

Licence No.: 2391

Licence Issued: April 27, 1999

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

SANDYBANK HOLDING CO. LTD.; "the Licencee"

for the reconstruction, expansion and operation of the Development being a wastewater treatment lagoon located on the southeast quarter of Section 22, Township 7, Range 13 WPM and with discharge of treated effluent by irrigation onto land owned by the Licencee in accordance with the Proposal filed under The Environment Act on June 10, 1998, 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 Environment to be equivalent to the SCC, or at a laboratory which can demonstrate to Manitoba Environment 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;

"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;

"ASAE" means the American Society of Agricultural Engineers;

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

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

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

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

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

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

"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;

"in-situ" means on the site;

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

"**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;

"**PVC**" means polyvinyl chloride;

"**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;

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

"**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 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 Cypress Colony farmsite toward the wastewater treatment lagoon or other approved sewage treatment facilities.
2. The Licencee shall ensure that waste and wastewater other than sewage is not discharged into the wastewater treatment lagoon.
3. The Licencee shall construct, 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 does not exceed 1.5 metres.
4. The Licencee shall, in case of physical or mechanical breakdown of the wastewater collection and/or treatment system:
 - a. notify the Director immediately;
 - b. identify the repairs required to the wastewater collection and/or treatment system;

- c. undertake all repairs to minimize unauthorized discharges of wastewater; and
 - d. complete the repairs in accordance with any written instructions of the Director.
5. The Licencee shall install and maintain a fence around the wastewater treatment lagoon to control access.
6. 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.
7. 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 most current 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 Pollution Control Federation, or in accordance with an equivalent analytical methodology 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.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

8. The Licencee shall, prior to October 1, 1999, construct and maintain a continuous polyvinyl chloride geosynthetic membrane liner underlying each cell of the wastewater treatment lagoon system and shall ensure that the PVC liner:
 - a. is installed in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;
 - b. is installed to minimum elevations of 1.8 metres above the base of both the primary and secondary cells respectively;
 - c. has a minimum thickness of 20 mils;
 - d. 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;
 - e. is tested for the integrity of all field seams by the air lance or ultrasonic pulse echo test method, in accordance with ASTM Standard D 4437-84, and a testing report is prepared and submitted to the Director, for approval; and
 - f. 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.
9. The Licencee shall construct and maintain a gas relief system under the liner for all cells of the wastewater treatment lagoon.
10. The Licencee shall ensure that if, in the opinion of the Director, significant erosion of the granular material covering the liner occurs, rip rap shall be placed on the interior dyke surfaces from 0.6 metres above the high

water mark to 0.6 metres below the low water mark.

DISCHARGE LIMITS, TERMS AND CONDITIONS

11. 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; or
 - d. between the 15th day of October of any year and the 1st day of June of the following year.
12. The Licencee shall ensure that all effluent is disposed of by spray irrigation onto land owned by the Licencee and that:
 - a. effluent is only discharged to irrigate:
 - i. actively growing cereal, forage or oil seed crops;
 - ii. grasslands which will not be utilized for grazing:
 - A. by dairy cattle for at least 30 days after effluent is applied; or
 - B. by livestock other than dairy cattle for at least 7 days after effluent is applied;
 - b. after agriculture crops are irrigated, harvesting of the crops does not take place for at least 7 days;
 - c. if corn has been grown, it is used solely for making silage;
 - d. for at least 10 continuous hours in every 24-hour period, no effluent is applied to the particular lands; and
 - e. if ponding or surface runoff occurs during application, the gross depth of effluent applied during any application of effluent shall be reduced so that ponding or surface runoff does not occur.
13. The Licencee shall not discharge effluent, by spray irrigation:
 - a. within 300 metres of any dwelling not owned or lawfully controlled by the Licencee;
 - b. within 100 metres of any surface watercourse or groundwater well;
 - c. within 100 metres of any property boundary; or
 - d. on land with a surface slope in excess of twelve percent.
14. The Licencee shall ensure that lands which have been irrigated with effluent are not used for the growing of vegetable crops for a period of three years after the effluent was applied to those lands.
15. 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.
16. 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.
17. The Licencee shall implement an ongoing program to ensure that burrowing animals are removed from the site of the wastewater treatment lagoon.
18. The Licencee shall prior to each effluent discharge campaign obtain grab samples of the treated wastewater and have them analyzed for:

- a. the organic content as indicated by the five day biochemical oxygen demand and expressed as milligrams per litre;
- b. the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample; and
- c. the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample.

19. 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 19. 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.

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

21. The Licencee shall not cover the PVC liner or use the wastewater treatment lagoon until receiving the approval of the Director of the report submitted pursuant to sub-Clause 8. e) of this Licence.

22. 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 June, 2000, two sets of "as constructed drawings" of the wastewater treatment lagoon.

REVIEW AND REVOCATION

- A. This Licence replaces Licence No. 545 which 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 the Licencee has not commenced construction of the Development within three years of the date of this Licence, the Licence is revoked.
- D. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.

"original signed by"

Larry Strachan, P. Eng.

Director

Environment Act

Client File No.: 1026.10