



Conservation

Climate Change and Environmental Protection Division
Environmental Assessment and Licensing Branch
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Ms. Shannon Gaultier, C.A.O.
Rural Municipality of Lorne
Box 10
Somerset MB R0G 2L0

December 22, 2010

Dear Ms. Gaultier:

Re: R. M. of Lorne – Swan Lake Wastewater Treatment Lagoon Alteration - File: 5187.00

This is in response to your letter of September 30, 2010 concerning requested alterations to Environment Act Licence No. 2742. The alterations involve the disposal of sludge from the old wastewater treatment lagoon by land application and the temporary retention of the secondary cell of the old lagoon to provide additional storage for treated effluent from the new facility.

We have reviewed the projected environmental effects of the requested alteration and determined them to be insignificant. In accordance with Section 14(2) of the Environment Act, the requested alteration is hereby approved. Environment Act Licence No. 2742 R is enclosed, incorporating the requested alteration, and rescinding Environment Act Licence No. 2742.

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.

For further information on the administration and application of the Licence, please feel free to contact Raymond Reichelt, Environment Officer at (204) 239-3608.

Pursuant to Section 27 of the Environment Act, this licensing decision may be appealed by any person who is affected by the issuance of this Licence to the Minister of Conservation within 30 days of the date of the Licence.

Yours truly,

Tracey Braun, M.Sc.
Director
Environment Act

Enc

- c. Jason Cousin, J. R. Cousin Consultants Ltd.
Don Labossiere, Director, Environmental Operations
Raymond Reichelt, Environmental Operations Branch, Portage la Prairie
Public Registries

NOTE: Confirmation of Receipt of this Licence No. 2742 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 (letter only) to the Department by January 11, 2011.

On behalf of the R.M. of Lorne

Date

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

LICENCE

Licence No. / Licence n°	<u>2742 R</u>
Issue Date / Date de délivrance	<u>November 8, 2006</u>
Revised	<u>December 22, 2010</u>

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 10(1) et 14(2)

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

RURAL MUNICIPALITY OF LORNE; "the Licencee"

for the construction and operation of the Development being a wastewater treatment lagoon located in SE 19-5-10 WPM for the Community of Swan Lake in the Rural Municipality of Lorne, with discharge of treated effluent into a tributary of the Pembina River, in accordance with the Proposal filed under The Environment Act dated March, 2006, and additional information dated September 27, 2006 and September 30, 2010, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"**access road**" means a road that leads from a Provincial Trunk/Highway, Provincial Road, or a municipal road;

"**accredited laboratory**" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

"**approved**" means approved by the Director in writing;

"**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;

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

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

"Environment Officer" means an employee so designated pursuant to The Environment Act;

"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 five days at a temperature of 20°C;

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

"grab sample" means a quantity of wastewater taken at a given place and time;

"HDPE" means high density polyethylene;

"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;

"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;

"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;

"mil" means one-thousandth of an inch;

"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;

"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;

"riprap" means small, broken stones or boulders placed compactly or irregularly on dykes or similar embankments for protection of earthen surfaces against the 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" means accumulated solid material containing large amounts of entrained water, which has separated from wastewater during processing;

"sludge solids" means solids in sludge;

"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; and

"wastewater treatment lagoon" means the component of this development which consists of an impoundment into which wastewater is discharged for storage and treatment by natural oxidation.

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. In addition to any of the following specifications, limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze 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, ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, and for such duration and at such frequencies as may be specified;

- b) determine the environmental impact associated with the release of any pollutant 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.
2. The Licencee shall submit all information required to be provided to the Director under this Licence, in writing, in such form (including number of copies) and of such content as may be required by the Director.
3. The Licencee shall direct all wastewater generated within the Community of Swan Lake toward the wastewater treatment lagoon or other approved sewage treatment facilities.
4. The Licencee shall construct and maintain an all-weather access road to the wastewater treatment lagoon.
5. The Licencee shall construct a truck dumping station for truck hauled wastewater. The truck dumping facility shall have a surface splash ramp with a smooth hard surface that can be easily washed free of solids.
6. The Licencee shall actively participate in any future watershed based nutrient reduction program, approved by the Director, for the Pembina River and associated waterways and watersheds.
7. The Licencee shall operate and maintain the wastewater treatment lagoon and wastewater collection system in such a manner that the release of offensive odours is minimized.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Construction

8. The Licencee shall dispose of non-reusable construction debris from the Development at a waste disposal ground operating under the authority of a permit issued pursuant to *Manitoba Regulation 150/91* respecting *Waste Disposal Grounds*, or any future amendment thereof, or a Licence issued pursuant to The Environment Act.
9. The Licencee shall construct and maintain a continuous liner underlying the primary and secondary cells of the wastewater treatment lagoon, such that:
 - a) the liner is constructed from HDPE geomembrane;
 - b) the liner has a minimum thickness of 60 mils;
 - c) all sections of the liner are joined by double channel fusion seaming;

- d) the liner is installed to a minimum elevation of 2.0 metres above the base of both the primary and secondary cells;
 - e) in accordance with ASTM Standard D-4437, the integrity of all field seams are tested by non-destructive test methods, a testing report is prepared and submitted to the Director within 30 days of commencing the installation of the liner; and
 - f) the liner is secured to prevent lifting of the liner.
10. The Licencee shall construct and maintain a gas relief system under the liner for all cells of the wastewater treatment lagoon.
11. The Licencee shall cover all surfaces of the liner of the primary cell of the wastewater treatment lagoon with 0.3 metres of cover material.
12. The Licencee shall not cover the liner or use the wastewater treatment lagoon until receiving the approval of the assigned Environment Officer of the report submitted pursuant to sub-Clause 9 e) of this Licence.
13. 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 metres high and have a locking gate, which shall be locked at all times except to allow access to the wastewater treatment lagoon.
14. The Licencee shall, during construction and operation of the Development:
- a) immediately report any reportable spills to Manitoba Conservation's Accident Reporting Line at (204) 944-4888; and
 - b) provide a follow-up report to the Director on a reportable environmental accident outlining the cause(s) and proposing corrective action to prevent reoccurrence.
15. The Licencee shall locate 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* or any future amendment thereof.

Respecting Operation

16. The Licencee shall obtain and maintain classification of the Development pursuant to *Manitoba Regulation 77/2003* respecting *Water and Wastewater Facility Operators* or any future amendment thereof and maintain compliance with all requirements of the regulation including, but not limited to, the preparation and maintenance of a Table of Organization, Emergency Response Plan and Standard Operating Procedures.

17. The Licencee shall carry out the operation of the Development with individuals properly certified to do so pursuant to *Manitoba Regulation 77/2003* respecting *Water and Wastewater Facility Operators* or any future amendment thereof.
18. The Licencee shall operate the wastewater treatment lagoon such that the wastewater load does not exceed the design capacities as follows:
 - 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; and
 - b) the depth of liquid in all primary and secondary cells does not exceed 1.5 metres.
19. The Licencee shall not discharge septage into the wastewater treatment lagoon at a rate in excess of 4.3 kilograms per day as indicated by the five-day biochemical oxygen demand, or 600 litres per day of septage.
20. 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.
21. 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 25 milligrams per litre;
 - b) where the total suspended solids content of the effluent is in excess of 25 milligrams per litre, unless the exceedance is caused by algae;
 - c) where the fecal coliform content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample;
 - d) where the total coliform content of the effluent, as indicated by the MPN index, is in excess of 1500 per 100 millilitres of sample;
 - e) between the 1st day of November of any year and the 15th day of June of the following year;
 - f) when flooding from any cause is occurring along the effluent drainage route; or
 - g) when such a discharge would cause or contribute to flooding in or along the effluent drainage route.
22. The Licencee shall, if chlorine is used to achieve compliance with Clause 21 c) and d) of this Licence, not discharge effluent from the wastewater treatment lagoon where the total residual chlorine content of the effluent is in excess of 0.02 milligrams per litre. In this situation, the Licencee shall determine the total residual chlorine content of the treated wastewater expressed in milligrams per litre as determined at the wastewater treatment lagoon site at the time of the sampling required by Clause 40 of this Licence.
23. 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; and
- c) complete the repairs in accordance with the written instructions of the Director.

Respecting Maintenance

- 24. The Licencee shall, if in the opinion of the Director, significant erosion of the interior surfaces of the dykes occurs, place riprap on the interior dyke surfaces from 0.6 metres above the high water mark to the bottom of the dykes 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 ensure that burrowing animals are removed from the site of the wastewater treatment lagoon.
- 28. The Licencee shall take action to maintain the HDPE liner on the bottom of the cells of the Development. If the liner becomes displaced from its design position, the Licencee shall immediately report the displacement to the Director, and take any measures required by the Director to restore the liner to its design position.


Respecting Decommissioning of the Existing Wastewater Treatment Lagoon

- 29. The Licencee shall retain the secondary cell of the original wastewater treatment lagoon as a storage facility for treated wastewater for a maximum period of five years from the date of this Licence. Effluent shall be discharged to this storage facility only from the secondary cell of the wastewater treatment lagoon. Effluent discharged from this storage facility shall meet all requirements of Clauses 21 and 22 of this Licence.
- 30. The Licencee shall, when the treated wastewater storage facility approved in Clause 29 of this Licence is no longer required, decommission the storage facility in accordance with Clause 31 of this Licence. A report on the need for the storage facility and the volume and proposed disposition of any sludge in the facility shall be provided to the Director within four years of the date of this Licence.
- 31. The Licencee shall, after placing the Development into operation, decommission the existing wastewater treatment lagoon located in NE 19-5-10WPM in

start of each discharge and near the end of each discharge, and shall be analysed and reported in accordance with Schedule "A" attached to this Licence.

REVIEW AND REVOCATION

- A. Environment Act Licence No. 2472 is hereby 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, 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

Client File No.: 5187.00

accordance with the decommissioning terms stated in Section 2.6.11 of the Proposal dated March, 2006 and the following conditions:

- a) pump liquid remaining in the existing lagoon to the new lagoon;
- b) transport sludge solids in containers in such a manner to prevent loss of sludge solids to the satisfaction of an Environment Officer; and
- c) dispose of sludge solids by land application in accordance with Clauses 32 to 38 of this Licence.

Respecting Land Application of Sludge Solids from the Existing Wastewater Treatment Lagoon

32. The Licencee shall only land apply sludge solids from the existing wastewater treatment lagoon to agricultural land located in NE 19-5-10W.
33. The Licencee shall notify the assigned Environment Officer not less than five days prior to the commencement of removal, transportation and land application of sludge solids. The notification shall include the intended starting date of the activities and the name of the contractor responsible for the activities.
34. The Licencee shall cover all sludge solids applied to agricultural land with soil within 24 hours of the time of application onto the agricultural land to the satisfaction of an Environment Officer.
35. The Licencee shall not apply sludge solids onto the land at a rate in excess of soil test recommendations for the crop to be grown following the application, and shall comply with the requirements of *Manitoba Regulation 62/2008* respecting *Nutrient Management*, or any future amendment thereof.
36. The Licencee shall not permit the land application of sludge solids:
 - a) to frozen soil;
 - b) during the period from November 10 of any year to April 10 of the following year;
 - c) less than 30 metres from a second order waterway;
 - d) less than 50 metres from any groundwater well;
 - e) on land with a depth of clay or clay till of less than 1.5 metres between the soil surface and the water table;
 - f) within 100 metres of an identifiable boundary of an aquifer which is exposed to the ground surface;
 - g) on land where, prior to the application of sludge solids, the soil pH is less than 6.0;
 - h) on land where the surface slope is greater than five percent; and
 - i) on land that is subject to flooding.
37. The Licencee shall not allow cattle to pasture on land on which sludge solids have been applied, for a period of three years from the date of application of the sludge solids.

38. The Licencee shall, on or before November 30, 2011, submit to the Director a report, which shall include the following:
- a) the amount of nitrogen, phosphorus and potassium which was added per hectare for the application area;
 - b) the background levels of these nutrients in the soil prior to application as indicated in soil test results; and
 - c) the dry weight of sludge solids applied per hectare for the application area.

MONITORING AND REPORTING SPECIFICATIONS

39. 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 the Standard Methods for the Examination of Water and Wastewater, or in accordance with equivalent preservation and analytical methodologies approved by the Director;
 - b) ensure that all analytical determinations are undertaken by an accredited laboratory; and
 - c) report the results to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the samples being taken.
40. 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 organic content as indicated by the five-day carbonaceous biochemical oxygen demand and expressed as milligrams per litre;
 - c) the total suspended solids content expressed as milligrams per litre;
 - d) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample; and
 - e) the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample.
41. 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 Clause 41 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.
42. The Licencee shall, during the first year of operation of the Development from the date of this Licence, obtain two representative grab samples of the effluent during

Schedule "A" to Environment Act Licence No. 2742 R

Initial Characterization of Wastewater

Facility Size: Very small (less than 500 m³/day)

Facility Type: Facultative wastewater treatment lagoon - intermittent discharge

Effluent Sampling:

During the first year of operation, for all discharge events:

1. Obtain a representative grab sample of the discharging effluent near the beginning of the discharge period and near the end of the discharge period (i.e. two samples for each discharge event); and
2. Determine the temperature of each sample at the time of sampling.

Effluent Analysis:

1. For each grab sample, have the grab sample analysed for:
 - a) the organic content as indicated by the five-day biochemical oxygen demand and expressed as milligrams per litre;
 - b) the organic content as indicated by the five-day carbonaceous biochemical oxygen demand and expressed as milligrams per litre;
 - c) the total suspended solids content expressed as milligrams per litre;
 - d) the *Escherichia coli* (*E. Coli*) content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - e) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - f) the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - g) total residual chlorine expressed as milligrams per litre (if chlorine was applied to the effluent);
 - h) total ammonia nitrogen expressed as milligrams per litre;
 - i) nitrate-nitrite nitrogen expressed as milligrams per litre;
 - j) total kjeldahl nitrogen (TKN) expressed as milligrams per litre;
 - k) dissolved phosphorus expressed as milligrams per litre;
 - l) total phosphorus expressed as milligrams per litre; and
 - m) pH.

Effluent Reporting:

1. For each grab sample, report the results to the Director, in writing or in an electronic format acceptable to the Director within 60 days of the sampling date. The report shall include the sampling date, sample temperature, the dates of the effluent discharge, and copies of the laboratory analytical results of the sampled effluent.