Environment Act Licence
Loi sur l'environnement Licence

Manitoba Conservation
Conservation Manitoba

Licence No./Licence n° 2660

Issue Date/Date de délivrance July 8, 2004

IN ACCORDANCE WITH THE ENVIRONMENT ACT (C.C.S.M. c. E125) THIS LICENCE IS ISSUED PURSUANT TO SECTION 11(1) TO:

LORD SELKIRK SCHOOL DIVISION NO. 11; "the Licencee"

for the operation of the Development being a rotating biological contactor sewage treatment plant and associated effluent holding ponds and for the reconstruction and operation of the existing effluent holding pond and construction and operation of an additional effluent holding pond, located on parts of River Lots 104, 105 and 106, Plan 2565 in the Parish of St. Andrews in the Rural Municipality of St. Andrews, in accordance with the Proposal filed under The Environment Act on April 29, 2003 and subsequent information submitted on June 24, 2003, July 4, 2003, November 19, 2003 and June 30, 2004 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;

"affected area" means a geographical area excluding the property of the Development;

"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;

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

"bioassay" means a method of determining toxic effects of industrial wastes and other wastewaters by using viable organisms;

"composite sample" means a quantity of wastewater consisting of a minimum of 10 equal volumes of effluent or flow proportional volumes collected at approximately equal time intervals over a period of not less than 6 hours and not exceeding 24 hours, and may be collected manually or by means of an automatic sampling device;

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

"effluent" means treated wastewater flowing or pumped out of the sewage treatment plant or the effluent holding pond;

"effluent holding pond" means a component of the Development which consist of an impoundment into which treated wastewater is discharged for storage;

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

"final discharge point" means the sampling location for the treated sewage effluent as approved by the Director;

"five-day biochemical oxygen demand" (BOD_5) means that part of oxygen usually associated with biochemical oxidation of organic material within 5 days at 20°C;

"freeboard" means the vertical distance between the normal maximum level of the surface of the liquid in a lagoon or pond cell and the top of the dykes of the lagoon or pond cells which is provided so that waves and other movements of the liquid will not overflow the confining structure;

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

"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;

"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;

"odour nuisance" means a continuous or repeated odour, smell or aroma in an affected area which is offensive, obnoxious, troublesome, annoying, unpleasant or disagreeable to a person:

a) residing in an affected area;
b) working in an affected area; or
c) present at a location in an affected area which is normally open to members of the public;

if the odour, smell or aroma

d) is the subject of at least 5 written complaints received by the Director in a form satisfactory to the Director and within a 90 day period, and from 5 different persons falling within clauses a), b) or c) who do not live in the same household; or
e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b) or c) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90 day period from 5 different persons who do not live in the same household;

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

"sewage effluent" means sewage after it has undergone at least one form of physical or biological treatment;

"sewage treatment plant" means the central facility of wastewater treatment facilities which contains all treatment processes exclusive of the collection system;

"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; and

"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 ^{o}C, and inhabit predominantly the intestines of man or animals, but are occasionally found elsewhere and include the sub-group of fecal coliform bacteria.

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 at the Lockport School toward the sewage treatment plant or other approved sewage treatment facilities.

2. The Licencee shall operate the sewage treatment plant and the effluent holding ponds in such a manner that:
   a) only sewage as defined in this Licence is discharged into the sewage treatment plant; and
   b) waste solids and sewage sludge shall be disposed of at a waste disposal ground operated under the authority of a permit issued under Manitoba Regulation 150/91 or a Licence issued pursuant to The Environment Act or at a treatment facility approved by the Director.

3. 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.

4. 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; and
   b) have all analytical determinations undertaken by an accredited laboratory.

5. 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.

6. The Licencee shall not cause or permit an odour nuisance to be created as a result of the operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or to mitigate an odour nuisance.

7. The Licencee shall construct and maintain an all-weather access road to the sewage treatment plant and the effluent holding ponds.

8. The Licencee shall install and maintain a fence around the effluent holding ponds to control access. The fence shall be provided with a gate that is kept locked at all times except to allow access to each effluent holding pond.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

9. The Licencee shall operate and maintain the sewage treatment plant in such a manner that:
   a) the maximum daily flow rate is not in excess of 40.86 m^3 for any 24-hour period;
   b) the organic loading, in terms of the five-day biochemical oxygen demand (BOD_5), is not in excess of 10 kilograms for any 24-hour period; and
   c) effluent from the sewage treatment plant is discharged directly to the effluent holding ponds.

10. The Licencee shall not discharge effluent from the effluent holding ponds:
   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 l00 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 1st day of May of the following year;
e) between the 15th day of June and the 1st day of October in any 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.

11. The Licencee shall, prior to the construction of the dykes for the effluent holding ponds:
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.

12. The Licencee shall construct and maintain the effluent holding ponds with continuous liners, including cutoffs, under all interior surfaces of the ponds in accordance with the following specifications:
a) the liners shall be made of clay;
b) the liners shall be at least one metre in thickness;
c) the liners shall have a hydraulic conductivity of 1×10^{-7} centimetres per second or less at all locations; and
d) the liners shall be constructed to elevations consistent with the dyke top elevations of each of the effluent holding ponds.

13. The Licencee shall operate and maintain the effluent holding ponds in such a manner that a freeboard of 1.0 metre is maintained in each cell.

14. 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 riprap as necessary. The riprap 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.

15. The Licencee shall provide and maintain a grass cover on the dykes of the effluent holding ponds and shall regulate the growth of the vegetation so that the height of the vegetation does not exceed 0.3 metres on all dykes.

16. The Licencee shall annually remove by mechanical methods all reeds, rushes and trees located above the low water mark in each cell of the effluent holding ponds.

17. The Licencee shall implement an ongoing program to remove burrowing animals from the site of the effluent holding ponds.

18. The Licencee shall actively participate in any future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for the Red River and/or associated waterways and watersheds.

MONITORING AND REPORTING

19. The Licencee shall prior to each effluent discharge campaign obtain grab samples of the treated wastewater in the effluent holding pond that is to be discharged during that effluent 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.

20. The Licencee shall:
    a) during each year maintain records of:
        i) holding pond wastewater sample dates;
        ii) original copies of laboratory analytical results of the sampled holding pond wastewater;
        iii) holding pond effluent discharge dates;
    b) make the records being maintained pursuant to sub-Clause 20 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.

21. The Licencee shall provide a system, acceptable to the Director, to measure the sewage flows to the sewage treatment plant.

22. The Licencee shall submit to the Director for approval, within six months of the date of this Licence, an assessment plan respecting the operation and performance the sewage treatment plant. The approved assessment plan must result in a conclusive report being generated and submitted to the Director within one year of the date of the approval, by the Director, of the plan and include the assessment and consideration of the following parameters and sewage treatment plant components:
    a) the daily hydraulic and organic loads on the sewage treatment plant;

b) the organic content of the sewage treatment plant effluent as indicated by the five day biochemical oxygen demand and as determined by analyses of composite sampling;
c) the fecal and total coliform contents of the sewage treatment plant effluent as indicated by the MPN index and expressed as MPN per 100 millilitres per sample and as determined by analyses of a minimum of three representative grab samples;
d) the ammonia loads of the stored sewage treatment plant effluent; and
e) the existing disinfection system.

23. The Licencee shall, in case of physical or mechanical breakdown of the Development:
a) notify the Director immediately;
b) identify the repairs required to the Development;
c) undertake all repairs to minimize unauthorized discharges of wastewater; and
d) complete the repairs in accordance with any written instructions of the Director.

24. The Licencee shall arrange with the designated Environment Officer a mutually acceptable time and date for any required soil sampling between the 15th day of May and the 15th day of October of any year.

25. The Licencee shall take and test undisturbed soil samples, in accordance with Schedule "A" attached to this Licence, from the liners of the effluent holding ponds; the number and location of samples and test methods to be specified by the designated Environment Officer up to a maximum of 20 samples.

26. The Licencee shall, not less than 2 weeks before the effluent holding ponds are placed in operation, submit to the Director the results of the tests carried out pursuant to Clause 25 of this Licence.

27. 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 October, 2005, "as constructed drawings" of the Development.

REVOCATION

A. Licence No. 1150 is rescinded upon successful commissioning of the effluent holding ponds.

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.

Larry Strachan, P. Eng.
Director
Environment Act

Client File No.: 1740.10

Schedule "A" to Environment Act Licence No. 2660

Soil Sampling:

1. The Licencee shall provide a drilling rig, acceptable to the designated Environment Officer, to extract soil samples from the liner which is not placed or found at the surface of the effluent holding pond structure. This includes all effluent holding ponds constructed with clay cutoffs at the interior base of the dyke or with a clay cutoff in the centre of the dyke. The drill rig shall have the capacity to drill to the maximum depth of the clay cutoff plus an additional 2 metres. The drill rig shall be equipped with both standard and hollow stem augers. The minimum hole diameter shall be 5 inches.

2. For effluent holding pond liners placed or found at the surface of the effluent holding pond structure, the Licencee shall provide a machine, acceptable to the designated Environment Officer, capable of pressing a sampling tube into the liner in a straight line motion along the centre axis line of the sample tube and without sideways movement.

3. Soil samples shall be collected and shipped in accordance with ASTM Standard D 1587 (Standard Practice for Thin-Walled Tube Sampling of Soils), D 4220 (Standard Practice for Preserving and Transporting Soil Samples) and D 3550 (Standard Practice for Ring-Lines Barrel Sampling of Soils). Thin-walled tubes shall meet the stated requirements including length, inside clearance ratio and corrosion protection. An adequate venting area shall be provided through the sampling head.

4. At the time of sample collection, the designated Environment Officer shall advise the Licencee as to the soil testing method that must be used on each sample. The oedometer method may be used for a sample were the Environment Officer determines that the soil sample is taken from an undisturbed clay soil which has not been remoulded and which is homogeneous and unweathered. The triaxial test shall be used for all samples taken from disturbed and remoulded soils or from non homogenous and weathered soils.

5. The Licencee shall provide a report on the collection of soil samples to the designated Environment Officer and to the laboratory technician which includes but is not limited to: a plot plan indicating sample location, depth or elevation of sample, length of advance of the sample tube length of soil sample contained in the tube after its advancement, the soil test method specified by the Environment Officer for each soil sample and all necessary instructions from the site engineer to the laboratory technician.

6. All drill and sample holes shall be sealed with bentonite pellets after the field drilling and sampling has been completed.

Soil Testing Methods:

1. Triaxial Test Method
   a) The soil samples shall be tested for hydraulic conductivity using ASTM D 5084 (Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter).
   b) Soil specimens shall have a minimum diameter of 70 mm (2.75 inches) and a minimum height of 70 mm (2.75 inches). The soil specimens shall be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The hydraulic gradient shall not exceed 30 during sample preparation and testing. Swelling of the soil specimen should be controlled to adjust for: the amount of compaction measured during sample collection and extraction from the tube and the depth or elevation of the sample. The effective stress used during saturation or consolidation of the sample shall not exceed 40 kPa (5.7 psi) or the specific stress level, that is expected in the field location were the sample was taken, which ever is greater.
   c) The complete laboratory report, as outlined in ASTM D 5084, shall be supplied for each soil sample collected in the field.

2. Oedometer Test Method
   a) The soil samples shall be tested for hydraulic conductivity using ASTM D 2435 (Standard Test Method for One-Dimensional Consolidation Properties of Soils).
   b) Soil specimens shall have a minimum diameter of 50 mm (2 inches) and a minimum height of 20 mm (0.8 inches). The soil specimens shall be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The soil specimen shall be taken from an undisturbed soil sample. The soil specimen shall be completely saturated.
   c) The complete laboratory report, as outlined in ASTM D 2435, shall be supplied for each soil sample collected in the field.