng.
Environmental Engineer
WSP Canada Inc.
1600 Buffalo Place
Winnipeg MB R3T 6B8

Dear Mr. Bunn:

**Re: Brightstone Holding Co. Ltd. Wastewater Treatment Lagoon – Alteration
Notification Environment Act Licence No. 3019**

Thank you for your letter of January 24, 2014 concerning a proposed alteration for the above noted facility. The alteration proposes to replace the 1 milligram per litre phosphorus limit on effluent from the facility with a five year monitoring program along the facility's discharge route. A review of the monitoring program would be conducted after two years, and WSP or the Licencee could propose a modification of the monitoring program following the review. In addition, a vegetation harvesting program could be implemented along the Colony-owned portion of the discharge route.

In your letter, you correctly identified concern for nutrient loading on Lake Winnipeg as the motivation for including the phosphorus limit in the licence. We have been commonly imposing this limit on facilities that discharge directly to Lake Winnipeg and the Red River, and on facilities that discharge to nearby tributaries. While the Water Quality Standards, Objectives and Guidelines Regulation under *The Water Protection Act* provides for other options for phosphorus reduction, an Environment Act Licence may require more stringent conditions than the regulation.

Your proposed alteration affects the operation of the Brightstone facility and not its construction. I am prepared to approve a short term alteration of the effluent phosphorus requirement to allow a trial of the proposed trickle discharge strategy. If the strategy shows promise, I would consider a longer trial or a modification. If the strategy is not successful, the discharge requirements would revert to the licensed conditions.

In accordance with this approach and pursuant to Section 14(2) of *The Environment Act*, I hereby remove the requirements of Clause 22 e) of the above noted Environment Act Licence for

the first year of operation of the facility. Therefore, this alteration expires one year from the date of the approval of the operation of the facility provided pursuant to Clause 18 of the Environment Act Licence. I request that the proposed effluent phosphorus testing be conducted at three times during each of the first two discharge events, and at each of the three proposed monitoring locations (i.e. a total of 18 samples.) Sample results should be provided to the Environment Officer responsible for administration of the Licence at that time, and to this office. Please note that this alteration does not affect the initial characterization monitoring required by Clause 35 of the Licence.

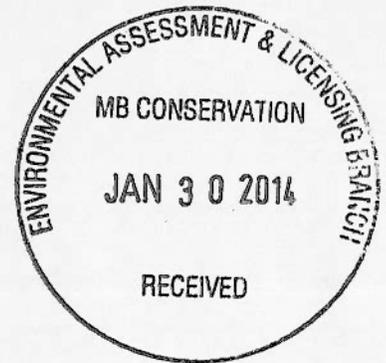
If you have any questions regarding this matter, please contact Siobhan Burland Ross at 204 945-7015 or Siobhan.BurlandRoss@gov.mb.ca.

Yours truly,

“Originally signed by”

Tracey Braun, M.Sc.
Director
Environmental Approvals Branch

c: Tim Waldner, Brightstone Colony
Don Labossiere/Donna Smiley, Environmental Compliance and Enforcement Branch
Diane Oertel, Environmental Compliance and Enforcement Branch
Public Registries



January 24, 2014

Project No: 071-12389-00 (07-159-01)

Ms. Tracey Braun, M.Sc.
Director, Environmental Approvals
MANITOBA CONSERVATION AND WATER STEWARDSHIP
160-123 Main Street
Winnipeg, MB R3C 1A5

Dear Ms. Braun:

**RE: BRIGHTSTONE COLONY LAGOON
ALTERATION NOTIFICATION NO. 2**

Environment Act Licence (EAL) No. 3019 dated October 1, 2012 governs the upcoming construction and operation of the new Brightstone Colony lagoon. GENIVAR (now WSP) had an opportunity to review the draft EAL and challenged the implementation of a 1 mg/L phosphorus limit, however, the final version of the licence remained unchanged in this regard. In this alteration notification, we would like to revisit our challenge of the 1 mg/L phosphorus limit.

In our recent Environment Act Proposal submissions we have recommended sampling and monitoring programs where trickle discharge is a viable option. The programs we have proposed range between 5-10 years. We feel that there are several factors that make the implementation of a similar program at Brightstone Colony lagoon worthwhile.

- The *Water Quality Standards, Objective and Guidelines Regulation* introduction of the Manitoba Government website states that lagoon facilities serving <2,000 people have the option of implementing a *demonstrated* nutrient reduction strategy *instead of* the 1 mg/L phosphorus limit. In order to implement a *demonstrated* nutrient reduction strategy, it is necessary to conduct a pilot project for each potential site to determine if the conditions are conducive to reducing phosphorus by means other than with aluminum sulfate (alum).
- We understand that the treated lagoon effluent will eventually make its way into Traverse Bay of Lake Winnipeg and assume this is the main reason for the

implementation of the 1 mg/L phosphorus limit. However, in this instance, the treated effluent will first meander through a low lying wetland-brush-type area approximately 3.0 ha in size before entering a well-vegetated (cattails) ditch that flows north. The length of the ditch segment at the point where it exits the wetland area until it reaches the mile road ditch (to the north) is approximately 725 metres. We anticipate that this initial part of the discharge route has the potential to significantly reduce the phosphorus, which from our testing in October 2008 (see EAP) we expect to be around 2.0 mg/L when it is discharged from the secondary cell.

- Following the initial part of the discharge route, which is entirely on the Colony's land, the treated effluent will flow through approximately 9.1 kilometres of Type E habitat (indirect fish habitat) along the existing mile road ditches/drains before reaching Type B habitat (simple habitat, indicator species present), which continues for another 15.6 kilometres before reaching the first segment of Type A habitat. There is further potential for phosphorus reduction along the remainder of route that is not owned by the Colony.
- The population of the Brightstone Colony at the time of the report was 90 people and the lagoon facility is designed for a maximum population of 150 people, which equates to 60% loading (by population). The design wastewater generation rate is 400 litres per capita per day (L/c/d), which is a conservatively high value. These design conditions are favorable to conducting trickle discharge.
- Even though it is understood that all contributing parties must share in the efforts to reduce phosphorus loading to Lake Winnipeg, certain smaller entities, i.e. Hutterite Colonies, may incur a substantially higher per capita cost to meet the 1 mg/L phosphorus limit, which would not be considered fair and equitable.

Based on the above information, we propose a sampling and monitoring program that is to span the first five years of operation. Sampling for phosphorus is proposed at three time periods (start, middle and end of discharge) and in three locations during each of the spring and fall discharge periods. The three locations proposed to sample the treated effluent are: (1) secondary cell discharge, (2) exit from the wetland and (3) at the end of the vegetated ditch on the Colony land.

This sampling regime would result in a total of 90 phosphorus tests over 5 years, instead of the 10 tests now required for phosphorus over the same period. The attached table more clearly identifies the approach to be taken. If after the first two years of sampling, the results lead us to the conclusion that modifications would benefit the sampling and monitoring program, Manitoba Conservation and Water Stewardship would be notified at this time.

Depending on the first two years of results, vegetation harvesting may be implemented along the ditch segment on Colony land.

In consideration of the above information, we propose this change be processed as a minor alteration and look forward to your response. If you have any questions, please contact the undersigned; otherwise please accept this letter as an alteration notification for the Brightstone Colony lagoon licence.

WSP Canada Inc.



Jason Bunn, P.Eng.
Environmental Engineer

enclosure

cc: Mr. Tim Waldner – Brightstone Colony
Mr. Robert Boswick – Manitoba Conservation and Water Stewardship

