

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT: Rural Municipality of Lac du Bonnet
PROPOSAL NAME: Wastewater Stabilization Pond Expansion
CLASS OF DEVELOPMENT: 2
TYPE OF DEVELOPMENT: Wastewater Treatment Lagoon
CLIENT FILE NO.: 3506.10

OVERVIEW:

On August 3, 2010, the Department received an Environment Act Proposal (EAP) on behalf of the Rural Municipality of Lac du Bonnet for the expansion and operation of the wastewater treatment lagoon located in SE 19-15-12EPM in the Rural Municipality of Lac du Bonnet. The proposed expansion consists of the conversion of the primary and secondary cells of the existing wastewater treatment lagoon to a larger primary cell and the construction of a new secondary cell immediately east of the existing wastewater treatment lagoon. The existing wastewater treatment lagoon discharges treated wastewater between May 15th and October 1st of any year via irrigation onto land owned by or under the control of the Rural Municipality of Lac du Bonnet. It was proposed that treated wastewater from the wastewater treatment lagoon also be allowed to be discharged between September 15th and October 31st of any year via an existing drainage ditch that flows north into a municipal drain which flows northeast into Lee River.

The Department, on August 19, 2010, placed copies of the EAP report in the Public Registries located at 123 Main St. (Union Station), the Millennium Public Library, the Manitoba Eco-Network and the Rural Municipality of Lac du Bonnet municipal office and provided copies of the EAP report to the Canadian Environmental Assessment Agency (CEAA) and Technical Advisory Committee (TAC) members. As well, the Department placed a public notification of the EAP in The Lac du Bonnet Leader on Friday, August 27, 2010. The newspaper and TAC notifications invited responses until September 24, 2010.

On October 15, 2010 Manitoba Conservation forwarded requests for additional information from the public and the TAC to the proponent and distributed related materials to the Public Registries. The proponent's December 23, 2010 response to the requests was then provided to the participating public and TAC for review and comment on January 20, 2011.

Also on January 20, 2011, a supplementary request for additional information was to the proponent. The proponent's February 10, 2011 response to the request was then provided to the TAC requestor on February 16, 2011.

On March 11, 2011 Manitoba Conservation forwarded requests for additional information from the public and the TAC to the proponent. The proponent's June 16, 2011 response to the requests was then provided to the participating public and TAC for review and comment on June 29, 2011.

On July 19, 2011 Manitoba Water Stewardship provided correspondence directly to the proponent, identifying that they must submit a letter of application under 14(2) of the *Nutrient Management Regulation, Manitoba Regulation 62/2008*, to the Director, Water Science and Management Branch to obtain an exception under that regulation due to the site characteristics.

In an August 25, 2011 letter, the proponent provided a request to Manitoba Water Stewardship. In an August 29, 2011 letter to the proponent, Manitoba Water Stewardship provided approval under the *Nutrient Management Regulation, Manitoba Regulation 62/2008* for the proposed lagoon expansion and operation with conditions. Such conditions include a maximum 1.0 mg/L phosphorus concentration and that effluent irrigation shall be the preferred method of lagoon discharge.

There were no further public or TAC comments received.

A draft Environment Act Licence and related Summary of Comments/Recommendations were distributed to the TAC for review and comment on August 30, 2011. Comments were requested to be returned to Manitoba Conservation by not later than September 13, 2011. Comments received resulted in several generally minor adjustments to the draft Licence being made.

COMMENTS FROM THE PUBLIC:

Kellendonk, Cindy – September 9, 2010

- *I have some concerns/potential objections based on results - regarding the release of effluent into the ditch to flow through to the river. A few questions for clarification:*
 - *Where, and if so what alternative options were investigated vs. draining into the river?*
 - *How long will this occur...is there an end date?*
 - *Has Water Stewardship done an on site physical view of the entire proposed drainage of the effluents?*
 - *How persistent will water quality testing be? I understand the RM has backed off because they felt the first few weeks were good enough that they do not need to be as extensive in their testing.*

- *What technical groundwork has been done to date and by whom, to ensure the proposed natural filtration will be sufficient to support the RM's assurances the end result quality is higher than chlorinated water?*
- *What are the risks of this occurring again and what preventative measures are in place to avoid a recurrence.*
- *How do we obtain a full copy of the proposed lagoon expansion.*

Kellendonk, Cindy – September 27, 2010

- *A few more questions:*
 - *How much more culminated loading of phosphorus and nitrogen will occur over a period of time and what impact will it have on algae growth?*
 - *Would aeration help to breakdown the material and improve evaporation?*
 - *Would a third cell (aerated) for staging eliminate or reduce the need to release into the river? How will this affect the abutting landowners (at the release point) who draw their water from the river? From what I have learned, there has been no comparative investigation done to determine eventual impact. For example, in Alberta, a similar project (ISBN: 0-7785-4255-6) proved that although the use of Field Lake as a recipient of Lac La Biche treated sewage effluent was deemed the best alternative for disposing of this wastewater, and the treatment facility was complying with the required best practicable technology, the lake still became and would remain hypereutrophic for many years, even without continued effluent discharge.*
 - *While I understand the engineering firm did what they were asked to do, I still don't see what this will all mean in terms of water quality in the future since the plan is to dump effluents on a regular basis. We understand this was temporary due to crisis, but now it appears to be a long term plan.*
 - *I question that this a case of were the engineering firm did only what they were asked to do, and there should still be more study to understand the long term consequences. Our water is already overburdened with contaminates from a number of sources and are we simply further burdening our water supply.*
 - *My concern is that this might be a quick fix to a serious problem that will hold irrevocable negative impact down the road due to lack of due diligence. It may not be valid, but I cannot find any technical information to counter these concerns.*

Proponent Responses – December 23, 2010:

- The existing lagoon system discharges by irrigating adjacent agricultural lands and does not have a regular discharge point and route as do most lagoons. With the recent

years of wet weather conditions, the opportunity to irrigate has been limited and the lagoon has required emergency discharges to keep from overflowing. While the R.M. of Lac du Bonnet would still like to utilize irrigation as a method of discharge when on-site conditions are favourable, they do require an alternative discharge method, so effluent can be discharged on a regular basis. During our study, two alternative discharge routes were investigated: south and north. The south discharge route is a shorter route to the river and going by more recreational property. The north route is longer and going through a natural wetland area, which is beneficial as an additional treatment for the effluent.

- It is expected that the discharge period will be September 15th to October 31st each year, similar to lagoon discharges in other recreational areas.
- Prior to discharge, the BOD, bacteriological, and any other samples required in the new Environment Act Licence will be collected and analyzed. Manitoba Conservation generally requires treated effluent to have a BOD, < 25 mg/L, fecal coliform MPN of <200 organisms/100 mL, and total coliform MPN <1500 organisms/100 mL, chlorine <0.02 mg/L. The proposed facility should not have difficulty meeting these requirements.
- The sampling undertaken during the emergency discharges showed that the discharged effluent had received adequate treatment to meet the required discharge quality according to the existing licence most of the time. Out of 16 samples, only one sample exceeded total coliform MPN <1500 organisms/100 mL requirement. A comparison of downstream sampling points showed some parameters to be higher downstream in the discharge route than at the point of discharge from the lagoon system.
- The R.M. of Lac du Bonnet lagoon has reached capacity and without a reliable discharge method has required several emergency discharges over the last few years. To provide adequate wastewater treatment and storage for a 20-year design period and to avoid emergency discharges in the future, construction of the new secondary cell is proposed.
- To obtain a full copy of the proposed lagoon expansion, we recommend contacting Manitoba Conservation.
- Nutrient mitigation will be carried out as required by Manitoba Conservation.
- Aerated cells are usually required for treatment of industrial or high strength wastewater contributions. Once treated, the effluent is typically stored until it can be discharged and then discharged the same as a conventional lagoon. The Lac du Bonnet lagoon is receiving a domestic wastewater only; therefore, it is anticipated that the existing cells will provide sufficient treatment to incoming wastewater and the effluent discharge will meet licence requirements.

- All general comments are noted.

Kellendonk, Cindy – February 22, 2011

- *I have now had a chance to review the response from the RM's engineering firm on the Lac du Bonnet Lagoon and am not satisfied that they have responded to my questions. In fact, none of them were directly answered.*
- *Additionally, we have just learned Manitoba Hydro is performing upgrades to the Pinawa Diversion Channel and given the work to date, it appears there may be some change to volume along this waterway, thus potential impact to what the province considers acceptable levels of discharge of the lagoon into the waterway. At this writing, we are still waiting for Hydro's clarification but feel it should be mentioned and consideration given to the potential risk.*
- *Without been granted access to the report other concerns have arisen that we hope to seek answers on:*
 1. *Geotechnical information suggests there may be a future risk of contaminants to the river through fractures and aquifers and may be occurring already. What level of risk is unclear and undetermined.*
 2. *Carminie Shriener (endangered) are found in the general area of the proposed discharge and are very susceptible to environmental pollutants. Unfortunately, there has not yet been enough study to determine their precise habitat as to date, they have only been indentified slightly upstream of the proposed discharge. Perhaps Hydro's project may have a combined impact. Given the lack of study, more needs to be done in this area to understand the long term consequences.*
 3. *Again, what other options exist. Given the cost of expansion and environmental unknowns, would it not be more prudent to investigate other locations away from primary waterways or watersheds to support environmental accountability??*
 4. *Any increase loading of pollutants to one of our most precious resources must be avoided if possible, Thus, other options need to be investigated before this project proceeds.*
 5. *The majority of residents take their water from this river system as well as a few landowners who utilize well systems. All these people need to be better informed of proposed plans.*

Proponent Responses – June 16, 2011:

- Our Geotechnical investigation revealed a topsoil / peat moss layer over fractured clay over a massive high plasticity clay layer which the new lagoon cell will be tied into. The hydraulic conductivity of this clay was tested to be 5.4×10^{-9} cm/sec, which is well below the allowable limit of $< 1 \times 10^{-7}$ cm/sec. This clay will keep the wastewater within the lagoon while it is being treated. The lagoon will not be

released until it is tested and meets the discharge requirements of a new Environmental Act Licence.

- Our contacts with Fisheries and Oceans Canada and Provincial Fisheries Biologist in Lac du Bonnet indicated that the Carmine Shiner are only located at the Old Pinawa Dam site, based on sampling to date. The Old Pinawa Dam site is approximately 4 km upstream of our original discharge point, which has since been revised to the present proposed site, which is a further 8 km downstream, so that the lagoon will now discharge 12 km downstream of the known location of the Carmine Shiner.
- As with the initial siting of the lagoon system, it was located with respect to available land away from residences, with good clay soils for construction purposes and located where accessible to the majority of users, those on holding and septic tank systems which require regular or annual trucking of wastewater for disposal. It is difficult to find a location which does not drain to the primary waterways in this area and still meet other requirements at a reasonable cost to all.

Alternatives to lagoons are mechanical treatment plants, which typically have higher capital and operating costs and require a year round discharge location. Trucked wastes, in general, are more difficult to treat in mechanical plants and upsets in treatment can result. The re-location of the entire lagoon system would result in costs 2-3 times higher than the existing expansion being proposed.

The sampling undertaken last year during discharge events showed the discharge from the lagoon to often be of better quality than the water in the discharge route.

The expanded lagoon is expected to discharge on an annual basis in the fall only which is common practise in other recreational areas.

- All general comments are noted.

Disposition:

- Limits, terms and conditions of the draft Environment Act Licence provide operating criteria regarding means of discharge, organic load, odours, containment and quality of treated wastewater that are conventional for lagoons in Manitoba, aside from that fact that the Licencee may choose the means of discharging the lagoon, being either by irrigation or surface course depending on the conditions.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

Conservation – Aboriginal Relations

- *The Aboriginal Relations Branch has reviewed the above proposal and have no concerns with the project.*

Conservation – Environmental Operations

- *Manitoba Conservation, Environmental Operations has reviewed the above noted Environment Act Proposal and submits the following comment:*
 - *3.3 Effluent Quality and Discharge Route (page 6) indicates that a discharge route is needed to discharge effluent on an annual basis if required, but that irrigation would also be available as an optional method of discharge. Environmental Operations requests clarification regarding the circumstances in which irrigation would be used, and whether irrigation will be utilized as the primary method of discharge when onsite conditions are favourable.*

Proponent Response – December 23, 2010:

- The existing lagoon system discharges by irrigating adjacent agricultural lands and does not have a regular discharge point and route as do most lagoons. With the recent years of wet weather conditions, the opportunity to irrigate has been limited and the lagoon has required emergency discharges to keep from overflowing. While the R.M. of Lac du Bonnet would still like to utilize irrigation as a method of discharge when on-site conditions are favourable, they do require an alternative discharge method, so effluent can be discharged on a regular basis. It is not likely that irrigation will be the prime method of discharge in the future. It is expected that the discharge period will be September 15th to October 31st each year, similar to lagoon discharges in other recreational areas.

Disposition:

- Limits, terms and conditions of the draft Environment Act Licence provide operating criteria regarding means of discharge, organic load, odours, containment and quality of treated wastewater that are conventional for lagoons in Manitoba, aside from that fact that the Licencee may choose the means of discharging the lagoon, being either by irrigation or surface course depending on the conditions.

Conservation – Parks and Natural Areas Branch

- *The Branch has no comments to offer.*

Conservation – Pollution Prevention Branch

- *No comment/concern on the proposal.*

Conservation – Sustainable Resource and Policy Management Branch

- *The Sustainable Resource and Policy Management Branch and the Land Programs Branch have reviewed the above mentioned EA proposal and provide the following comments:*

- *The Rural Municipality should contact Cheryl Prosser, Regional Lands Manager, Eastern Region (204-345-1452) to ensure the EA proposal considers proposed and future Crown cottage developments in the area.*
- *The proposed sewage lagoon is adjacent to a protected area proposal. The proposed discharge route of the lagoon through an existing drainage ditch that flows north into a municipal drain and northeast into the Lee River flows through this proposed protected area, lands which have been assigned the Crown land code “H” – candidate protected area.*
- *Protected areas are land, freshwater or marine areas, where logging, mining, hydroelectric development, oil and gas development, and other activities that significantly and adversely affect habitat are prohibited by law.*
- *No concerns with the proposed discharge route for the project subject to discharge pollutant levels remaining within provincial guidelines.*

Proponent Responses – February 10, 2011:

- The Rural Municipality has contacted Cheryl Prosser and received information that 120 Crown cottage lots may be developed in the area. The future lagoon design loadings allowed for 1560 additional lots to be developed over the next 20 years in the service area without being specific as to developer. Over 1,000 of these are considered seasonal. As well, there is additional capacity, both organic and hydraulic, available in the new design that would accommodate these additional lots.

Disposition:

- Limits, terms and conditions of the draft Environment Act Licence provide operating criteria regarding means of discharge, organic load, odours, containment and quality of treated wastewater that are conventional for lagoons in Manitoba, aside from that fact that the Licencee may choose the means of discharging the lagoon, being either by irrigation or surface course depending on the conditions.

Infrastructure and Transportation

- *No concerns.*

Science, Technology, Energy & Mines – Mines Branch

- *No concerns.*

Water Stewardship

December 23, 2010

- *Manitoba Water Stewardship has reviewed the referenced file, forwarded for comment on August 19, 2010.*

- *Manitoba Water Stewardship objects to the proposed siting of a proposed wastewater treatment lagoon on land designated as Nutrient Management Zone N4, pursuant to the Nutrient Management Regulation under The Water Protection Act.*
- *Manitoba Water Stewardship requires an Environment Act Licence to include the following:*
 - *The Licencee is required to achieve an effluent discharge limit for phosphorus of 1 mg/L.*
 - *Note: 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 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 trickle discharge and constructed wetlands.*
 - *The Licencee is required to implement trickle discharge for at least 2 weeks.*
 - *The Licencee shall actively participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director, Water Science and Management Branch, Manitoba Water Stewardship.*
 - *Note: Manitoba Water Stewardship is concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water.*
- *Manitoba Water Stewardship submits the following concerns:*
 - *Lac du Bonnet, an important recreational water body, is the final destination of this discharge. Manitoba Water Stewardship requests the proponent to provide information on the feasibility of a constructed wetland (further reducing nutrients from the discharge and protecting the health of Lac du Bonnet).*
 - *Reconnaissance level soil survey indicates the proposed lagoon is partially situated on a Canada Land Inventory Soil Capability Classification for Agriculture Class Organic (see Figure 1 Below). Pursuant to the Nutrient Management Regulation under The Water Protection Act, the proposed lagoon expansion is sited on a Nutrient Management Zone N4.*

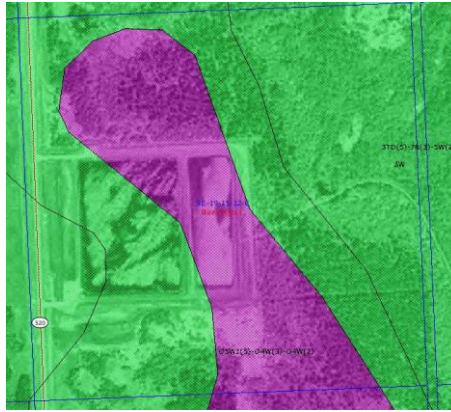


Figure 1 – Reconnaissance Level Soil Capability (Agri-Maps)

- *In the Nutrient Management Regulation (MR 62/2008) under The Water Protection Act, section 14(1) (d) no person construct, install, site, locate, expand or modify a wastewater treatment lagoon on land designated as Zone N4.*
- *Soil survey information for SE¼ 19-15-12 EPM is only available at the reconnaissance rather than the detailed level. Therefore, the proponent may retain the services of a pedologist to obtain more detailed soil survey information. In particular, if a pedologist can demonstrate that the area proposed for locating a wastewater treatment lagoon consists of soils outside those delineated as Nutrient Management Zone N4 (coloured in purple) then Manitoba Water Stewardship would reconsider your request to install a wastewater treatment lagoon. The pedologist should prepare a site-specific land classification report documenting agriculture capability including supporting field data sheets describing the soil profiles. An alphabetical list of pedologists that could undertake this type of work is included in Attachment 1.*
- *Manitoba Water Stewardship submits the following comments:*
 - *The Manitoba Department of Water Stewardship is mandated to ensure the sustainable development of Manitoba's water resources. Manitoba Water Stewardship is committed to the goals of: protecting aquatic ecosystem health; ensuring drinking water is safe and clean for human health; managing water-related risks for human security; and stewarding the societal and economic values of our waterways, lakes and wetlands; for the best water for all life and lasting prosperity. Manitoba Water Stewardship achieves these goals, in part, through administering legislation, including The Water Protection Act, The Water Rights Act, and The Water Power Act.*
 - *The proponent needs to be informed that erosion and sediment control measures should be implemented until all of the sites have stabilized.*

Proponent Responses – December 23, 2010:

- Nutrient mitigation will be carried out as required by Manitoba Conservation in the Environment Act Licence.
- Wastewater will be discharged at a rate that optimizes the opportunity for nutrients in the effluent to be assimilated in the discharge route prior to reaching the Pinawa Channel while not challenging the normal operation of the wastewater treatment lagoon.
- Any party involved in a future watershed based management study, plan/or nutrient reduction program for the area are welcome to contact the R.M. of Lac du Bonnet.
- Construction of a wetland as part of a wastewater treatment process was evaluated during the feasibility study; however the cost of construction was too high due to the organic soils present and the fact that cell dykes would have to be keyed into the underlying clay soils.
- The existing lagoon and the proposed new secondary cell are located on land which was considered unimproved organic soils, thus Zone N4 as per the Nutrient Management Regulation. The peat soils vary in depth and generally increase depth as one goes south. The peat soils are underlain by clay soils, which are suitable for lagoon construction. As was done with the existing cells, the peat material will be removed, drainage provided around the perimeter and the new cell will be constructed with a clay core through the upper fractured clay into the underlying high plastic clay as detailed in the geotechnical report, Appendix A of the EAP. These modifications to the organic soils will remove the land from the Zone N4 designation and the land will no longer be subject to Section 14(1) of the Regulation.

As stated elsewhere in this response, this expansion of the existing lagoon is required to alleviate the existing overloaded condition and provide additional storage for a 20-year design period. This expansion along with a discharge point and discharge route will allow for a more "normal" operation of the wastewater treatment facility and reduce or eliminate the need for any further emergency discharges. This "normal" operation should improve the effluent water quality and water quality of the area in general as per the intent of the Regulation.

- All general comments are noted.

February 7, 2011

- *Manitoba Water Stewardship would consider approving the installation of a wastewater treatment lagoon on soils currently designated as Zone N4 when the proponent provides a detailed level soil survey report. At this time, soil survey information for the agricultural capability of SE¹/₄ 19-15-12 EPM is available at the reconnaissance level rather than the detailed level.*
- *The proponent is advised to obtain the services of a pedologist (see attachment) to obtain a detailed level soil survey report. The pedologist should prepare a site-specific land classification report, documenting agriculture capability*

including supporting field data sheets describing the soil profiles. Additionally, the soil information provided in Appendix A of the Environment Act Proposal is not used to describe the Soil Capability Classification for Agriculture.

- *If the proponent needs more information on providing an adequate soil survey report, directly contact Ms. Joy Kennedy by telephone at 945-7908.*

Proponent Responses – June 16, 2011:

- A detailed soil survey was completed.

Disposition:

- The detailed soil survey was reviewed by Manitoba Water Stewardship. A letter of application for approval under 14(2) of *Manitoba Regulation 62/2008, Nutrient Management Regulation*, must be submitted by the proponent to Manitoba Water Stewardship. The draft Environment Act Licence contains a Clause that requires the Licencee comply with the requirements of that regulation or any future amendment thereof.
- The draft Environment Act Licence contains a Clause that limits the allowable total phosphorus concentration of effluent being discharged to drainage ditches to 1.0 milligram per litre.
- Limits, terms and conditions of the draft Environment Act Licence provide construction requirements and operating criteria regarding organic load, odours, containment and quality of treated wastewater that are conventional for wastewater treatment lagoons in Manitoba.
- The draft Environment Act Licence contains a Clause that requires that the Licencee implement effective erosion and sediment control measures during construction and until vegetation is established.
- The draft Environment Act Licence contains a Clause that requires that the Licencee discharge the wastewater treatment lagoon at a rate that optimizes the opportunity for nutrients in the effluent to be assimilated in the discharge route prior to reaching the Lee River while not challenging the normal operation of the wastewater treatment lagoon.
- The draft Environment Act Licence contains specifications, limits, terms, and conditions specifying that all cells of the wastewater treatment lagoon must be constructed and maintained with continuous soil liners that meet specifications under all interior surfaces.
- The draft Environment Act Licence contains specifications, limits, terms, and conditions regarding the operation and maintenance of the wastewater treatment lagoon that specify that the organic loading, in terms of the five-day biochemical oxygen demand, is not in excess of 56 kilograms per hectare per day.

- The draft Environment Act Licence contains a Clause that requires that the Licencee shall actively participate in any current or future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for the Lee River, the Winnipeg River, Lac du Bonnet, Lake Winnipeg, and associated waterways and watersheds.
- The draft Environment Act Licence contains a Clause that requires that the Licencee shall, during the first year of operation of the Development following the construction of the wastewater treatment lagoon that discharges to the drainage ditches must occur, obtain two representative grab samples of the effluent during each effluent discharge campaign. The grab samples shall be obtained near the start of each discharge and near the end of each discharge, and shall be analysed and reported in accordance with Schedule "B" that is attached to the draft Licence.

COMMENTS FROM FEDERAL REPRESENTATION:

Canadian Environmental Assessment Agency

- *The project information that was provided has been reviewed by the Canadian Environmental Assessment Agency (CEAA). Application of the Canadian Environmental Assessment Act (the Act) may be required. The Department of Fisheries and Oceans indicated they were not able to review the project description at that time and requested that the proponent review information provided at websites for which they provided addresses. Health Canada determined it can provide expert advice related to human health if a written request is submitted to them.*

Disposition:

- Limits, terms and conditions of the draft Environment Act Licence provide operating criteria regarding means of discharge, organic load, odours, containment and quality of treated wastewater that are conventional for lagoons in Manitoba, aside from that fact that the Licencee may choose the means of discharging the lagoon, being either by irrigation or surface course depending on the conditions.

PUBLIC HEARING:

A public hearing was not requested.

RECOMMENDATION:

Issue an Environment Act Licence in accordance with the attached draft. Enforcement of the components of the new Licence that relate to soil liner characteristics should be assigned to the Environmental Assessment and Licensing Branch until all soil testing has been completed.

PREPARED BY:

Original Signed By

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Manitoba Conservation
November 22, 2011

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