

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT: Manitoba Conservation and Water
Stewardship, Parks and Natural Areas
Branch

PROPOSAL NAME: South Whiteshell Provincial Park Truck-
Haul Wastewater Treatment Lagoon

CLASS OF DEVELOPMENT: 2

TYPE OF DEVELOPMENT: Wastewater Treatment Lagoon–Waste/Scrap

CLIENT FILE NO.: 5616.00

OVERVIEW:

On October 26, 2012 the Department received a Proposal from J.R. Cousin Consultants Ltd. on behalf of Parks and Natural Areas Branch of Manitoba Conservation and Water Stewardship for the construction and operation of a new truck-haul wastewater treatment lagoon located in the southeast quarter of Section 19-08-16 EPM in Whiteshell Provincial Park. The lagoon will service the cottage and business communities serviced by holding tanks and septic tanks in the Falcon Lake Park District and the West Hawk Lake Park District. The proposed development will consist of the construction of a new primary cell, a new secondary cell, and a truck turnaround and spillway. Treated wastewater from the wastewater treatment lagoon will be discharged between June 15th and October 31st of any year through approximately 800 meters of ditch and 430 meters of natural wetland before entering the Talbot Lake. The effluent then flows approximately 800 meters through a drainage ditch and approximately 5,000 meters through the Whiteshell Bog natural wetland which is graded to a first order drain which enters the Boggy River.

On December 13, 2012 Manitoba Conservation and Water Stewardship 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 Brokenhead Regional Library, Beausejour. Copies of the Proposal were also provided to the Canadian Environmental Assessment Agency (CEEA) and the Technical Advisory Committee (TAC) members. The Department placed public notification of the Proposal in the Beausejour Clipper on Monday, December 17, 2012. The newspaper and TAC notifications invited responses until January 21, 2013.

On January 31, 2013, Manitoba Conservation and Water Stewardship forwarded requests for additional information from the TAC to the proponent's consultant. On February 14, 2013, the consultant submitted responses to the comments and requests from the TAC.

On February 21, 2013, consultant's responses were distributed to the participating TAC for review and comment.

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

COMMENTS FROM THE PUBLIC:

No comments were received from the public.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE (TAC):

**Manitoba Conservation and Water Stewardship – Air Quality Section,
Environmental Programs and Strategies Branch (January 21, 2013)**

- *No concerns*

**Manitoba Conservation and Water Stewardship - Lands Branch and Sustainable
Resource and Policy Management Branch (January 17, 2013)**

- *No concerns*

**Manitoba Conservation and Water Stewardship – Parks and Natural Areas Branch
(January 14, 2013)**

- *No concerns*

**Manitoba Conservation and Water Stewardship, Regulatory Services Branch,
Water Use Licensing Section (December 31, 2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship – Wildlife Branch (December 17,
2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship – Office of Drinking Water
(January 18, 2013)**

- *No concerns*

**Manitoba Conservation and Water Stewardship – Water Science and Management
Branch (December 31, 2012)**

- *The following effluent standards should be in place for South Whiteshell Provincial
Park Truck Haul Wastewater Treatment Lagoon as per the Manitoba Water Quality
Standards, Objectives and Guidelines Regulation (196/2011).*

- *BOD₅ 25 mg/L*

- *Total suspended solids 25 mg/L*
 - *Fecal Coliforms or Escherichia coli 200 MPN / 100mL*
 - *Total Phosphorus 1 mg/L*
- *The Manitoba Water Quality Standards, Objectives and Guidelines Regulation requires new or expanding wastewater treatment facilities that discharge more than 820 kg of phosphorus per year (equivalent to 2,000 people or more) to meet a 1 mg/L phosphorus limit.*
 - *The Manitoba Water Quality Standards, Objectives and Guidelines Regulation requires new or expanding wastewater treatment facilities to use the best practical technology for beneficial use of valuable resources such as nutrients, organic matter and energy contained within municipal biosolids and sludge. The proponent should comment on how this water quality standard will be met given the proposal to use alum to precipitate phosphorus.*
 - *The Water Quality Management Section 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 it is recommended that the license require the proponent to actively participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director.*

Proponent Response (February 14, 2013)

- The effluent standards listed are also described in Section 4.2.1 of the Environment Act Proposal document and will be met by the wastewater treatment lagoon, prior to discharge.
- The lagoon will meet a 1.0 mg/L phosphorus limit prior to discharge.
- From previous experience, typical municipal facultative lagoons in Manitoba will require the sludge removed from the primary cell after approximately 15 to 20 years of operation. With alum (aluminum sulphate) addition in the secondary cell, sludge may accumulate in the secondary cell and require removal as well. At the time the sludge in the South Whiteshell lagoon accumulates to the point of requiring removal, the proponent will need to review various practical options for disposal, such as treatment and land application, landfilling or composting. However, other options may be available at the time of sludge removal and will be further evaluated upon obtaining an Environmental Licence for sludge removal.
- 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 protection of the aquatic environment and water resources for present and future use.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from the Water Science and Management Branch.

Manitoba Infrastructure and Transportation– Highway Planning and Design Branch, Environmental Services Section (January 11, 2013)

- *We understand that all proposed works are outside the existing MIT controlled area and that there will be no new access connections onto PTH 1. Should there be a requirement for access connections or any construction within 76.2 m (250 ft) from the edge of the road's right-of-way (ROW), a permit is required from the Highway Traffic Board. For any planting within 15.2 m (50 ft) from the edge of the ROW, a permit is required from MIT.*
- *A permit from MIT is also required for any discharge into the ditch of any departmental road.*
- *For clarification and further information, the proponent may contact the following with regards to the above requirements:*

*Murray Chornobay
Regional Planning Technologist
MurrayChornobay@gov.mb.ca
(204) 346-6287*

Proponent Response (February 14, 2013)

- If any construction is to be completed within 76.2 in (250 ft) from the edge of the MIT right-of-way a permit will be obtained from the Highway Traffic Board. If any trees are to be planted within 15.2 m (50 ft) from the edge of the right-of-way a permit will be obtained from MIT.
- The proposed effluent discharge route does not flow through the ditch of a departmental road. If the any discharge is to enter a departmental road ditch, a permit will be obtained from MIT.

Disposition:

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

**Manitoba Conservation and Water Stewardship, Fisheries Science and Fish Culture
Section, Fisheries Branch (January 21, 2013)**

- *Fisheries Branch has reviewed the proposal to construct a lagoon in (SE ¼ 19-08-16 E), southwest of the existing South Whiteshell Waste Transfer Station. The lagoon would be lined with reworked clay. The proposed effluent drainage route is ~7030 m long prior to entering Boggy River, travelling through a drainage ditch, a low lying wetland, Talbot Lake and then 5800 m through the Whiteshell bog. Effluent would be released three times during the June 15-October 31st window. As this facility is serving less than 2,000 people a nutrient management strategy can be implemented to achieve the 1.0 mg/L phosphorous limits. The option they are recommending is to broadcast alum over the secondary cell prior to release and incorporate trickle discharge (max volume of 21,175 m³ over one month=~8.2 L/s).*
- *As noted in the proposal, from information provided by Fisheries Branch, Boggy Creek supports a unique assemblage of fish species. Ensuring the effluent meets or exceeds Manitoba Water Quality's Standards, Objectives and Guidelines along with other mitigation measures (implement erosion and sediment control measures during and after construction until the site has stabilized, fuelling away from any surface water body, etc) should address any fisheries concerns. The one uncertainty we have with this proposal is the use of alum as a flocculent. It does appear from a quick literature search that there could be some concern with the use of alum. When released without any settling time or applied directly to water bodies, decreases in aquatic invertebrate communities downstream have been noted and in the worst case complete reduction or elimination of benthic community and reduction in fish health (growth) have been observed in fish until the benthic community starts to re-establish.*
- *We know this is not our area of expertise and as such there may be no justification for this concern, however, we would appreciate some response by the proponent regarding the use of alum, potential for aquatic toxicity to the receiving environment, what operational procedures would minimize these concerns and what follow up monitoring should be done to support "no effect" from the use of alum. This request would appear to be somewhat consistent with Water Quality's response provided December 31st, 2012.*

Proponent Response (February 14, 2013)

- When alum (aluminum sulphate) is added to the wastewater in the secondary cell, the chemical would mix with the phosphorus in the wastewater and form pin flocs which would settle to the bottom of the lagoon cells as sludge. Ample time would be provided for settling to occur as after alum spreading the wastewater would have to be tested by a laboratory and meet the 1.0 mg/L phosphorus limit before discharge. This process will typically take several days.

- The theoretical calculated dosage rate for alum addition is approximately 80 mg/L, depending on the existing phosphorus concentration in the lagoon. Based on past experience with existing lagoons in Manitoba, actual alum dosage rates which are shown to effectively reduce phosphorus to 1.0 mg/L are in the range of 20 - 25 mg/L; this will depend greatly on the incoming wastewater quality.
- Based on material safety data sheets provided by ClearTech the LD50 (72 hrs, goldfish) for aluminum sulphate is 100 mg/L. This is the median lethal dose required to kill 50% of the test population. The dosage rate that alum will be applied to the lagoon is less than the LD50 without factoring in the reduced concentration in the effluent due to settling of the alum. The majority of the alum will settle out with the phosphorus and thus the residual alum concentration in the lagoon effluent will be much lower than the fish toxicity limits.
- If required, effluent discharge testing could be completed to ensure the residual alum concentration does not exceed the fish toxicity limits.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Fisheries Branch.

COMMENTS FROM FEDERAL REPRESENTATION:

Canadian Environmental Assessment Agency (CEEA) (December 20, 2012)

- *The Canadian Environmental Assessment Agency (CEAA) indicated that the project does not meet the definition of a designated project under The Regulations Designating Physical Activities of CEAA 2012. As the Agency will only be involved in the review of designated projects, no formal federal coordination exercise will be undertaken for this file.*
- *They also indicated that the proponent would be responsible for confirming its regulatory responsibilities in developing the project.*

PUBLIC HEARING:

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

CROWN-ABORIGINAL CONSULTATION:

The Government of Manitoba recognizes it has a duty to consult in a meaningful way with First Nations, Métis communities and other Aboriginal communities when any proposed provincial law, regulation, decision or action may infringe upon or adversely affect the exercise of a treaty or Aboriginal right of that First Nation, Métis community or other Aboriginal community.

There is no aboriginal community nearby the lagoon and would be no infringement of aboriginal or treaty rights under Section 35 of the Constitution Act, 1982. Therefore, it is concluded that Crown-Aboriginal consultation is not required for the project.

RECOMMENDATION:

The Proponent should be issued a Licence for the construction 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 Approvals Branch until the liner testing/inspection has been completed and the Development is commissioned.

PREPARED BY:

Rafiqul Chowdhury, M.Eng., P.Eng.
Environmental Engineer
Mines and Wastewater Section
Environmental Approvals Branch
Manitoba Conservation and Water Stewardship
April 5, 2013

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