

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT: Manitoba Conservation
PROPOSAL NAME: Cuprus Mine Wastewater Treatment Lagoon Expansion
CLASS OF DEVELOPMENT: 2
TYPE OF DEVELOPMENT: Wastewater Treatment Lagoon – Waste/Scrap
CLIENT FILE NO.: 3035.10

OVERVIEW:

On April 24, 2009, the Department received a Proposal from J.R. Cousin Consultants Ltd. on behalf of Manitoba Conservation for the expansion and operation of the existing wastewater treatment lagoon located in the southwest quarter of Section 24-66-29 WPM. The proposed development will consist of the construction of a new secondary cell, conversion of the existing primary and secondary cell into a larger new primary cell, a new truck turnaround and spillway. Treated wastewater from the wastewater treatment lagoon will be discharged between June 15th and November 1st of any year into an existing ditch, which drains into Little Spruce Lake.

On August 4, 2009, Manitoba Conservation placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the Winnipeg Millennium Public Library, the Manitoba Eco-Network, and the Flin Flon Public Library. Copies of the Proposal were also provided to the Technical Advisory Committee (TAC) members. The Department placed public notification of the Proposal in the Flin Flon/Creighton Northern Visions Gazette on Friday, August 14, 2009.

On September 18, 2009 Manitoba Conservation forwarded requests for additional information from the TAC to the proponent's consultant. On April 15, 2010, the consultant submitted responses to the comments and requests from the TAC.

On April 19, 2010, the consultant's responses were distributed to the participating TAC for review and comment. On April 30, 2010 and May 7, 2010, Manitoba Conservation received comments on consultant's responses from the TAC.

On May 19, 2010, Manitoba Conservation forwarded comments on consultant's responses from the TAC to the consultant. On May 20, 2010, Manitoba Conservation received responses from the consultant.

On July 19, 2010, Manitoba Conservation received additional information from the proponent.

All additional information necessary for the review was placed in the Public Registries

COMMENTS FROM THE PUBLIC:

Ian McKay, President, Little Athapap Cottage Owners Association
September 14, 2009

- *The Little Athapap Cottage Association represents 251 cottagers and full time residents who have property on Little Athapap Lake. Our interest in the lagoon is of utmost importance because it is the only feasible and economic option to address the sewage concerns in our area. We realize that the lagoon is at or near maximum capacity and improvements must be made to alleviate this problem or there is potential for a serious environmental problem to develop. We are aware that the lagoon has been functioning as it was designed and continuous testing by Conservation has shown that the effluent discharged from the lagoon meets the parameters established for operation of this facility.*
- *We understand there are some concerns about the environmental impact the lagoon may have on Schist Lake. However, testing conducted by Manitoba Conservation has indicated that discharges from the lagoon meet or exceed the established environmental standards. It is known that the quality of water in Schist Lake has improved and this is likely attributed to the construction of the new sewage treatment facility in Flin Flon. There are occasional small algae blooms on part of the Northeast Arm of Schist Lake and this may be caused by the construction of the causeway across the lake. It is believed that the causeway has restricted water movement in this basin, and as a result, there is inadequate exchange of water to prevent occasional blooms. There is no evidence the algae blooms are caused by the lagoon discharge.*
- *The only other option for disposal of sewage from these areas, that has been considered, is to have it hauled into Flin Flon. This is not an acceptable option because the sewage treatment plant in Flin Flon cannot handle sewage from the cottage areas as it is denser than what can be handled by the facility and must be pre-treated before it can be passed through the treatment plant. To enable sewage to be hauled and treated in Flin Flon, a head-works facility would have to be constructed at tremendous cost that well exceeds the cost to add the proposed improvements to the existing lagoon. The increased costs to haul the sewage to Flin Flon, and the dumping fees required, would more than double the cost residents currently pay for this service. This we are not prepared to accept. Also, the costs of constructing a holding and pretreatment plant would fall entirely on the cottagers as Flin Flon would not be expected to pay for this. Planning and construction of such a facility would take considerable time, possibly years, which would impact the ability of the current lagoon to handle the volume it now does when it is near capacity. This may result in emergency discharges which could have an environmental impact. There is also concern about funding such a structure in the City of Flin Flon as some agencies may not be willing to contribute if the facility is built and controlled by the city. Therefore we do not see any good justification for this option.*

- *Members of the Little Athapap Cottage Owners Association have reviewed the proposal developed by Cousins and Associates for Manitoba Conservation, Parks and Natural Areas and submitted for consideration. The proposal to expand the lagoon presents the only feasible and economic option for residents and cottagers in our area. We feel the proposed expansion will result in a significant improvement to the Cuprus Lagoon and the safeguards described in the proposal will ensure that any environmental impacts for Schist Lake or the surrounding area are mitigated or completely eliminated. This includes Little Athapap as the water from Schist Lake flows into our area. The addition of another cell, the conversion of the existing cells into a large primary cell, and moving the dumping area to the extreme north end will ensure that the sewage is adequately treated before any effluent is discharged. This will greatly improve the quality of the effluent even much more than the current discharges that now meet the environmental parameters.*
- *Therefore, the Little Athapap Cottage Owners Association fully supports the proposal submitted by Manitoba Conservation and would like to see the proposal approved.*

Disposition:

- No actions required.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE(TAC):

Manitoba Infrastructure and Transportation

September 8, 2009

- *For any new, modified or relocated access roads connecting to any Provincial Road, a permit will be required from Manitoba Infrastructure and Transportation (MIT).*
- *A permit will also be required for any construction (above or below ground level) within 38.1 m (125 ft) or for any plantings within 15.2 m (50 ft) from the edge of right-of-way of any Provincial Road.*

Proponent Response (April 15, 2010):

- The proponent understands the requirement for permit from MIT in relation to re routing of the existing access road. When the project proceeds to the design stage, the need for permit for this project will be re-verified and if so required an application for permit will be submitted to Manitoba Infrastructure and Transportation.
- The proponent understands the requirement for permit for any construction (above or below ground level) within 38.1 m (125 ft) or for any planting within 15.2 m (50 ft) from the edge of right-of-way of any Provincial Road. The need for such permit in relation to this project will be re-verified, and if required, an application for permit will be submitted to Manitoba Infrastructure and Transportation when the project proceeds to the design stage.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Manitoba Infrastructure and Transportation.

Manitoba Science, Technology, Energy and Mines

September 3, 2009

- *The SW24-66-29 WPM is encumbered by a valid mineral disposition that is currently in good standing under the Mines and Minerals Act. The mineral disposition grants the holder the legal right to access and occupy the surface of the land for mineral exploration and extraction purposes. This issue will need to be addressed by the development proponent.*
- *Our records indicate that the development proponent has not obtained the required surface disposition for this project.*
- *The area was a former mine site with related infrastructure and tailings. These areas should not be disturbed without proper provincial approval.*

Proponent Response (April 15, 2010):

- There is an existing lagoon at the site; the proposed works represent an expansion to existing facilities. If the existing mineral disposition will restrict further development of this site, this matter will have to be discussed between Manitoba Conservation (Regional Operations Division) and STEM.
- A Permanent Reservation for the proposed lands is pending with the Crown Lands and Property Agency. The reservation request is under RPPD #63077. The file has been marked as urgent and sent to Manitoba Conservation for approval.
- As stated, the proposed works represent an expansion to existing facilities. Restrictions on further development due to existing mine infrastructure and tailing should be discussed between Manitoba Conservation (Regional Operations Division Branch) and STEM.

April 30, 2009

- *Mines Branch and Hudson Bay Mining and Smelting have no objections to the sewage lagoon expansion project as proposed.*
- *We have objected however to the size of the proposed Crown Land reservation. It should be limited to the existing and new cell only.*
- *The existing tailings area is not to be disturbed and this should be a condition of approval.*

Proponent Response (May 20, 2010):

- No response required.
- This comment deals with the Crown Land reservation, and we trust that this will be dealt with through their office. Once received, a copy of the Crown Land reservation will be included with the project specifications.
- The project construction will be limited to the areas shown on the plans, and will not disturb the tailings area. This will be reinforced in the project specifications.

Disposition:

- The proponent's responses have addressed the Manitoba Science, Technology, Energy and Mine's April 30, 2009 concerns. No further actions required.

Manitoba Conservation – Parks and Natural Areas Branch

- *No concerns*

Manitoba Conservation – Wildlife & Ecosystem Protection Branch

- *No concerns*

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

- *No concerns*

Manitoba Conservation - Sustainable Resource & Policy Management Branch

- *No concerns*

Manitoba Conservation – Environmental Operations

September 14, 2009

- *It is mentioned in the proposal that Manitoba Conservation (the client) has installed a Pond Doctor® water circulator in the existing secondary cell and that it will continue to be used as part of the expansion. If this is the case, then it is of the opinion of this office that it should be incorporated into the licence parameters as part of the operation.*
- *A clause in the licence requiring an Operation and Maintenance Plan for the completed facility be submitted within 90 days of completion of the project and that this Plan be available for the operator of the wastewater treatment facility at all times.*

Proponent Response (April 15, 2010):

- The Pond Doctor® water circulator was installed when the lagoon became organically overloaded, as a means of a temporary and partial solution to the problem.

The current lagoon expansion is sized to accommodate the anticipated organic loading to the lagoon. As indicated in Section 2.5 of the EAP, benefits from the equipment have not been considered in the design of the expansion. Furthermore, the potential benefit of the Pond Doctor® is unknown. Based upon the above, incorporation into the licence of the Pond Doctor® water circulator would be unnecessary.

- An Operation and Maintenance Plan for the facility can be submitted following completion of the lagoon expansion project, as may be stipulated in the licence.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Manitoba Conservation- Environmental Operations.
- The draft Environment Act Licence includes a clause that addresses requirements for the Operation and Maintenance Plan.

Manitoba Conservation – Environmental Services

September 8, 2009

- *On page 6, section 2.6.5.1 of the EAP, it is not clear how the projected number of cottages was determined. Please provide how many of the 50 cottages (anticipated to be developed in 10 years from 2003) were developed to date. Please also provide the anticipated growth over the next 20 years.*
- *The effluent generated by the Flin Flon airport passengers was neglected. Please provide the daily average number of passengers using the airport.*
- *Please clearly indicate the construction requirement for the rework of the area where the existing dike will be removed. Please also indicate the need for sufficient overlap between the new and the existing clay liner.*
- *Please provide construction details for the proposed truck turn around.*
- *There is no comment with respect to waste generated by staff at the lodge.*

Proponent Response (April 15, 2010):

- The projected number of cottages expected to be contributing to the lagoon is reported as provided by Manitoba Conservation, based upon the existing cottages and development plan for future cottages. Manitoba Conservation has indicated that since 2003 only 12 cottages have been developed to date and have no plan to add more unless the new lagoon can accept additional loading.
- The Flin Flon Airport, Transport Canada, Statistics Canada, air carriers servicing the airport were contacted to obtain information on the daily average number of passengers but it was not possible. The Flin Flon Airport indicated that the annual average number of passengers serviced by the airport is 15,000. From discussion with

the airport approximately 50% of the passengers (7,500) utilize the airport during the lagoon winter storage period. According to the U.S. Environmental Protection Agency (EPA), the typical wastewater generated by an airport passenger is 11 litres/day. Based upon the above, the airport passengers contribution to the lagoon loading would be approximately 83 M³ (7,500 x 11 / 1000), which is only 0.45% of the anticipated total loading (18,320 m³) to the lagoon. Hence the effluent generated by the airport passengers was assumed to be negligible.

- The existing intercell dike can be removed using an excavator and the excavated material hauled from its present location. There is no intention of excavating into the liner of the existing lagoon. The intercell dike would be removed to approximately 150 mm of the bottom portion of the intercell dike. Termination of the excavation at approximately 150 mm above the liner ensures that no damage occurs to the liner due to the intercell dike removal works.
- Per the conceptual design in the EAP, the proposed secondary cell is to be clay lined independently and the existing lagoon clay liner remains untouched. Therefore, based upon the proposed design, there is no need for overlap between the new cell and the existing lagoon liners.
- The proposed truck turnaround would consist of 300 mm granular material (150 mm A-Base and 150 mm C-base) above a compacted sub-base. A 150 mm concrete pad would also be provided connecting to the spillway which is to be constructed of concrete.
- Manitoba Conservation was contacted regarding the staff operating the lodges. Based on the information provided, the population of the three lodges is as follows: Bakers Narrows Lodge — summer — 10-12 staff — some only part time — winter — 3 staff with additional brought in if programs/events are booked Paradise Lodge — summer only — 5 staff Westwood Lodge — summer only — 4 staff

The wastewater generated by the above population would be insignificant.

May 7, 2010

Most of the initial comments provided by Environmental Services have been addressed in the April 12, 2010 response, with the exception of the following:

- *The proposal is to merge the existing primary and secondary cells into one primary cell. The proposed method of construction to remove the common dyke does not include any further rework of the base at the location of the berm removed, therefore there is concern with respect to the hydraulic conductivity at this location.*
- *Recommend a clause be included in the licence requiring proper compaction and liner material in the area where the dyke is removed, and testing to ensure the integrity at that location.*

Proponent Response (May 20, 2010):

- To ensure proper soil hydraulic conductivity in this area, during construction, temporary coffer dams will be constructed in the area of the dike to be removed. The dike will then be removed, and the "floor" of the lagoon reworked with borrow clay, and tied-in to the existing liner material. At this point the coffer dams will be removed. This will ensure permeability of 10^{-7} cm/s in the area of the removed dike.

Disposition:

- The draft Environment Act Licence includes clauses that requires the Licencee to construct and maintain the cells of the wastewater treatment lagoon with continuous liners, including cut-offs, under all interior surfaces of the cells and have a hydraulic conductivity of 1×10^{-7} centimetres per second or less.
- The draft Environment Act Licence contains clauses that identify requirements for soil liner sampling, analysis and reporting of results. The various components of the soil liner(s) will be inspected, sampled and analyzed as specified by the designated Environment Officer.

Manitoba Water Stewardship – Planning and Coordination Branch
September 14, 2009

- *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 a proposal advocates any of the aforementioned activities, an application for a Water Rights Licence to Construct Water Control Works is required. Application forms are available from any office of Manitoba Water Stewardship.*
- *The proponent needs to be informed that if the proposal in question advocates any construction activities, erosion and sediment control measures should be implemented until all of the sites have stabilized.*
- *There are historical and current concerns with this wastewater lagoon contributing excessive nutrients to area water bodies. The lagoon has been suspected by area residents of contributing excessive nutrients to Schist Lake however, water sampling along the discharge route between 2001 and 2003 did not confirm this thought.*

- *It was understood that Manitoba Conservation was planning to reduce the volume of sewage going to the Cuprus Lagoon by having commercial septic haulers go to the sewage treatment plant in Flin Flon. Nutrients are controlled at the Flin Flon facility. However, it is understood that this arrangement with the City of Flin Flon is no longer viable without additional modifications to the city's treatment plant.*
- *Given that the Province (Manitoba Conservation) operates the lagoon, the area lakes are sensitive to increases in phosphorus, and the Flin Flon wastewater treatment facility is subject to nutrient controls.*
 - *Manitoba Water Stewardship recommends that an Environment Act Licence includes a requirement to limit the discharge of total phosphorus at 1.0 mg/L. The discharge period should be at least four (4) weeks or more.*
- *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. 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.*
- *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.*
 - *Therefore, the Department recommends that an Environment Act Licence includes a requirement for the proponent to 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, for all downstream waterways.*

Proponent Response (April 15, 2010):

- The proponent understands the requirement for Water Rights Act in relation to water control works. It does not appear that this proposal advocates any of the activities listed in the letter from Manitoba Water Stewardship. When the project proceeds to the design stage, the need for Water Rights License application for this project will be re-verified and if so required a License shall be solicited.
- Erosion and sediment control measures will be implemented as necessary. As indicated in Sections 4.3 of the Environment Act Proposal (EAP), the specifications would state that the contractor is responsible for erosion control. At the time of

preparing the specification, more detailed description of the procedures to be followed by the contractor would be provided.

- As indicated in Section 2.6.9.2 of the EAP, the phosphorus level in the treated effluent could be tested prior to discharge and alum could be spread in the lagoon to reduce the level of phosphorus in the treated effluent to 1.0 mg/L, if required. As indicated in the same Section of the EAP, the lagoon can be discharged over 4 to 5 weeks time.
- The proponent would be willing to participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director, Water Science and Management Branch, and Manitoba Water Stewardship for the Little Spruce Lake and associated waterways.

April 22, 2010

- *The Department recommends that an Environment Act Licence shall include the following requirements:*
 - *Limit the discharge of total phosphorus at 1.0 mg/L. The discharge period should be at least four (4) weeks or more.*
 - *The proponent 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, for all downstream waterways.*

Disposition:

- The draft Environment Act Licence includes a clause that requires the Licencee to meet a phosphorus limit of 1 mg/L.
- The draft Environment Act Licence includes a clause that requires the Licencee to actively participate in any future watershed based management study, plan and/or nutrient reduction program, approved by the Director, for the Little Spruce Lake and/or any downstream watercourse or waterbody.

COMMENTS FROM FEDERAL REPRESENTATION:

Canadian Environmental Assessment Agency (CEEA)

September 16, 2009

- Following a review by all federal departments with a potential interest in the proposed development, the application of the Canadian Environmental Assessment Act (CEAA) will not be required.
- Health Canada (HC) indicated that they may provide expert advice on certain topics regarding this project if specifically requested.

PUBLIC HEARING:

A public hearing is not recommended because no comments were received from the public.

RECOMMENDATION:

The Proponent should be issued a Licence for the expansion and operation of the wastewater treatment lagoon in accordance with the specifications, limits, 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 Development is commissioned.

PREPARED BY:

Rafiqul Chowdhury, M.Eng., P.Eng.
Environmental Engineer
Municipal, Industrial and Hazardous Waste Section
Environmental Assessment and Licensing Branch
Climate Change and Environmental Protection Division
Manitoba Conservation
May 26, 2010, Updated July 26, 2010

Telephone: (204) 945-2614
Fax: (204) 945-5229
E-mail Address: rafiqul.chowdhury@gov.mb.ca