

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT: Rural Municipality of Gimli / Town of Gimli
PROPOSAL NAME: Rural Municipality of Gimli and Town of
Gimli Wastewater Treatment Plant
CLASS OF DEVELOPMENT: 2
TYPE OF DEVELOPMENT: Waste/Scrap Wastewater Treatment Plants
CLIENT FILE NO.: 4814.00

OVERVIEW:

On May 8, 2002, a proposal was filed on behalf of the Rural Municipality of Gimli and the Town of Gimli for the construction and operation of a new wastewater treatment plant to replace the existing Rural Municipality of Gimli wastewater treatment plant and Town of Gimli wastewater treatment lagoon. The new wastewater treatment plant will be located adjacent to the existing wastewater treatment plant on the west half of Section 18-19-4 EPM. Wastewater will be treated by a sequencing batch reactor (SBR) wastewater treatment plant designed for biological phosphorous removal and ultraviolet (UV) disinfection. The treated and disinfected wastewater will be discharged via a forcemain into Lake Winnipeg approximately 400 metres from the shoreline. Waste activated sludge (WAS) from the treatment process will be thickened, stabilized via aerobic digestion, stored in sludge ponds, to be constructed at SW 26-18-3 EPM, and the resulting biosolids injected into agricultural land in accordance with Environment Act Licence No. 2473 issued to the Rural Municipality of Gimli September 7, 2000. Decommissioning of the existing wastewater treatment lagoon and wastewater treatment plant will be undertaken following successful commissioning and start-up of the new regional facility.

The Department, on July 2, 2002, placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the Centennial Public Library, the Selkirk and St. Andrews Regional Library, the Rural Municipality of Gimli Office and the Town of Gimli Office. As well, copies of the Proposal were provided to the Interdepartmental Planning Board and TAC members. The Department placed a public notification of the Proposal in the Interlake Spectator on Monday, July 8, 2002. The newspaper and TAC notification invited responses until August 5, 2002.

COMMENTS FROM THE PUBLIC:

No comments were received from the Public.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

Agriculture and Food

- *No concerns.*

Conservation - Sustainable Resource Management

- *The proponent should ensure that there is an adequate volume of influent coming into the plant to allow for proper dosing and dilution of the truck haul sewage into the plant.*
- *The proposal does not provide adequate protection to recreational users in the event of a plant failure. The proponent should provide cost estimates for constructing a 2300 metre discharge pipe. Use of the existing wastewater lagoons, to allow for natural UV disinfection in the event of a plant failure should also be considered. Some information and cost estimates should be provided on converting the existing cells 3 and 4 into a wetland to allow for further natural treatment of the final effluent prior to entering the lake.*
- *There is insufficient information provided in the proposal to assess the impacts of the ammonia discharge. Details should be provided on the projected weekly ammonia concentrations at the discharge pipe and in the effluent plume, based on anticipated influent temperatures. An assessment should be done on the impact of that ammonia discharge based on Manitoba Conservation's acute and chronic toxicity objectives. The proponent should provide cost estimates of maintaining influent temperature above 10 °C.*
- *Since fecal coliform exceedences would cause acute illness rather than chronic illness, it is recommended that the proponent be required to meet these limits based on a weekly geometric mean rather than a monthly geometric mean.*
- *Total phosphorous limits should be set at 1.0 mg/L, based on a monthly mean value.*
- *The proponent should be required to file a plan for phased repair and/or replacement of deteriorated sewage piping system.*
- *It would be preferable to design and install an odour control system for start-up, rather than waiting several years.*
- *To assess the potential for odour nuisance, information such as an assessment of the receptors in the area and air dispersion modeling of the odours should have been provided.*
- *No information was provided on the potential for fugitive odour emissions from other parts of the system and how the system is designed to prevent or minimize such fugitive odour emissions.*
- *The proponent should actively participate in any future watershed based management study, plan or nutrient program, approved by the Director, for Lake Winnipeg and associated waterways and watersheds.*

Disposition:

- *The new wastewater treatment plant would receive piped sewage from the Town of Gimli and from the Rural Municipality of Gimli. The area serviced by piped sewage collection will be expanded.*

- The Proponent indicated that the additional cost to extend the outfall 2300 metres into Lake Winnipeg is approximately \$900 000. In case of plant failure, the adjacent holding ponds will provide 2 to 3 days of hydraulic storage. The Proponent indicated that use of the existing lagoons was considered and rejected; it is proposed to decommission the existing lagoons.
- An assessment of the impacts of ammonia with respect to the draft *Manitoba Water Quality Standards, Objectives and Guidelines* was included in the Proposal. The attached draft Licence includes effluent limits for maximum allowable ammonia and requirements for monitoring pH and total ammonia. The draft Licence also includes a Clause requiring effluent testing for acute lethality for a period of one year following commissioning of the wastewater treatment plant.
- The attached draft Licence includes effluent limits for total and fecal coliforms based on the weekly geometric mean during the primary recreation season (June through September) and based on the monthly geometric mean for the remainder of the year.
- The attached draft Licence includes effluent limits for total phosphorus of 1.0 mg/l based on a monthly mean.
- The attached draft Licence includes a requirement to provide for approval a plan for sewage collection system improvements and to implement the approved plan.
- The attached draft Licence includes a requirement to submit a plan for an odour control system within three years or earlier upon the written request of the Director.
- Air dispersion modelling is not a requirement of the draft Licence. The proposed wastewater treatment facility is located at the existing wastewater treatment facility. The draft Licence includes the odour nuisance clause; if an odour nuisance condition is created, the Director may specify steps to eliminate or mitigate the odour nuisance.
- The draft Licence includes a requirement to actively participate in any future watershed based management study, plan or nutrient program, approved by the Director, for Lake Winnipeg and associated waterways and watersheds.

Additional Comments:

- *The handling of a disinfection failure has not been fully addressed. It is recommended that bacterial sampling be conducted on Monday, Wednesday and Friday of each week during the recreational season. The proponent should be required to develop an emergency response and public notification system prior to the operation of the plant. In the event of an actual or suspected disinfection malfunction/failure the effluent should be diverted through the existing storage ponds.*
- *The ammonia levels will exceed end of pipe one-hour exposure objectives if the pH increases even slightly. Therefore, the proponent should be required to monitor ammonia, pH and temperature levels on a weekly basis, conduct trout toxicity testing of the effluent and ensure that the plant has the capability to reduce ammonia levels should toxicity problems be identified.*
- *Should the proponent incorporate the use of diffuser ports into the effluent discharge line, a regular inspection and cleaning schedule is required.*

Disposition:

- The attached draft Licence requires bacterial sampling and testing three times per week during the recreational season. The attached draft Licence requires that, in consultation with the Interlake Regional Health Authority, an emergency response and public notification system is developed, submitted to the Director for approval and implemented.
- The attached draft Licence includes requirements for ammonia, pH and temperature monitoring and for trout toxicity testing of effluent.
- The attached draft Licence includes a requirement to consult with Manitoba Conservation Fisheries staff and Department of Fisheries and Oceans staff regarding ongoing maintenance, inspection and cleaning requirements of the Lake Winnipeg effluent discharge structure.

Culture, Heritage and Tourism - Historic Resources

- *No concerns.*

Health

- *No comment.*

Transportation and Government Services

- *No concerns.*
- *Permits or agreements are required for placement of water and/or sewer lines adjacent to and/or across highway right-of-ways.*
- *All affected ditches, slopes and disturbed areas within the highway right-of-ways shall be restored to an acceptable condition.*

Intergovernmental Affairs

- *No comment.*

Canadian Environmental Assessment Agency

- *Application of The Canadian Environmental Assessment Act with respect to this proposal will be required. The coordinating contact is Mr. Pat McGarry, PFRA, Agriculture and Agrifood Canada, on behalf of Western Economic Diversification.*
- *Environment Canada:*
 - *Environment Canada has an interest in the project and would like to participate in the provincial review process. The following comments are provided for consideration:*
 - *Environment Canada supports the incorporation of biological nutrient removal in the treatment system design.*
 - *Additional information or clarification should be provided for the following:*
 - *information on the potential impacts on fisheries and water quality from the construction of the effluent outfall line into Lake Winnipeg and any planned mitigation measures;*

- *information on the construction of lift stations and sewer lines and the potential environmental impacts and any planned mitigative measures;*
- *information on seasonal variations in sewage flows, including significant precipitation events, and their potential impacts on the SBR operation, including clarification on where the storage ponds are located and further details on how the ponds will be used; and*
- *additional information on how biological phosphorus removal will be achieved with the selected treatment configuration and clarification on how and when chemical phosphorus removal will be implemented on an as-required basis.*
- *The following should be considered in the detailed design phase and additional information provided:*
 - *Will training specific to SBR technology be made available to the operators?*
 - *How will dissolved oxygen monitoring and control be handled?*
 - *An automated system for sludge wasting could be beneficial for controlling the solids retention time. It is not clear if this will be part of the automated process control.*
 - *Potential cycling of nutrients within the SBR system is mentioned in the proposal, but it is not clear how this issue would be addressed in the actual operation.*
- *Fisheries and Oceans Canada*
 - *Fisheries and Oceans Canada has an interest in the installation of the 400 metre Lake Winnipeg Effluent Discharge Structure. Potential adverse effects on fish habitat resulting from the construction and installation of the structure may be avoided with implementation of appropriate mitigation measures. The proponent should provide the following information:*
 - *Details regarding timing of proposed construction and installation of the structure. If in-water work is required, when will it take place?*
 - *Details of the proposed construction and installation of the structure, including the type of equipment used, the size of the concrete structure, and type of installation (i.e. trenching or directional drilling).*
 - *Details regarding sediment and erosion control plans during construction and installation of the structure.*

Disposition:

- The requested additional information was provided to Environment Canada. No further comments.
- The requested additional information was provided to Fisheries and Oceans Canada. No response. The attached draft Licence includes a requirement to consult with Manitoba Conservation Fisheries staff and Department of Fisheries and Oceans staff prior to beginning construction and installation of the Lake Winnipeg effluent discharge structure.

PUBLIC HEARING:

A public hearing is not recommended.

RECOMMENDATION:

The Proponent should be issued a Licence for the construction and operation of the wastewater treatment plant in accordance with the specifications, terms and conditions of the attached draft Licence. Enforcement of the Licence should be assigned to the Approvals Branch until the construction of the wastewater treatment plant has been completed and any required soil testing has been completed.

Environment Act Licence 2473

Issuance of the attached draft Licence will require a revision to Licence 2473 issued to the Rural Municipality of Gimli for the disposal of sludge solids from the Gimli Industrial Park Sewage Treatment Plant. Section 6 of Licence 2473, respecting the treatment of sludge solids required to produce biosolids, specifies anaerobic digestion for 30 days at a minimum temperature of 20°C. The proposed wastewater treatment plant will provide aerobic digestion of sludge solids.

Assessment of Sludge Digestion Processes

An assessment of equivalency of the two processes was carried out.

- The United States Environmental Protection Agency (EPA) requires sludge solids to be treated to specified standards prior to land application: anaerobic digestion for 60 days at 20°C or aerobic digestion for 40 days at 20°C or for 60 days at 15°C.
- The EPA also allows processes to be approved as equivalent to the specified standard treatment processes. A list of such approved processes includes those with shorter digestion times followed by treatment in lagoons.
- The Water Environment Federation (WEF) Manual of Practice FD-9 references a study that concluded that very little additional reduction in volatile solids occurs when the product of temperature and residence time exceeds 250 in the operating temperature range of 10 to 20°C.

Proposed Sludge Digestion Process

The proposed aerobic digester is designed for a residence time of 25 days. At a minimum temperature of 10°C the product of temperature and residence time is 250. It is proposed that the digested sludge is then stored in sludge lagoons prior to land application.

RECOMMENDATION:

Section 6 of Licence 2473, respecting the treatment of sludge solids required to produce biosolids should be amended as in the attached draft revised Licence to require aerobic digestion for a minimum of 25 days at a minimum temperature of 10°C followed by storage in the sludge storage ponds for a period of one year. The attached draft revised Licence also includes minor revisions to definitions for "accredited laboratory" and "waste disposal ground" and replaces the definition for "anaerobic digestion" with that for "aerobic digestion".

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