



Conservation

Environmental Stewardship Division
Environmental Assessment and Licensing Branch
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September 18, 2008

File: 5147.00

Morley Nagle
Environmental Consultant – North Central Region
Manitoba Aboriginal & Northern Affairs
Box 15, 27th Avenue S.W.
Dauphin, MB R7N 3E5

Dear Mr. Nagle:

Re: Revised Environment Act Licence – Manitoba Aboriginal & Northern Affairs – Community of Waterhen Wastewater Treatment Lagoon Design Alterations

Enclosed is Environment Act **Licence No. 2814 R** dated September 18, 2008 issued in accordance with the Environment Act to Manitoba Aboriginal & Northern Affairs for the construction and operation of the Development being a wastewater treatment lagoon to serve the Community of Waterhen and surrounding area and located in NW 16-33-15WPM with discharge to a natural drainage channel that flows south into Lake Manitoba, in accordance with the proposal filed under The Environment Act on October 31, 2005, requested supplementary information provided in letters dated April 18, 2007 and July 26, 2007, and the June 27, 2008 Notice of Alteration.

Proposed changes presented in the June 27, 2008 Notice of alteration include changing the liner design to a 30 mil PVC liner for each cell of the wastewater treatment lagoon rather than the originally proposed soil liner.

This Licence has been revised from the previous Licence that was issued to Manitoba Aboriginal & Northern Affairs on April 17, 2008. The revisions include:

1. Updating the preamble to include mention of this NoA;
2. Adjusting the definitions listing as necessary;
3. Removing all clauses associated with requirements for a soil liner (Clauses 14, 32, 33 and 34);
4. Removing the requirement to maintain liquid depths in the cells of the wastewater treatment lagoon (as that requirement is specific to some types of soil lined lagoons);
5. Removing Schedule "A" (that relates to requirements for testing of soil liners);
6. Inserting clauses such that it includes updated criteria relative to wastewater treatment lagoon that have PVC type liners (Clauses 14, 15, 16, 17, 18 and 35); and
7. Rescinding Environment Act Licence No. 2814.

.../2

In addition to the enclosed Licence requirements, please be informed that all other applicable federal, provincial and municipal regulations and by-laws must be complied with.

If you require any clarification of this letter or have any questions, please contact Robert Boswick of the Environmental Assessment and Licensing Branch at (204) 945-6030.

Yours truly,



Tracey Braun, M.Sc.
Director
Environment Act

Attachment

- c. Tim Nykoluk, P. Eng., Genivar
B. Gillespie, Central Regional Director – Manitoba Conservation
Millennium Public Library/Mb. Eco-Network/Dauphin Public Library
Waterhen Community Council (As Registry)

NOTE: Confirmation of Receipt of this Licence No. 2814 R (*by the Licencee only*) is required by the Director of Environmental Assessment and Licensing. Please acknowledge receipt by signing in the space provided below and faxing a copy back to the Department by September 24, 2008.

On behalf of Manitoba Aboriginal and Northern Affairs

Date

****A COPY OF THE LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES****

LICENCE

Licence No. / Licence n° 2814 R

Issue Date / Date de délivrance April 17, 2008

Revised: September 18, 2008

In accordance with The Environment Act (C.C.S.M. c. E125) /
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Section 11(1) and 14(2) / Conformément au Paragraphe 11(1) et 14(2)

THIS LICENCE IS ISSUED TO : / CETTE LICENCE EST DONNÉE À :

MANITOBA ABORIGINAL AND NORTHERN AFFAIRS; "the Licencee"

for the construction and operation of the Development being a wastewater treatment lagoon to serve the Community of Waterhen and surrounding area and located in NW 16-33-15WPM with discharge to a natural drainage channel that flows south into Lake Manitoba., in accordance with the proposal filed under The Environment Act on October 31, 2005, requested supplementary information provided in letters dated April 18, 2007 and July 26, 2007 and the June 27, 2008 Notice of Alteration and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"**accredited laboratory**" means a laboratory accredited by the Standard Council of Canada (SCC), another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or at a laboratory which can demonstrate to Manitoba Conservation that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the Canadian Standard Can/CSA-Z753, extension of the international standard ISO 9000, Guide 25;

"**approved**" means approved by the Director, or an assigned Environment Officer, in writing;

"**appurtenances**" means machinery, appliances, or auxiliary structures attached to a main structure to enable it to function, but not considered an integral part of it;

"as constructed drawings" means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

"ASTM" means the American Society for Testing and Materials;

"base" means the exposed and finished elevation of the bottom of any cell of the wastewater treatment lagoon;

"bentonite" means specially formulated standard mill grade sodium bentonite conforming to American Petroleum Institute Specification 13-A;

"Director" means an employee so designated pursuant to the Environment Act;

"effluent" means treated wastewater flowing or pumped out of the wastewater treatment lagoon;

"fecal coliform" means aerobic and facultative, Gram-negative, nonspore-forming, rod-shaped bacteria capable of growth at 44.5 °C, and associated with fecal matter of warm-blooded animals;

"five-day biochemical oxygen demand" means that part of the oxygen demand usually associated with biochemical oxidation of organic matter within 5 days at a temperature of 20°C;

"flooding" means the flowing of water onto lands, other than waterways, due to the overtopping of a waterway or waterways;

"high water mark" means the line on the interior surface of the primary and secondary cells which is normally reached when the cell is at the maximum allowable liquid level or the line of the exterior of the perimeter dykes which is reached during local flooding;

"hydraulic conductivity" means the quantity of water that will flow through a unit cross-sectional area of a porous material per unit of time under a hydraulic gradient of 1.0;

"influent" means water, wastewater, or other liquid flowing into a wastewater treatment facility;

"in-situ" means on the site;

"low water mark" means the line on the interior surface of the primary and secondary cells which is normally reached when the cell is discharged;

"**MPN Index**" means the most probable number of coliform organisms in a given volume of wastewater which, in accordance with statistical theory, would yield the observed test result with the greatest frequency;

"**PVC**" means polyvinyl chloride;

"**primary cell**" means the first in a series of cells of the wastewater treatment lagoon system and which is the cell that receives the untreated wastewater;

"**rip rap**" means small, broken stones or boulders placed compactly or irregularly on dykes or similar embankments for protection of earth surfaces against wave action or current;

"**secondary cell**" means a cell of the wastewater treatment lagoon system which is the cell that receives partially treated wastewater from the primary cell;

"**septage**" means the sludge produced in individual on-site wastewater disposal systems such as septic tanks;

"**sewage**" means household and commercial wastewater that contains human waste;

"**sludge solids**" means solids in sludge;

"**sludge**" means accumulated solid material containing large amounts of entrained water, which has separated from wastewater during processing;

"**Standard Methods for the Examination of Water and Wastewater**" means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation;

"**total coliform**" means a group of aerobic and facultative anaerobic, Gram-negative, nonspore-forming, rod-shaped bacteria, that ferment lactose with gas and acid formation within 48 hours at 35 °C, and inhabit predominantly the intestines of man or animals, but are occasionally found elsewhere and include the sub-group of fecal coliform bacteria;

"**wastewater**" means the spent or used water of a community or industry which contains dissolved and suspended matter;

"**wastewater treatment lagoon**" means an impoundment into which wastewater is discharged for storage and treatment by natural oxidation; and

"wetland" means an area of land that is usually saturated with water, often a marsh or a swamp.

GENERAL TERMS AND CONDITIONS

This Section of the Licence contains requirements intended to provide guidance to the Licencee in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. The Licencee shall direct all wastewater and septage generated within the Community of Waterhen and surrounding area toward the wastewater treatment lagoon or other approved sewage treatment facilities.
2. In addition to any of the limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze and/or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for such duration and at such frequencies as may be specified;
 - b) determine the environmental impact associated with the release of any pollutant(s) from the Development; or
 - c) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rate measurements and such other information as may from time to time be requested.
3. The Licencee shall, unless otherwise specified in this Licence:
 - a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in "Standard Methods for the Examination of Water and Wastewater" or in accordance with an equivalent analytical methodology approved by the Director;
 - b) have all analytical determinations undertaken by an accredited laboratory; and
 - c) report the results to the Director, in writing or in a format acceptable to the Director, within 60 days of the samples being taken.

4. The Licencee shall, in case of physical or mechanical breakdown of the wastewater collection and/or treatment system:
 - a) notify the Director immediately;
 - b) identify the repairs required to the wastewater collection and/or treatment system;
 - c) undertake all repairs to minimize unauthorized discharges of wastewater; and
 - d) complete the repairs in accordance with any written instructions of the Director.
5. The Licencee shall ensure that, during construction and operation of the Development, spills of fuels or other contaminants are reported to an Environment Officer in accordance with the requirements of *Manitoba Regulation 439/87* respecting *Environmental Accident Reporting* or any future amendment thereof.
6. The Licencee shall comply with the provisions of the Department of Fisheries and Oceans Canada/Manitoba Natural Resources publication, "*Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*" (May, 1996).
7. The Licencee shall obtain all necessary provincial and federal permits and approvals for construction of relevant components of the Development prior to commencement of construction.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

8. The Licencee shall notify the assigned Environment Officer not less than two weeks prior to beginning construction of the Development. The notification shall include the intended starting date of construction and the name of the contractor responsible for the construction.
9. The Licencee shall:
 - a) conduct all ditch related work activities during no flow or dry conditions and not during the April 1 to June 15 fish spawning and incubation period.
 - b) not construct the wastewater treatment lagoon during periods of heavy rain;
 - c) place and/or isolate all dredged and construction material where it will not erode into any watercourse;
 - d) implement effective long-term sediment and erosion control measures to prevent soil-laden runoff, and/or silt from entering any watercourse during construction and until vegetation is established;
 - e) routinely inspect all erosion and sediment control structures and immediately complete any necessary maintenance or repair; and

- f) vegetate any disturbed areas by planting and seeding preferably native trees, shrubs or grasses and cover such areas with mulch to prevent soil erosion and to help seeds germinate.
10. The Licencee shall, during construction of the wastewater treatment lagoon, operate, maintain and store all materials and equipment in a manner that prevents any deleterious substances (fuel, oil, grease, hydraulic fluids, coolant, paint, uncured concrete and concrete wash water, etc.) from entering the wastewater treatment lagoon, the discharge route and associated watercourses.
 11. The Licencee shall locate all fuel storage and equipment servicing areas established for the construction and operation of the Development a minimum distance of 100 metres from any waterbody, and shall comply with the requirements of *Manitoba Regulation 188/2001* respecting *Storage and Handling of Petroleum Products and Allied Products Regulation* or any future amendment thereof.
 12. The Licencee shall not alter local drainage patterns by the construction of the Development, including inflows and outflows from small wetlands adjacent to the wastewater treatment lagoon and the routes of any related roadway or pipe installations.
 13. The Licencee shall, prior to the construction of the dykes of the wastewater treatment lagoon:
 - a) remove all organic topsoil from the area where the dykes will be constructed; or
 - b) remove all organic material for a depth of 0.3 metres and a width of 3.0 metres from the area where the liner will be constructed.
 14. The Licencee shall construct and maintain the wastewater treatment lagoon with a continuous liner underlying all interior surfaces of the cells of the wastewater treatment lagoon that:
 - a) is constructed from PVC geomembrane that has been manufactured in accordance with ASTM Standard D 7176-06;
 - b) has a minimum thickness of 30 mils;
 - c) is immediately underlain by a protective non-woven geotextile;
 - d) is installed in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;
 - e) has all sections joined by dual track seaming;
 - f) is installed to a minimum elevation of 2.5 metres above the base of each cell;
 - g) is free of holes and has a hydraulic conductivity not exceeding 3.0×10^{-9} centimetres per second over the entire surface area of the liner;

- h) is tested using non-destructive test methods to test the integrity of:
 - (i) all field seams joining liner sections of this component of the liner in accordance with ASTM Standard D 7177-05; and
 - (ii) all other field seams of this component of the liner in accordance with ASTM Standard D 4437-99;
 - i) is reported on in a testing report prepared and submitted to the Director within 30 days of commencing the installation of this component of the liner; and
 - j) is covered with sand or other granular cover material deemed suitable by the PVC geomembrane manufacturer to a minimum depth of 0.3 metre measured perpendicular to the surface of the liner;
15. The Licencee shall construct and maintain an effective gas relief system under the PVC geomembrane component of the liner of the wastewater treatment lagoon.
16. The Licencee shall notify the Director one week prior to commencing the installation of the gas relief system and the PVC geomembrane component of the liner of the wastewater treatment lagoon.
17. The Licencee shall not cover the PVC geomembrane component of the liner of the wastewater treatment lagoon or use the wastewater treatment lagoon until receiving the approval of the Director of the report submitted pursuant to sub-Clause 14 i) of this Licence.
18. The Licencee shall advise the Director of the commissioning date of the wastewater treatment lagoon.
19. The Licencee shall operate and maintain the wastewater treatment lagoon in such a manner that:
- a) the organic loading on the primary cell, as indicated by the five-day biochemical oxygen demand, is not in excess of 56 kilograms per hectare per day;
 - b) the depth of liquid in the primary cell or secondary cell does not exceed 1.5 metres; and
 - c) the release of offensive odours is minimized.
20. The Licencee shall not discharge effluent from the wastewater treatment lagoon:
- a) where the organic content of the effluent, as indicated by the five day biochemical oxygen demand, is in excess of 30 milligrams per litre;
 - 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;

- d) between the 1st day of November of any year and the 15th day of June of the following year;
 - e) when flooding from any cause is occurring along the effluent drainage route; or
 - f) when such a discharge would cause or contribute to flooding in or along the effluent drainage route.
21. The Licencee shall install and maintain a fence around the wastewater treatment lagoon to limit access. The fence shall be a minimum of 1.2 meters high and have a locking gate, which shall be locked at all times except to allow access to the wastewater treatment lagoon.
22. The Licencee shall construct and maintain an all-weather access road and a sewage dumping station for truck handled sewage. The dumping facility shall have a surface splash ramp with a smooth hard surface that can be easily washed free of solids.
23. The Licencee shall not discharge septage into the wastewater treatment lagoon between the 15th day of October of any year and the 1st day of June of the following year.
24. The Licencee shall, if in the opinion of the Director, significant erosion of the interior surfaces of the dykes occurs, repair the dyke and install rip rap as necessary. The rip rap shall be placed on the interior dyke surfaces from 0.6 metres above the high water mark to at least 0.6 metres below the low water mark to protect the dykes from wave action.
25. The Licencee shall provide and maintain a grass cover on the dykes of the wastewater treatment lagoon and shall regulate the growth of the vegetation so that the height of the vegetation does not exceed 0.3 metres on all dykes.
26. The Licencee shall annually remove by mechanical methods all reeds, rushes and trees located above the low water mark in every cell of the wastewater treatment lagoon.
27. The Licencee shall implement an ongoing program to remove burrowing animals from the site of the wastewater treatment lagoon.
28. The Licencee shall actively participate in any future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for Lake Manitoba and/or associated waterways and watersheds.
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MONITORING AND REPORTING

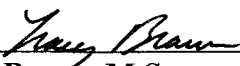
29. The Licencee shall prior to each effluent discharge campaign obtain grab samples of the treated wastewater and have them analyzed for:
- a) the organic content as indicated by the five day biochemical oxygen demand and expressed as milligrams per litre;
 - b) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample; and
 - c) the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample.
30. The Licencee shall:
- a) during each year maintain records of:
 - i) wastewater sample dates;
 - ii) original copies of laboratory analytical results of the sampled wastewater; and
 - iii) effluent discharge dates;
 - b) make the records being maintained pursuant to sub-Clause 30 a) of this Licence available to an Environment Officer upon request; and
 - c) keep the maintained records of any one calendar year available for inspection for a period of three years following the respective calendar year in which they were recorded.
31. The Licencee shall submit to the Director for approval, within six months of the date of this Licence, a groundwater investigation and monitoring plan for the site of the Development to monitor for liner integrity.
32. The Licencee shall, for a period of at least five years following the commencement of operation of the wastewater treatment lagoon under this Licence, obtain samples of effluent during each effluent discharge campaign from the secondary cell of the wastewater treatment lagoon. The samples shall be preserved, analyzed and reported in accordance with the requirements of Clause 3 of this Licence, and shall be analyzed for:
- a) total dissolved phosphorus;
 - b) total inorganic phosphorus;
 - c) total particulate phosphorus;
 - d) total Kjeldahl nitrogen;
 - e) nitrate-nitrite nitrogen;
 - f) ammonia;
 - g) pH;
 - h) temperature; and
 - i) total suspended solids.

33. The Licencee shall, for a period of at least five years following the commencement of operation of the wastewater treatment lagoon under this Licence and during each discharge campaign:
- a) obtain samples of water from the receiving surface bodies of water from three locations including:
 - i) in an area of the natural marsh that is upstream of the location where the wastewater treatment lagoon discharge enters the natural marsh;
 - ii) near where the discharge route and natural marsh intersects Provincial Road 328; and
 - iii) from Lake Manitoba in the vicinity of where it connects to the natural marsh; and
 - b) in accordance with the requirements of Clause 3 of this Licence, preserve, analyze and report on the samples respecting:
 - i) fecal coliform;
 - ii) total coliform;
 - iii) five-day biochemical oxygen demand;
 - i) total dissolved phosphorus;
 - ii) total inorganic phosphorus;
 - iii) total particulate phosphorus;
 - iv) total Kjeldahl nitrogen;
 - v) nitrate-nitrite nitrogen;
 - vi) ammonia;
 - vii) pH;
 - viii) temperature; and
 - iv) total suspended solids.
34. The Licencee shall report the results from the sampling required by Clauses 32 and 33 of this Licence to the Director in accordance with the requirements of Clause 3 c) of this Licence.
35. The Licencee shall take action to maintain the soil and PVC liners of the wastewater treatment lagoon. If any portion or portions of the liners become displaced from its design position, the Licencee shall immediately report the displacement(s) to the Director and take any measures required by the Director to restore the liner(s) to its design position and state.
36. The Licencee shall, after the completion of construction:
- a) monitor the sites where work occurred to evaluate the effectiveness of erosion control and sediment control measures and the physical stability of roadside ditches and watercourse crossings; and

- b) where monitoring identifies any problems, immediately take appropriate action to rectify the situation and advise the Department of Fisheries and Oceans – Dauphin District of the situation and any corrective measures taken.
37. The Licencee shall:
- a) prepare "as constructed drawings" for the Development and shall label the drawings "As Constructed"; and
 - b) provide to the Director, on or before the 31st day of March, 2009, two sets of "as constructed drawings" of the wastewater treatment lagoon.

REVIEW AND REVOCATION

- A. Environment Act Licence No. 2814 is rescinded.
- B. If, in the opinion of the Director, the Licencee has exceeded or is exceeding or has or is failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.
- C. If the Licencee has not commenced construction of the Development within three years of the date of this Licence, the Licence is revoked.
- D. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.



Tracey Braun, M.Sc.
Director
Environment Act

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