

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT: Manitoba Hydro
PROPOSAL NAME: Slave Falls Generating Station – Sewage Treatment Plant
CLASS OF DEVELOPMENT: 2
TYPE OF DEVELOPMENT: Waste/Scrap - Sewage Treatment Plant
CLIENT FILE NO.: 5347.00

OVERVIEW:

On May 28, 2008, the Department received an Environment Act Proposal (EAP) from Manitoba Hydro for the continued operation of the existing sewage treatment plant located in the Northwest quarter of Section 36-14-14 EPM in Whiteshell Provincial Park. The wastewater treatment plant consists of a Rotating Biological Contractor system and an Ultra - Violet disinfection system. Treated wastewater will be continuously discharged to the Winnipeg River.

The Department, on June 3, 2008, placed copies of the EAP report in the Public Registries located at 123 Main St. (Union Station), Millennium Public Library, Manitoba Eco-Network, Brokenhead River Regional Library (Beausejour), and R.M. of Lac du Bonnet and provided copies of the EAP report to the Canadian Environmental Assessment Agency (CEAA) and TAC members. As well, the Department placed public notifications of the EAP in the Lac du Bonnet Leader on Friday, June 13, 2008. The newspaper and TAC notifications invited responses until July 7, 2008.

On July 14, 2008, Manitoba Conservation forwarded requests for additional information from the TAC to the proponent. On September 5, 2008, the proponent provided responses to the requests for additional information. Manitoba Conservation forwarded the response to the TAC for review and comment on September 10, 2008.

On September 24, 2008, the proponent sent a letter to Manitoba Conservation regarding their further developed future plans and requested to share this letter with the TAC. Manitoba Conservation sent this letter to TAC for review and comment on September 26, 2008. Manitoba Conservation received additional comments for consideration from the TAC on October 6, 2008.

COMMENTS FROM THE PUBLIC:

No comments were received from the public.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

Manitoba Infrastructure and Transportation

- *No concerns*

Manitoba Agriculture, Food and Rural Initiatives

- *No concerns*

Manitoba Conservation – Environmental Operations

- *No concerns*

Manitoba Conservation - Sustainable Resource & Policy Management Branch

- *No concerns*

Manitoba Conservation – Environmental Services

- *No concerns*

Manitoba Culture, Heritage, Tourism and Sport – Historic Resources Branch

- *No concerns*

Manitoba Conservation – Parks and Natural Areas Branch

June 23, 2008

- *Parks and Natural Areas Branch has reviewed the above-noted Proposal. As indicated in the Proposal, the facility is located in Whiteshell Provincial Park. The Branch supports licensing the existing facility with conditions that require it to meet environment protection standards appropriate for such facilities*

Disposition:

The draft Environment Act Licence requires the Licencee to meet environment protection standards appropriate for this plant. In addition, the draft Licence requires the Licencee to meet a phosphorus limit of 1 mg/L by December 31, 2010.

Manitoba Water Stewardship – Planning and Coordination Branch

July 10, 2008

- *The Water Rights Act indicates that no person shall control water or construct, establish or maintain any “water control works” unless he or she holds a valid licence to do so. “Water control works” are defined as any dyke, dam, surface or subsurface drain, drainage, improved natural waterway, canal, tunnel, bridge, culvert borehole or contrivance for carrying or conducting water, that temporarily or permanently alters or may alter the flow or level of water, including but not limited to water in a water body, by any means, including drainage, OR changes or may change the location or direction of flow of water, including but not limited to water in a water body, by any means, including drainage. If the proposal in question advocates any of these activities, application for a Water Rights Licence to Construct Water Control Works is required.*
- *The Lake Winnipeg Stewardship Board has recommended that all small wastewater treatment facilities should meet a phosphorus limit of 1.0 mg/L. The proposed phosphorus limit of 1.0 mg/L is consistent with efforts underway across Manitoba and in upstream jurisdictions to reduce nutrient loads to Lake Winnipeg and its*

watershed. In addition since 2006, wastewater treatment facilities discharging in provincial parks have been required to meet a 1 mg/L phosphorus limit.

- *Where possible, it is desirable to recycle nutrients in wastewater on land, rather than releasing them to waterways. In the Lake Winnipeg Stewardship Board's December 2006 report to the Minister of Water Stewardship, the Board provides several strategies on how nutrient reduction could be achieved for small wastewater treatment facilities (see recommendations 14-20) including effluent irrigation and trickle discharge. The proponent should consider nutrient reduction strategies for this sewage treatment plant.*
- *Effluent quality data provided in Table 1 indicates that fecal coliform counts are highly variable in the existing plant effluent. While the most recent data is well within guidelines, the plant has exceeded guidelines for as long as six months at a time. Clearly routine monitoring, inspection and maintenance are required to ensure that effluent quality remains within guidelines.*
- *The Department is concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water.*
- *The Department recommends that an Environment Act Licence require the following:*
 - *The Licencee shall meet a phosphorus effluent limit of 1 mg/L.*
 - *The Licencee shall actively participate in any future watershed based management study, plan/or nutrient reduction program, for the Winnipeg River and associated waterways, approved by the Director, Water Science and Management Branch, Manitoba Water Stewardship.*
 - *The Licencee shall conduct routine inspection and maintenance.*
 - *The Licencee shall provide monthly sampling results for fecal coliform, total coliform, biological oxygen demand, total suspended solids, pH, temperature, ammonia-Nitrogen, and total phosphorus to the Director, Water Science and Management Branch, Manitoba Water Stewardship.*

Proponent Response (September 5, 2008):

- Manitoba Hydro's proposal does not advocate any of the above activities and therefore continued operation of the Slave Falls Generating Station Wastewater Treatment Plant (WWTP) will not result in activities that will trigger the Water Rights Act or require an application for a Water Rights Licence.
- Manitoba Hydro has not historically and does not currently analyze the wastewater effluent for phosphorus from the WWTP, so it is unknown what concentration of phosphorus the final effluent contains. Even if the effluent contained relatively high phosphorous concentrations, the downstream phosphorous concentration of the Winnipeg River would be essentially unchanged due to the profound dilution of well over 150,000. The Slave Falls WWTP is a very small facility accommodating roughly 15 people on an intermittent and part-time basis during normal operation. The small mass of phosphorous entering the river would be quickly assimilated with negligible impact on the receiving aquatic ecosystem. Manitoba Hydro is unaware of any legislation regarding end of pipe sewage effluent having to meet a 1.0 mg/L phosphorus limit.

- Given the surrounding area around the WWTP is predominantly Canadian Shield, with very little vegetation and soil to capture and assimilate nitrogen and phosphorus, Manitoba Hydro believes that the recycling effluent over the land would result in very little effective treatment to remove excess nutrients before the effluent would enter the Winnipeg River. Manitoba Hydro feels that building infrastructure to conduct the above would require a great deal of effort at a considerable expense, for a negligible environmental gain and it is not warranted at this WWTP's location.

With respect to the LWSB's recommendation 14, Manitoba Hydro tests for all standard effluent parameters typically required by Manitoba Conservation, on a monthly basis. As phosphorus is not regulated from small wastewater lagoons and treatment plants, Manitoba Hydro does not have a record of the effluent phosphorus concentration released in the past.

The LWSB's recommendations 15, 16, 18 and 19 relate to wastewater treatment lagoons, and are not applicable in this case. The WWTP is an adequately sized mechanical treatment system, which has been engineered to meet final effluent quality criteria currently required by Manitoba Conservation.

Recommendations 17 and 20 are directed to the Province Manitoba and Federal government; Manitoba Hydro has no comment on these two recommendations.

- Manitoba Hydro agrees that routine monitoring, inspection and maintenance of the WWTP are required to ensure effluent quality meets Manitoba Conservation's standards. As stated in Section 2-7 of the EAP, Manitoba Hydro recognized the elevated fecal coliform numbers in the final effluent, established that they were caused by a malfunction of the UV system, fixed the problem and modified operational procedures in an attempt to prevent this event from occurring again in the future. Data results collected since this event indicate the UV system is functioning as it should.
- Within the Environment Act Proposal submitted, Manitoba Hydro assessed the impact to the aquatic environment through the operation of this WWTP is minimal/negligible. Thus, Manitoba Hydro feels that the continued operation of the WWTP will not adversely affect the aquatic environment.
 - The WWTP currently meets effluent limits prescribed by Manitoba Conservation. We do not currently test for phosphorus. Since there is no known requirement/guideline for wastewater treatment plants to meet an end of pipe limit of 1 mg/l in the province, Manitoba Hydro does not feel that we should have to meet this limit. Should this become a standard requirement for all wastewater treatment plants to meet in the province, Manitoba Hydro would be willing to revise our operations accordingly.
 - Manitoba Hydro would be willing to participate in the above forums, as invited.
 - Manitoba Hydro currently conducts routine inspection and maintenance of the WWTP.
 - Manitoba Hydro will provide monthly sampling results to Manitoba Conservation as per the conditions of the Manitoba Environment Act Licence to operate the plant, should one be granted. Manitoba Hydro would prefer if Manitoba Conservation could act as the single point of contact and coordinate the circulation of results to other provincial departments, as required/requested.

Proponent Letter/Response (September 24, 2008):

- Since the submission of our Environment Act Proposal (EAP) File: 5347 and our September 5, 2008 letter with responses to the Technical Advisory Committee's (TAC) comments on the EAP, Manitoba Hydro has further developed future plans for the Slave Falls Generating Station (GS). While these plans do not alter any of the information contained in our EAP, they are likely to have an impact on your and the TAC's consideration of the existing treatment plant. The plans are outlined below. We would be appreciative if you shared this letter with the TAC.
- As you are aware, Manitoba Hydro will soon replace the existing rail access line to the GS with a permanent, all-weather road. Clearing for road construction is scheduled for this winter with construction taking place through 2009 and 2010. The road is expected to be in place by summer 2010.
- Upon completion, Manitoba Hydro plans to replace the WWTP at the GS with a store-and-haul system. Essentially, the new system would comprise a holding tank with permanent piping to a septic hauler connection point. Wastewater would be collected and removed from the site by a licenced septic hauling contractor to a nearby licenced municipal wastewater facility (e.g., Lac du Bonnet wastewater treatment lagoon). Conversion to this system would eliminate wastewater discharge from the GS to the Winnipeg River at the Slave Falls site. Conversion to the store-and-haul system could likely be completed by the end of 2010, but would be dependent upon the access road construction schedule.
- While road construction is underway, we propose continued operation of the existing WWTP and propose to do so under the authority of an Environment Act licence issued by your department. As described above, this licence would authorize operation of the WWTP only until the store-and-haul system was commissioned.
- I trust the above adequately summarizes Manitoba Hydro's plans for wastewater treatment at the Slave Falls GS beyond approximately the end of 2010.

Water Stewardship Comments (October 6, 2008):

Manitoba Water Stewardship has reviewed, for the referenced file, responses from the proponent, dated September 5, 2008, and September 24, 2008, forwarded for comment on September 10, 2008, and September 26, 2008, respectively. The Department has the following comments:

- The Department was verbally advised, by the proponent, that this wastewater treatment facility has operated without an *Environment Act* Licence since it was originally constructed. The proponent also verbally advised that a former owner of this wastewater treatment facility, Winnipeg Hydro, submitted an *Environment Act* Proposal many years ago.
- The gradual but steady increase in nitrogen and phosphorus contributions to water systems over the past several decades is one of the single, largest water quality challenges facing not only Manitoba, but also other jurisdictions in Canada, United States, Europe, and elsewhere. Studies have shown that since the early 1970s, phosphorus loading has increased by about 10 per cent to Lake Winnipeg and nitrogen loading has increased by about 13 per cent. A similar phenomenon has also occurred in many other Manitoba streams and rivers. In the Winnipeg River, phosphorus concentrations increased by about 30 % between 1972 and 1999, despite

the high dilution capability. Excessive levels of phosphorus and nitrogen fuel the production of algae and aquatic plants. Extensive algal blooms can cause changes to aquatic life habitat, reduce essential levels of oxygen, clog fisher's commercial nets, interfere with drinking water treatment facilities, and cause taste and odour problems in drinking water. In addition, some forms of blue-green algae can produce highly potent toxins. Increases in the frequency and severity of algae blooms have been noted not only in Lake Winnipeg but also in other downstream waterways along the Winnipeg River such as the Pinawa Channel and the Lee River.

- While some debate may remain regarding the need to remove nitrogen from wastewater, the scientific literature is clear that reductions in phosphorus loads are required to reduce the frequency and severity of algae blooms.
- In addressing a response from the proponent, titled "Manitoba Hydro's response to Comment 2" (located in a letter dated September 5, 2008), the Department is aware that a relatively small load of phosphorus is likely discharged from the facility. However, the proponent has provided no evidence to support this response, such as the results of sample analysis. An assessment of the impact of the facility on the environment should not be limited to those parameters that are currently included in the *Environment Act* licence. Regardless of the load from the facility, in Manitoba, studies have shown that nutrients are contributed from many relatively small sources. No single source can be considered large. Therefore, all sources of nutrients are being addressed in a fair and equitable manner. Many initiatives in Manitoba are underway to meet the goal of nutrient reduction including cross-border agreements endorsed by the International Joint Commission; implementing nutrient removal at wastewater facilities; and regulations guiding the application of nitrogen and phosphorus in manure, inorganic fertilizer, and municipal sludge to land. As an example, agricultural producers also argue that their individual contributions are small but like wastewater treatment facilities the collective contributions of all of these sources of phosphorus results in an excess nutrient load to Lake Winnipeg.
- Nutrient removal is also of particular importance in Manitoba's provincial parks. Lakes, rivers, and streams in provincial parks serve as valuable resources for recreation and tourism, and provide critical habitat for aquatic communities. This particular importance is recognized by the current policy by which new or expanding wastewater treatment facilities in provincial parks are required to meet a 1 mg/L phosphorus limit. The limit has been implemented at a number of facilities in provincial parks including two others that discharge to the Winnipeg River watershed (Big Whiteshell Wastewater Treatment Facility and West Hawk Lake Wastewater Treatment Facility).
- The Department strongly encourages the proponent to consider innovative solutions that could be used to reduce the nutrient load contributed by the facility.
- The Department recommends that an *Environment Act* Licence includes:
 - A termination clause on the current wastewater treatment facility for September 2010.
 - A phosphorus limit of 1.0 mg/L, if the facility operates beyond September 2010.

Disposition:

- The draft Environment Act Licence requires the Licencee to actively participate in any future watershed based management study, plan and/or nutrient reduction program, approved by the Director, for Winnipeg River and associated waterways.
- The draft Environment Act licence requires the Licencee to meet a phosphorus limit of 1mg/L by December 31, 2010.

COMMENTS FROM FEDERAL REPRESENTATION:

Canadian Environmental Assessment Agency(CEEA)

July 8, 2008

- *Based on the responses to the CEEA survey, application of The Canadian Environmental Assessment Act with respect to this proposal will not be required. Health Canada (HC) and Transport Canada (TC) would be able to provide specialist advice if requested.*

PUBLIC HEARING:

A public hearing was not requested.

RECOMMENDATION:

The Proponent should be issued a Licence for the operation of the Development in accordance with the specifications, limits, terms and conditions of the attached draft Licence. An inspection should be completed by an Environment Officer from the Environmental Assessment and Licensing Branch prior to transferring the Licence to the Region for enforcement.

PREPARED BY:

Rafiqul Chowdhury, M.Eng., P.Eng.
Environmental Engineer
Municipal, Industrial and Hazardous Waste Section
Environmental Assessment and Licensing Branch
Environmental Stewardship Division
Manitoba Conservation
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Telephone: (204) 945-2614
Fax: (204) 945-5229
E-mail Address: rafiqul.chowdhury@gov.mb.ca