

## SUMMARY OF COMMENTS/RECOMMENDATIONS

**PROPONENT:** Miami Colony (Miami Holding Co. Ltd.)  
**NAME OF DEVELOPMENT:** Miami Colony Wastewater Treatment Lagoon  
**CLASS OF DEVELOPMENT:** Two  
**TYPE OF DEVELOPMENT:** Wastewater Treatment Lagoon  
**CLIENT FILE NO.:** 1118.10

### OVERVIEW:

The Proposal was received on May 28, 2008. It was dated May 14, 2008. The advertisement of the proposal was as follows:

“A Proposal has been filed by DGH Engineering Ltd. on behalf of the Miami Colony (Miami Holding Co. Ltd.) for the construction and operation of a wastewater treatment lagoon for domestic wastewater from the colony. The facility would be located in NE 9-4-6W immediately adjacent to the Colony’s existing facility. Treated effluent would be discharged to a ditch that drains towards North Shannon Creek. Discharges would take place once per year after June 15 and before November 1. Following construction of the new facility, the existing facility would be decommissioned.”

The Proposal was advertised in the Morden Times on Friday, June 20, 2008. It was placed in the Main, Millennium Public Library (Winnipeg), Eco-Network, South Central Regional Library (Morden) public registries and in the office of the R. M. of Thompson as a registry location. The Proposal was distributed to TAC members on June 11, 2008. The closing date for comments from members of the public and TAC members was July 14, 2008.

### COMMENTS FROM THE PUBLIC:

No public comments were received.

### COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

**Manitoba Conservation – Sustainable Resource and Policy Management** No concerns.

**Manitoba Conservation – Environmental Services** Section 7.5 Effluent Discharge – the proposal indicates that effluent will be discharged to the public ditch which flows into the North Shannon Creek. The proposal itself or any of the site plan drawings do not indicate how the effluent will make it to the public ditch. Is there an

existing ditch from the old lagoon that they will be using or are they constructing a new ditch from cell 2 to the public ditch?

Section 8.0 Operational protocol – the report details the method of discharge. Point 3 of the method of discharge recommends that if coliform values exceed licence limits dry chlorine may be applied at a rate of 100 kilograms per acre. Manitoba Conservation does not recommend applying chlorine on a routine basis when coliform values do not meet licence limits. We recommend that the operator allow the wastewater effluent in the lagoon to rest for another two week period and then resample.

If chlorine must be applied, the receiving stream may require that the effluent be dechlorinated. If this is the case 225 Kg of sodium bisulfate powder per hectare be applied to the lagoon.

Disposition:

Additional information was requested to address the comment concerning the discharge route. Information concerning disinfection was forwarded to the proponent's consultant.

**Manitoba Conservation – Parks and Natural Areas** No comments.

**Manitoba Conservation – Pollution Prevention (Air Quality Section)** Odour will be generated during the spring thaw (anaerobic process during the winter). However, the nearest residence based on the report is more than one kilometre from the project site. This is an expansion of the existing lagoon serving the community hence odour problems may not be a concern. However, the template on odour clause still applies.

Disposition:

This comment can be addressed through a licence condition.

**Manitoba Conservation – Central Region**

- The proposal indicates that the colony is currently softening their water with a NaCl ion-exchange system. This could create an elevated Sodium Absorption Ratio in the discharge effluent. The effects of this on the discharge channel are unknown. I would recommend that at the very least, the SAR from the discharge effluent should be measured, as well as the levels upstream and down from the discharge point. If levels leaving the discharge are found to be greater than 6 (From Water quality guidelines), the colony would be required to switch to a KCl ion exchange softener.
- The levels of phosphorus, and ammonia in the discharge effluent should be monitored, in addition to the BOD and coliform levels.
- Is the operator required to be certified?

Disposition:

These comments can be addressed in licence conditions.

## **Manitoba Water Stewardship**

- 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.
- During construction of the development, erosion and sediment control measures should be implemented until all of the sites have stabilized.
- Given this geological setting it would be appropriate for a groundwater monitoring system to be installed around the lagoon to evaluate whether seepage may be occurring.
- Due to the high infiltration rate through the lagoon floor, the Department recommends to utilize a PVC liner.
- The proponent plans to discharge into a road ditch which flows into the North Shannon Creek (a tributary of the Red River). The proposal does not describe the path of discharge flow before reaching the North Shannon Creek.
- This Environment Act proposal is requesting that the Colony be permitted to discharge the lagoon effluent to the North Shannon creek rather than continuing with their existing licence requirements to irrigate the effluent. While the proponent has indicated that the Colony has never conducted land discharge due to high infiltration rates within the lagoon, the Department recommends not deviating from this disposal method. The Department recommends that the proponent use effluent irrigation and trickle discharge as the primary effluent disposal strategies.
- Discharge to North Shannon Creek would be a step backwards from the Lake Winnipeg Stewardship Board’s recommendations. The Lake Winnipeg Stewardship Board has recommended that all small wastewater treatment facilities, including municipal lagoons, 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. It is desirable to recycle these nutrients 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.

- The proponent has indicated that the Colony uses NaCl water softening and is prepared to cease using their NaCl water softening and substitute it with a KCl type ion exchange system if necessary.
- Land application of effluent through irrigation is recommended between June 15th – Oct 15th. Effluent irrigation is currently being practiced in Manitoba by many Hutterite colonies. Further, the Department recommends that the colony substitute the NaCl water softening with KCl type ion exchange system, osmosis or magnetic water softeners to ensure wastewater is more suitable for land application.
- Should the proponent be allowed to discharge to North Shannon Creek during periods when effluent irrigation is not possible, they should be required to release the effluent slowly using a trickle discharge. Trickle discharge (at least two weeks) will provide time for the nutrient rich effluent to be assimilated in the drainage ditch, prior to reaching the North Shannon Creek. Note that the proponent is proposing to design the outlet to permit a discharge period of only two (2) days in mid September. The discharge period should be lengthened to at least two weeks.
- On the final page of the proposal, the proponent has included a request to allow chlorine disinfection of the effluent, should bacteria levels not meet the discharge limits of 200 Fecal Coliform CFU/100 mL. If chlorine use is permitted, the proponent should be required to ensure chlorine levels in the released effluent are within limits necessary to protect the downstream aquatic life community.
- 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. Therefore, the Department recommends an Environment Act Licence require the proponent to actively participate in any future watershed based management study, plan/or nutrient reduction program, for all downstream waterways, approved by the Director, Water Science and Management Branch, Manitoba Water Stewardship.

Disposition:

Several of these comments can be addressed in licence conditions. Additional information was requested to address several other comments and the remaining comments were provided to the proponent's consultant for information.

**Manitoba Infrastructure and Transportation** No concern.

**Manitoba Agriculture, Food and Rural Initiatives** No agricultural or agricultural land use issues or concerns with this proposal, given that the license will require odour mitigation should this be an issue.

**Canadian Environmental Assessment Agency** The project information that was provided has been forwarded to federal departments with a potential interest. Based on

the responses to the survey, application of the Canadian Environmental Assessment Act (the Act) will not be required for this project. Please note that Health Canada (HC) has indicated that advice may be provided upon request. The Department of Fisheries (DFO) and Environment Canada (EC) have provided advice for your consideration in the review of this proposal.

**Department of Fisheries and Oceans** As requested, we have reviewed the project description to construct a two cell wastewater treatment lagoon at the Miami Colony (NE 9-4-6 WPM), provided by you pursuant to subsection 12(3) of the Canadian Environmental Assessment Act. Our review of this project was limited to its impacts on fish and fish habitat.

Based on the information provided, we have concluded that the project is not likely to cause significant adverse effects on fish and fish habitat after taking into account implementation of mitigation measures. The following measures, if incorporated into the project, will ensure that any potentially adverse effects on fish and fish habitat will be mitigated:

- All excavated materials (ie. from the excavation of a trench of the discharge pipe) should be disposed on land above the high water mark in a manner that will prevent the re-entry of the material into any watercourse. This could include covering stockpiles with biodegradable mats or tarps or planting stockpiles with grass or shrubs.
- Use only clean rock for the discharge pipe outlet protection and haul it in from an appropriate land-based source. Avoid using poor quality limestone that breaks down quickly when exposed to the elements. All rock should be clean and free of fine materials that could be washed away during high flow events.
- Install effective temporary and long-term sediment and erosion control measures and re-vegetate any exposed soils in order to prevent the entry of sediment into the drain. Inspect these measures regularly and ensure that they are functioning properly until vegetation is re-established. Make all necessary repairs and adjustments if any damage is discovered or if these measures are not effective in controlling erosion and sedimentation.
- The proponent should minimize the disturbance of soils around the public ditch and should retain as much of the existing vegetation as possible. Construction should occur when water levels are low or under frozen conditions and the drain construction should be isolated from flowing water or constructed in the dry.

Please note that this advice is provided to satisfy the requirements of subsection 12(3) of the Canadian Environmental Assessment Act and should not be taken to imply DFO's approval of the project, or any part thereof, in accordance with the Fisheries Act or any other federal legislation.

It is my understanding that this proposal is being reviewed by Environment Canada and that they will comment on issues dealing with contaminants, including the deposition of deleterious substances and potential toxicity to aquatic organisms under the pollution provisions of the Fisheries Act.

Disposition:

Most of these comments can be addressed through licence conditions.

## **Environment Canada**

Environment Canada (EC) received a copy of the above proposed project document from the Canadian Environmental Assessment Agency (CEAA) for review. EC has no trigger under section 5, of CEAA, however, would like to participate in the provincial review of the proposed project consistent with the intent of Clause 62 of the new Canada-Manitoba Agreement on Environmental Assessment Co-operation.

Environment Canada has reviewed the above project description proposed for the construction and operation of a wastewater treatment lagoon for domestic wastewater from the colony.

The proponent stated under section 3.0 - subheading 'Effluent Discharge', that "...due to the high infiltration rate of the lagoon floor, discharge onto land has never been conducted..". With the statement referred to above, it is obvious that a problem exists with the current lagoon and or the site of the lagoon. It may be beneficial to determine the source or reason for the failure of the liner in the current lagoon, and consider using geomembrane liner in order to prevent future failure.

EC also recommends that the proponent implement some monitoring around the lagoon to serve as an early detection warning for possible groundwater contamination.

### Disposition:

Discussion with the proponent's consultant indicates that the original facility's liner never performed as required, so that failure is due to inadequate construction. A geomembrane was considered during the design of the proposed facility, but was not pursued when an adequate source of suitable borrow material for a clay liner was located a short distance from the site. Consideration of standardized monitoring requirements for wastewater treatment lagoons and other engineered earth structures is currently underway, and provision for appropriate monitoring can be made in licence conditions.

## **ADDITIONAL INFORMATION:**

Additional information was requested on July 17, 2008 to address TAC comments. A response was received on March 28, 2011. The text of the response follows:

"On behalf of Miami Colony, this is in response to your letter to Mr. Edwin Hofer dated March 10, 2011 and the email from Mr. Bruce Webb to me dated July 17, 2008.

1. The proposed lagoon will discharge into an existing mile road ditch along east side of quarter section NE 9-4-6 W. A discharge route is attached.
2. Miami Colony experienced wet land from time to time. Wet land is the main reason for not using discharge for irrigation. The nutrient in the effluent from the lagoon is potentially be absorbed by weeds in ditches along the discharge route.
3. We have contacted KCl suppliers. The source of potassium salt can be guaranteed. Miami Colony would like to switch from sodium salt to potassium salt prior to putting their new lagoon in operation. Due to the sandy/silty soils on site, the existing lagoon

hardly holds water in the cells. There is no representative water sample available from the lagoon.”

This additional information adequately addresses additional information requirements; remaining outstanding items can be addressed through licence conditions.

**PUBLIC HEARING:**

As no requests for a public hearing were made, a public hearing is not recommended.

**RECOMMENDATION:**

All comments received on the Proposal that require followup can be addressed as licence conditions. Therefore, it is recommended that the Development be licensed under The Environment Act subject to the limits, terms and conditions as described on the attached Draft Environment Act Licence. It is further recommended that enforcement of the Licence be assigned to Environmental Assessment and Licensing until construction is completed and the existing facility is decommissioned. Once this has been completed, enforcement should be assigned to the Central Region.

PREPARED BY:

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