

LICENCE

Licence No. / Licence n° 2763 R

Issue Date / Date de délivrance April 12, 2007

REVISED : May 10, 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 Section 11(1) / Conformément au Paragraphe 11(1)

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

MOSAKAHIKEN CREE NATION; "the Licencee"

for the construction, operation and maintenance of the Development being a wastewater collection system and an aerated wastewater treatment lagoon located on the northeast quarter of Section 29-54-20 WPM to serve the Mosakahiken Cree Nation and the Community of Moose Lake with discharge of treated effluent to a constructed drainage ditch south of the lagoon to a natural drainage path into Summerberry Creek which empties into Cedar Lake, in accordance with the Proposal filed under The Environment Act on June 1, 2006 and subsequent information provided on July 31, 2006, November 30, 2006, and February 23, 2007 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;

"aerated" means the bringing about of intimate contact between air and a liquid by bubbling air through the liquid;

"aerated cell" means a cell of a wastewater treatment lagoon system in which mechanical or diffused-air aeration is used to supplement the oxygen supply;

"aerated wastewater treatment lagoon" means the component of this development which consists of an impoundment into which wastewater is discharged for treatment by mechanical aeration and storage;

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

"approved" means approved by the Director 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;

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

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

"HDPE" means high density polyethylene;

"high water mark" means the line on the interior surface of the aerated and storage 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;

"low water mark" means the line on the interior surface of the aerated and storage 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 aerated 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;

"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 the accumulated solids separated from liquids, such as water or 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 Association;

"storage cell" means a cell of the aerated wastewater treatment lagoon system which is a cell that receives partially treated wastewater from the aerated cell and retains the wastewater for a period of time;

"supernatant" means the liquid remaining above the sludge solids after sedimentation;

"waste disposal ground" means an area of land designated by a person, municipality, provincial government agency, or crown corporation for the disposal of waste and approved for use in accordance with Manitoba Regulation 150/91;

"temporary dewatering cell" means a temporary structure used to contain wastewater while the sludge solids separate from the supernatant;

"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;

"UV" disinfection means a disinfection process for treating wastewater using ultraviolet radiation.

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

"wastewater collection system" means the sewer and pumping system used for the collection and conveyance of domestic, commercial and industrial wastewater.

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 generated within the Mosakahiken Cree Nation and the Community of Moose Lake to the aerated wastewater treatment lagoon or other approved wastewater treatment facility.
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 ensure that adequate instrumentation is installed and maintained to provide constant monitoring of the UV process to ensure compliance with the disinfection requirements. Such instrumentation shall include but not be limited to the following:
 - a) an UV sensor to monitor lamp intensity;
 - b) an appropriate alarm and shutdown systems;
 - c) a lamp monitoring system to identify the location of individual lamp failures;

- d) an hour meter which cannot be reset, to display actual hours of UV lamp operation; and
 - e) protective circuits for overcurrent and ground current leakage detection.
5. 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.
6. 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*.
7. 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.
8. The Licencee shall ensure that the operation of the Development is carried out by individuals properly trained and qualified to do so.
9. 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.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

10. 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, the name of the contractor responsible for the construction and the name of the on-site contact person.
11. The Licencee shall install and maintain a fence with warning signs surrounding the aerated wastewater treatment lagoon with a gate to control access.
12. The Licencee shall construct and maintain an all-weather access road and a truck dumping station for truck handled wastewater. The truck dumping facility shall have a surface splash ramp with a smooth hard surface that can be easily washed free of solids.

13. The Licencee shall, prior to the construction of the aerated 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 cut-off will be constructed.

14. The Licencee shall construct and maintain a continuous liner, including cover material, underlying all cells of the aerated 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 in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;
 - e) the liner shall be installed to a minimum elevation of 5.0 metres above the base of the aerated cells and to an elevation of 3.5 metres above the base of the storage cell;
 - f) 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;
 - g) the liner is tested for the integrity of all field seams by pressurized air channel evaluation, in accordance with ASTM Standard D 5820-95(2006), and a testing report is prepared and submitted to the Director for approval;
 - h) the liner shall be covered with sand or other granular cover material to a minimum depth of 0.3 metre measured perpendicular to the surface of the liner, excluding only the lower portions of the dykes in the aeration cells which have a 3:1 slope; and
 - i) the liner in the lower portions of the dykes in the aeration cells which have a 3:1 slope shall be covered with sand or other granular cover material to a minimum depth of 0.3 metre measured perpendicular to the surface of the liner, during any construction or machine activity in the cells, to ensure the integrity of the HDPE geomembrane liner is maintained at all times.

15. The Licencee shall construct and maintain an effective gas relief system under the liner for all cells of the aerated wastewater treatment lagoon.

16. The Licencee shall notify the Director one week prior to commencing the installation of the liner and the gas relief system.

17. The Licencee shall not cover the seams of the HDPE liner or use the wastewater treatment lagoon until receiving the approval of the Director of the report submitted pursuant to sub-Clause 14 g) of this Licence.

18. The Licencee shall complete the installation of the synthetic liner at the aerated wastewater treatment lagoon between the 15th day of May and the 15th day of October of any year.
19. The Licencee shall operate and maintain the aerated wastewater treatment lagoon in such a manner that:
 - a) a minimum of 2 milligrams of dissolved oxygen per litre is detectable at all times in the liquid in the aerated cells;
 - b) the maximum daily flow rate is not in excess of 613 cubic metres per day;
 - c) the organic loading on the aerated wastewater treatment lagoon, in terms of the five-day biochemical oxygen demand, is not in excess of 186 kilograms per day;
 - d) the depth of liquid in the aerated cells does not exceed 4.0 metres; and
 - e) the depth of liquid in the storage cell does not exceed 2.5 metres.
20. The Licencee shall ensure that if, in the opinion of the Director, significant erosion of the interior surfaces of the dykes occurs, 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.
21. The Licencee shall provide and maintain a grass cover on the dykes of the aerated 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.
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 aerated wastewater treatment lagoon, while ensuring the integrity of the HDPE geomembrane liner is maintained at all times.
23. The Licencee shall implement an ongoing program to ensure that burrowing animals are removed from the site of the aerated wastewater treatment lagoon.
24. The Licencee shall not discharge effluent from the aerated wastewater treatment lagoon:
 - a) where the organic content of the effluent, as indicated by the five-day biochemical oxygen demand (BOD₅), 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; or
 - 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 May of the following year; or
 - e) when such a discharge would cause or contribute to flooding in or along the effluent drainage route.

MONITORING AND REPORTING

25. The Licencee shall:
- a) weekly assess the operation of the aeration system blowers;
 - b) weekly assess the operation of the UV disinfection system;
 - c) annually inspect the aeration system and make any necessary repairs;
 - d) maintain a record of aeration system and UV disinfection inspection dates, observations, maintenance and repairs completed; and
 - e) make records of these activities available to the designated Environment Officer upon request.
26. The Licencee shall maintain records of the aerated wastewater treatment lagoon operation and/or maintenance requirements including, but not limited to, the following:
- a) aeration system pumps daily elapsed time;
 - b) weekly summer and winter liquid levels in all cells and presence of odours and their source;
 - c) weekly winter inspections for frozen piping;
 - d) liquid levels, duration of discharge(s), and procedures followed at the start of and during discharge(s); and
 - e) make these records available to the designated Environment Officer upon request.
27. The Licencee shall prior to each effluent discharge, obtain grab samples of the treated wastewater and have them analyzed for:
- a) organic content as indicated by the five day biochemical oxygen demand and expressed as milligrams per litre;
 - b) fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres of sample;
 - c) total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres of sample; and
 - d) submit the results of the analyses to the Director prior to each effluent discharge.
28. 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 28 (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.

29. The Licencee shall, for a period of at least five years following the commencement of operation of the aerated wastewater treatment lagoon, obtain samples of treated effluent during each effluent discharge campaign from the storage cell of the aerated 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) pH;
 - b) temperature;
 - c) total phosphorus;
 - d) total dissolved phosphorus;
 - e) inorganic phosphorus;
 - f) total Kjeldahl nitrogen;
 - g) ammonia; and
 - h) nitrate-nitrite.
30. The Licencee shall actively participate in any future watershed based management study, plan and/or nutrient reduction program, approved by the Director, for Summerberry Creek, Cedar Lake and/or associated waterways.
31. The Licencee shall submit to the Director for approval, within six months of the date of this Licence, a comprehensive groundwater monitoring plan for the site of the Development to monitor for liner integrity, to be carried out as approved by the Director.
32. 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 1st day of April 2009, two sets of "as constructed drawings" of the aerated wastewater treatment lagoon.


DECOMMISSIONING

33. The Licencee shall, after placing the Development into operation, prevent any additional wastewater from being discharged into the existing wastewater treatment lagoon located in Section 27 and 26-54-20 WPM near the community of Moose Lake.
34. The Licencee shall decommission the existing wastewater treatment lagoon located in Section 27 and 26-54-20 WPM within one year of commencing operation of the Development.
35. The Licencee shall:
- a) discharge treated effluent from the existing wastewater treatment lagoon in accordance with the wastewater treatment lagoon discharge requirements of Licence No. 1862;

- b) dewater the sludge in the existing cells which will act as temporary dewatering cells;
 - c) remove all the supernatant from the sludge and return the supernatant to the primary cell of the wastewater treatment lagoon, so that only sludge solids remain;
 - d) dispose of the dewatered sludge at a waste disposal ground, operating under a permit issued in accordance with Manitoba Regulation 150 / 91; and
 - e) level the site of the existing wastewater treatment lagoon to the original grade and ensure the site is successfully seeded with grass.
36. The Licencee shall transport sludge solids in containers in such a manner to prevent loss of sludge solids to the satisfaction of an Environment Officer.

REVIEW AND REVOCATION

- A. This Licence replaces Licence No. 2763 which is hereby rescinded.
- B. Environment Act Licence No. 1862 will be rescinded three years from the date of 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 the Licencee has not commenced construction of the Development within three years of the date of this Licence, the Licence is revoked.
- E.. 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