THE ENVIRONMENT ACT
LOI SUR L'ENVIRONNEMENT

Manitoba

LICENCE

Licence No. / Licence n° 2284 RRRR

Issue Date / Date de délivrance October 6, 1997

Revised: January 30, 1998
Revised: March 7, 2006
Revised: February 9, 2007
Revised: June 8, 2007

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 Sections 11(1) and 14(2) / Conformément au Paragraphe 11(1) and 14(2)

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

THE TOWN OF MORDEN; "the Licencee"

for the operation of the Development being a wastewater collection system and a wastewater treatment lagoon, located on the east half of Section 9, Township 3, Range 5 WPM, and with discharge of treated effluent via buried pipes that discharge into Deadhorse Creek, in accordance with the letters of alteration filed under The Environment Act on June 19, 1997 and January 20, 2005 with subsequent related letters of May 17, 2005, October 4, 2005 and February 1, 2006, the Notice of Alteration filed under The Environment Act on January 17, 2006, a subsequent related letter of June 21, 2006 and the January 4, 2007 Notice of Alteration and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"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;

"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;

"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 five 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;

"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;

"in-situ" means on the site;

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

"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;

"riprap" 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;

"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 the 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. The Licencee shall direct all sewage generated within the Town of Morden 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.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

5. 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.

6. The Licencee shall:
   a) place and/or isolate all dredged and construction material where it will not erode into any watercourse;
   b) 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;
   c) routinely inspect all erosion and sediment control structures and immediately complete any necessary maintenance or repair;
   d) maintain streambeds and banks of watercourses associated with lagoon operation and repair eroded and physically unstable streambeds and banks associated with the wastewater treatment lagoon, the discharge route and associated watercourses such that they are able to perform the operations for which they were designed and constructed; and
   e) use rock that is free of silt and clay for rip rap.

7. 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.

8. The Licencee shall operate and maintain the wastewater treatment lagoon in such a manner that:
   a) the release of offensive odours is minimized;
   b) 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
   c) the depth of liquid in the primary cell and secondary cell number 5 as indicated on Schedule "A" to this Licence does not exceed 1.5 metres.

9. 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.

10. 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.

11. 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.

12. 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.

13. The Licencee shall maintain the primary cell of the wastewater treatment lagoon with a continuous liner under all interior surfaces of the cell in accordance with the following specifications:
   a) the liner shall be made of clay or other suitable material;
   b) the liner shall be at least one metre in thickness;
   c) the liner shall have a hydraulic conductivity of 1×10^{-6} centimetres per second or less; and
   d) the liner shall be constructed to an elevation of 2.5 metres above the floor elevation of the primary cell.

14. The Licencee shall maintain a subsurface tile drainage system surrounding the primary cell and secondary cell numbers 1, 2, 3 and 4 of the wastewater treatment lagoon as indicated on Schedule "A" to this Licence in a manner acceptable to the Director.

15. The Licencee shall construct and maintain a continuous liner, including cover material, underlying secondary cell number 5 of the wastewater treatment lagoon as indicated on Schedule "A" to this Licence, such that:
   a) the liner is constructed from PVC geomembrane;
   b) the liner has a minimum thickness of 30 mils;
   c) the liner is installed in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;

d) the liner shall be installed to a minimum elevation of 2.5 metres above the base of the cell;
e) the liner 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;
f) in accordance with ASTM Standard D 4437-99, the integrity of all field seams are tested for by the air lance or ultrasonic pulse echo test method and a testing report is prepared and submitted to the Director for approval; and
g) the liner is covered with sand or other granular cover material to a minimum depth of 0.30 metre measured perpendicular to the surface of the liner.

16. The Licencee shall construct and maintain an effective gas relief system under the liner for secondary cell number 5 of the wastewater treatment lagoon as indicated on Schedule "A" to this Licence.

17. The Licencee shall notify the Director one week prior to commencing the installation of the gas relief system and the liner of secondary cell number 5 of the wastewater treatment lagoon as indicated on Schedule "A" to this Licence.

18. The Licencee shall not cover the liner of secondary cell number 5 or use this cell of the wastewater treatment lagoon as indicated on Schedule "A" to this Licence until receiving the approval of the Director of the report submitted pursuant to sub-Clause 15 f) of this Licence.

19. 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.

20. The Licencee shall install rip rap and filter cloth, secured and placed such that the rip rap is not undermined by water, so as to effectively prevent erosion of associated waterway beds, banks and shores from occurring as a result of any discharge from the wastewater treatment lagoon.

21. The Licencee shall install and maintain backflow prevention gates on the wastewater treatment lagoon discharge pipes.

22. 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.

23. The Licencee shall implement an ongoing program to ensure that burrowing animals are removed from the site of the wastewater treatment lagoon.

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 actively participate in any future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for Deadhorse Creek and associated waterways and watersheds.

MONITORING AND REPORTING

26. 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 26 a) of this Licence available to an Environment Officer upon request; and
    c) keep the maintained records of any one calender year available for inspection for a period of three years following the respective calendar year in which they were recorded.

27. The Licencee shall prior to each effluent discharge campaign obtain grab samples of the treated wastewater from each cell that is to be discharged during that discharge campaign 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.

28. The Licencee shall, during each effluent discharge campaign from the wastewater treatment lagoon, obtain samples of effluent to be collected during the beginning, middle and end of each discharge event. The samples shall be preserved, analyzed and reported in accordance with the requirements of Clause 2 of this Licence, and shall be analyzed for:
    a) ammonia;
    b) pH;
    c) temperature; and

d) total suspended solids.

29. The Licencee shall obtain samples of water from Deadhorse Creek, one week prior to the start of the discharge event, during the beginning, middle and end of the discharge event, and one week after the discharge event. Such samples shall be obtained from one site upstream of the Town of Morden but downstream of Lake Minnewasta, one site just downstream of the discharge pipe, and one site downstream of the Town of Morden. The samples shall be preserved, analyzed and reported in accordance with the requirements of Clause 2 of this Licence, and shall be analyzed for:
a) ammonia;
b) pH;
c) temperature; and
d) total suspended solids.

30. The Licencee shall, for a period of at least three years following the commencement of operation of the wastewater treatment lagoon under this Licence and during each effluent discharge campaign from the wastewater treatment lagoon, obtain samples of effluent to be collected during the beginning, middle and end of each discharge event. The samples shall be preserved, analyzed and reported in accordance with the requirements of Clause 2 of this Licence, and shall be analyzed for:
a) total Kjeldahl nitrogen;
b) nitrate-nitrite nitrogen;
c) total dissolved phosphorus;
d) total particulate phosphorus; and
e) total inorganic phosphorus.

31. The Licencee shall, for a period of at least three years following the commencement of operation of the wastewater treatment lagoon under this Licence and during each effluent discharge campaign from the wastewater treatment lagoon, obtain samples of water from Deadhorse Creek, one week prior to the start of the discharge event, during the beginning, middle and end of the discharge event, and one week after the discharge event. Such samples shall be obtained from one site upstream of the Town of Morden but downstream of Lake Minnewasta, one site just downstream of the discharge pipe, and one site downstream of the Town of Morden. The samples shall be preserved, analyzed and reported in accordance with the requirements of Clause 2 of this Licence, and shall be analyzed for:
a) total Kjeldahl nitrogen;
b) nitrate-nitrite nitrogen;
c) total dissolved phosphorus;
d) total particulate phosphorus; and
e) total inorganic phosphorus.

32. The Licencee shall obtain samples of liquid from the subsurface tile drainage system each spring before and each fall after the wastewater treatment lagoon is discharged. The samples shall be preserved, analyzed and reported in accordance with the requirements of Clause 2 of this Licence, and shall be analyzed for:

a) fecal coliform content;
b) total coliform content;
c) ammonia;
d) chloride; and
e) conductivity.

33. The Licencee shall report the results from the sampling required by Clauses 28, 29, 30, 31 and 32 of this Licence to the Director in accordance with the requirements of Clause 2 c) of this Licence.

34. The Licencee shall submit to the Director for approval, within two months of the date of this Licence, the specific locations at which sampling of water from Deadhorse Creek and relative to Clauses 29 and 31 of this Licence will occur.

35. The Licencee shall measure the duration and volume of each discharge event from the wastewater treatment lagoon.

36. The Licencee shall measure the volume of liquid discharged from the subsurface tile drainage system.

37. The Licencee shall take action to maintain the PVC liner of secondary cell number 5 of the wastewater treatment lagoon as indicated on Schedule "A" to this Licence. 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 and state.

38. The Licencee shall, during construction and operation of the Development, report spills of fuels or other contaminants to an Environment Officer in accordance with the requirements of *Manitoba Regulation 439/87* respecting *Environmental Accident Reporting* or any future amendment thereof.

39. 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 the integrity of the liners.

40. 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 31st day of March, 2008, two sets of "as constructed drawings" of the Development.

REVIEW AND REVOCATION

A. Licence No. 2284 RRR is rescinded.

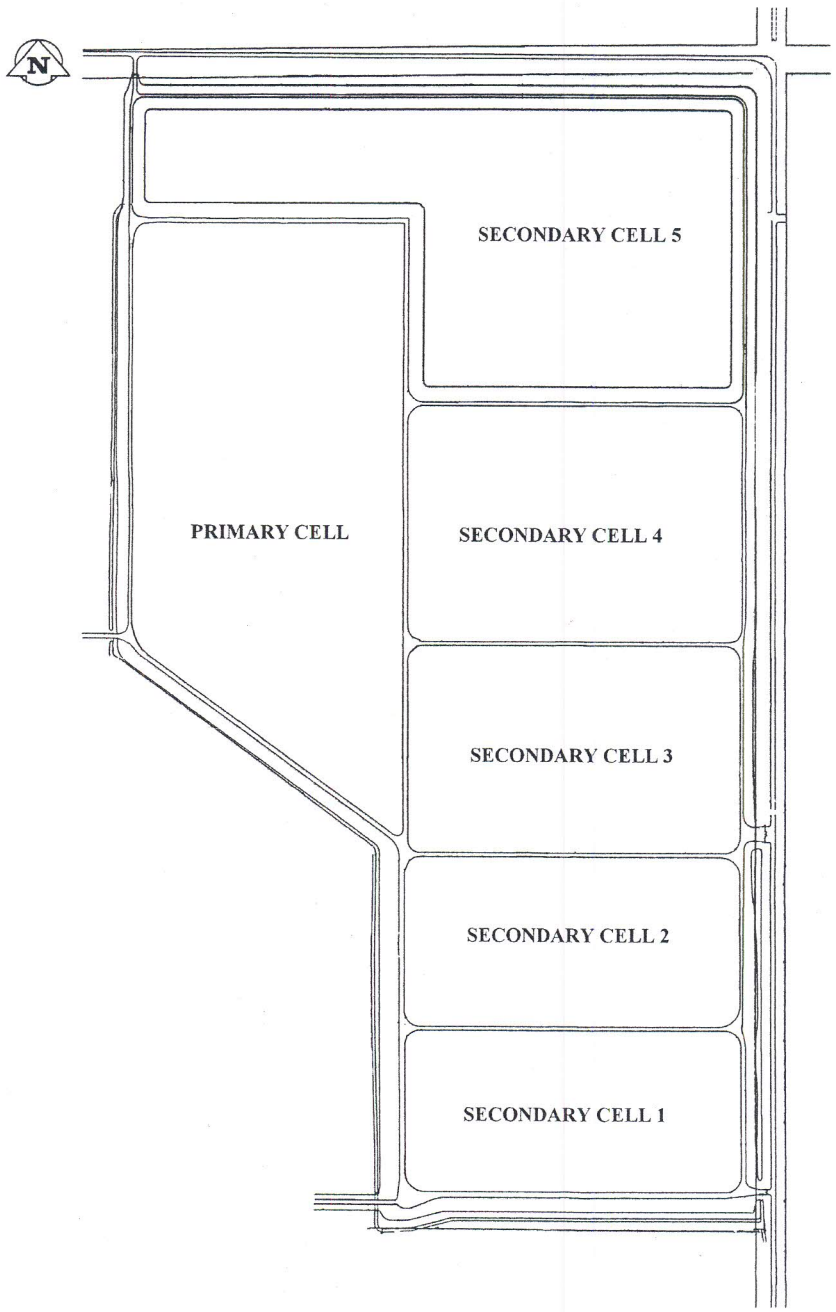
B. Licence No. 2284 RR is rescinded upon successful commissioning of secondary cell number 5 as indicated on Schedule "A" to this Licence.

C. 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.

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

Tracey Braun, M. Sc.
Director
Environment Act

Client File: 55.40

Schedule A
To Environment Act Licence No. 2284 RRRR