

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPOSER: Shady Lane Holding Co. Ltd.
PROPOSAL NAME: Shady Lane Colony Wastewater Treatment Lagoon Expansion
CLASS OF DEVELOPMENT: 2
TYPE OF DEVELOPMENT: Waste/Scrap Wastewater Treatment Lagoons
CLIENT FILE NO.: 2731.20

OVERVIEW:

On December 12, 2005, the Department received a Proposal from Cochrane Engineering Ltd. on behalf of the Shady Lane Holding Co. Ltd. for a Development to remediate and operate the existing Shady Lane Colony wastewater treatment lagoon located in the north half of the southeast quarter of Section 5-9-9 WPM in the Rural Municipality of South Norfolk, to serve the Shady Lane Colony. The proposed development consists of the construction of a new secondary cell and the remediation of the existing primary cell and existing secondary cell. The treated wastewater from the wastewater treatment lagoon will be discharged by irrigation onto agricultural land owned by Shady Lane Holding Co. Ltd. between May 15th and October 15th of any year.

The Department, on January 20, 2006, placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the Manitoba Eco-Network and the Portage la Prairie City Library. Copies of the Proposal were also provided to the Technical Advisory Committee (TAC) members. The Department placed a public notification of the Proposal in the Treherne Times on Monday, January 30, 2006. The newspaper and TAC notification invited responses until February 24, 2006.

COMMENTS FROM THE PUBLIC:

No responses were received from the public notification.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

Agriculture and Food

- *No comments were received from Manitoba Agriculture, Food and Rural Initiatives*

Conservation - Sustainable Resource Management

- *The total coliform limits should be included in the revised Environment Act license.*
- *There should be a clause in the revised license that required the proponent to obtain approval from an Environment Officer prior to discharge of the lagoon. This will prevent operators from discharging without sampling the lagoon and also give the district offices records of every discharge that is completed. It will also prevent operators from discharging the lagoon outside the parameters set in the license.*

Disposition:

- Total coliform limits will be included in the draft Licence.
- A clause requiring the proponent to notify the assigned Environment Officer prior to effluent discharge will be included in the draft Licence, however acquiring prior approval from the Environment Officer will not be included.

Culture, Heritage and Tourism - Historic Resources

- *No concerns.*

Health

- *The proposal mentions evidence of seepage (pages 18-19). Please confirm whether there is suspicion or evidence of groundwater risk. It is unclear as to whether the colony's water supply is obtained from this same aquifer and whether there is any potential risk to drinking water.*
- *Please consider monitoring for groundwater contamination by regular sampling of nearby community wells.*
- *Please consider leachate monitoring.*
- *Please ensure:*
 - *prevention of pollutants or contaminated wastewaters from entering municipal ditch systems*
 - *odor control and monitoring*
 - *gasoline and diesel regulations if applicable*
 - *effluent discharge as per regulation*

Proponent Response (March 20, 2006):

- The Shady Lane Colony has 5 wells all located in the NE 05-09-09WPM. The aquifers that these wells draw water from are a minimum of 18.3 metres below the ground surface and have multiple clay layers in the above soil profile that protect the groundwater.
- The soil profile of the existing lagoon area was identified in the testhole logs of the Geotechnical Report. Beneath the topsoil, a sand layer of 2-4m in thickness was followed by a clay layer, which extended past the testhole depth in all but TH1, which was drilled to 15m and further revealed a stratified layer of clay with a silty clay layer. Therefore, the seepage from the lagoon will be contained by these sufficiently thick clay layers and will not move downward.
- A residence in SE 05-09-09WPM, located approximately 700 metres to the south east of the existing lagoon has a well that draws water from near the surface to 8.8 m below. The first 3.3 m in the well log is listed as fine brown sand and the remaining 5.5 m is soft grey clay. This well (domestic, livestock) would be of very low yield, being regenerated by the immediate area (<60m radius), and not by a general aquifer. Additionally, as suggested in the watershed maps, and in the revised original design report (1988) the local topography at the lagoon site slopes directly to the east and into a first order natural drainage ditch. Therefore, there are no concerns about the seepage potentially affecting this well based on a separation distance of 700 M and the drainage of the local area.

- Any monitoring or sampling of groundwater or leachate will be performed as may be required by Manitoba Conservation and specified in the proposed Environment Licence.
- The proposed lagoon has been designed to treat and store the wastewater generated from the projected Colony population. Operation of the proposed lagoon, including discharge, will adhere to the requirements that will be set forth in the proposed Environment Licence.

Disposition:

After receiving the additional information from the proponent, no further comments were received from Manitoba Health. This was assumed to indicate that the original comments were satisfied and are no longer of concern.

Manitoba Water Stewardship

- *The report mentions that the proposed area uses well water as a water supply source. It is very important to know whether the well water receives any form of disinfection prior to use.*
- *There are some concerns with the existing system e.g., the present capacity is inadequate and there are significant seepage losses. Both of these can cause wastewater infiltration to groundwater prior to intended treatment. Therefore, it is unclear whether any baseline groundwater data is collected in order to check the status of the local groundwater quality.*
- *It is not clear why tables 8.1 and 8.2 have no data related to Total Coliforms and Fecal Coliforms. In section 9.1 it is mentioned that dry chlorine will be applied (100kg/ha) if the Coliforms limits are exceeded. The chlorine application point (lagoon or land) is not mentioned clearly.*
- *Will any monitoring be provided to check the integrity of the proposed impermeable layers of the lagoon cells?*
- *In light of the proposed nutrient management regulation for Water Quality Management Zones under The Water Protection Act, we recommend that the proponent manage the land application of municipal wastewater based on soil residual levels and crop requirements. Are additional lands available for application in the event that soil residual levels exceed crop requirements?*
- *Of concern is that the single sample of effluent for which chemical data were collected exceeded Manitoba Water Quality Objectives for sodium adsorption ratio and conductivity. We recommend that the proponent be required to meet Manitoba Water Quality Objectives for sodium adsorption ratio and conductivity prior to land application. Although the proposal suggests that land application would not necessarily be required each year, given the estimates of hydraulic loading and storage capacity this seems unlikely.*
- *We are concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water. We recommend the license require the proponent to actively participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director, for the Assiniboine River and associated waterways and watersheds.*

Proponent Response (March 20, 2006):

- The Shady Lane Colony does not disinfect their well water prior to use. A water sample was recently submitted (Nov 2005) for testing and the results are enclosed with this letter.
- Based on well logs in the area, and the depth of the aquifers, a sufficiently thick layer (or layers) of clay (4-23m) protects the groundwater. Any additional groundwater testing or monitoring will be conducted as required by Manitoba Conservation and as may be required by Manitoba Water Stewardship Drinking Water Regulations.
- The following guidelines will be met prior to discharge, as they appear in clause 2 of the existing Shady Lane Colony Environment Act Licence:

The applicant shall not discharge effluent from the said wastewater treatment lagoon:

- b) where the fecal coliform content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample;
- c) where the total coliform content of the effluent, as indicated by the MPN index, is in excess of 1500 per 100 millilitres of sample;

These guidelines are expected to remain unchanged in the issuance of a new Environment Act Licence.

The application of dry chlorine, if required, is to occur in the secondary cells of the lagoon.

- Testing and verification of the thickness, depth and penetration of the clay core into the existing clay layer is performed with a Manitoba Conservation representative present during lagoon commissioning.
- Yes, additional lands are available for land application, besides the intended application area, noted to be 24 ha (60 acres) in the EAP. As stated in the report (pg 14), a typical discharge will amount to 5 kg/ha of N in comparison to the common annual crop requirement of about 100 kg/ha.
- Section 8.1 states that, “The SAR level at 6.68, slightly exceeds the irrigation level of 6.0. According to the USEPA Design Manual for Land Treatment of Municipal Wastewater, an SAR level of <6.0 presents no problems and levels between 6.0-9.0 have increasing problems, with levels over 9.0 listed as severe. However, these suggested values are noted to be flexible and should be modified when warranted by local experience or special conditions of crop, soil, and method of irrigation. In addition, these values are listed for arid and semiarid climates, where irrigation is a major, if not the sole source of water for the crops. However, in this situation, land disposal will only be applied periodically, and not every year or in a sustained duration during the growing season. Rainfall will remain as the main source of water for the Shady Lane Colony crops. Therefore, treated effluent application with SAR levels of 6.0-9.0 is expected to be sustainable when used according to the practices and methods employed by the Colony.” The reference stating that land disposal will not occur every year should be revised to read, “However, in this situation, land disposal will only be applied periodically, and not in a sustained duration during the growing season.” – we have corrected our e-file records accordingly. It is expected that once construction and remediation occurs, lagoon discharge will occur every year during the discharge period. The above report quotation also qualifies the SAR level as acceptable, even though it is, as mentioned, slightly above the irrigation guideline

level. Any additional testing required before lagoon discharge will be performed as required by Manitoba Conservation.

- Those involved in a future watershed based management study, plan/or nutrient reduction program are welcome to contact the Shady Lane Colony.

Manitoba Water Stewardship Response (April 13, 2006):

- *Manitoba Water Stewardship has reviewed the proponent's engineering consultant's response and submits the following comments for your consideration:*
 - *The consultant indicated that the drinking water wells in the project area would not be impacted by the proposed wastewater treatment lagoon. However, every effort should be made to ensure that adequate source water protection methods are applied and groundwater monitoring should include bacteriological parameters related to drinking water.*
 - *We still recommend that the proponent be required to meet Manitoba Water Quality Objectives for sodium adsorption ration and conductivity prior to land application of effluent.*
 - *We would like to review the draft license for the proponent to ensure that this request is included as part of the license requirement.*

Disposition:

- The submission of a Groundwater Monitoring Plan will be required in the Licence.
- Requirements to sample effluent for total calcium, total magnesium and total sodium are included in the draft Licence as well as a Clause to reduce SAR if deemed necessary by the Director.
- A copy of the draft Licence will be forwarded to Manitoba Water Stewardship for comment prior to issuance.

Transportation and Government Services

- *No concerns.*

Intergovernmental Affairs

- *No comments received from Intergovernmental Affairs.*

Canadian Environmental Assessment Agency

- *Following a review by all federal departments with a potential interest in the proposed development, the application of the Canadian Environmental Assessment Act (the Act) will not be required for this project.*
- *Health Canada would be able to offer specialist information with respect to the project review and has provided the following comments:*
 - *The EAP indicates that the lagoon has never been discharged, a large area around the lagoon may have been impacted from wastewater seepage, and that any present impacts will be remediated by natural attenuation and the design considerations of the proposed lagoon expansion. It is unclear from the EAP whether the seepage has/will affect any nearby resources (neighbors soil productivity, any groundwater use) before natural attenuation is complete. If*

- impacts have/may occur, groundwater monitoring and additional mitigation measure may be necessary.*
- *Due to the frequency of child drowning in Western Canada, the Canadian Red Cross recommends that dugouts, ponds and other potential water hazards on farmland be protected (e.g. fencing) to reduce the risk. Drowning can occur from falls into the water body when open or through the ice in winter.*

Proponent Response (March 20, 2006):

- The existing lagoon was constructed in 1985. To date, no known objections or complaints were voiced with Manitoba Conservation from neighbouring farmers or the Shady Lane Colony, citing loss of soil productivity. Based on well logs in the area, and the depth of the aquifers, a sufficiently thick layer (or layers) of clay (4-23m) protects the groundwater and therefore no additional mitigation measures are anticipated.
- It is proposed that a fence be constructed to surround and enclose the entire facility as shown in drawing C01 of the EAP appendices.

Disposition:

After receiving the additional information from the proponent, no further comments were received from Health Canada. This was assumed to indicate that the original comments were satisfied and are no longer of concern.

PUBLIC HEARING:

A public hearing is not recommended.

RECOMMENDATION:

The Proponent should be issued a Licence for the remediation and operation of the existing wastewater treatment lagoon in accordance with the specifications, terms and conditions of the attached draft Licence. Enforcement of the Licence should be assigned to the Environmental Assessment and Licensing Branch until the liner testing has been completed and the lagoon is commissioned.

Shady Lane Holding Co. Ltd.
Shady Lane Colony Wastewater Treatment Lagoon
Page - 7 -

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