

# Environment Act Licence

Manitoba  
Environment



Licence No. 1997  
Issue Date February 21, 1995

In accordance with the Manitoba Environment Act (C.C.S.M. c. E125)

THIS LICENCE IS ISSUED TO:

**EDEN HOLDING CO. LTD.: "the Licencee"**

for the construction and operation of the Development being a wastewater collection system, a disposal well and a wastewater treatment lagoon located on the north-west quarter Section 11, Township 8, Range 5 WPM and with discharge of treated effluent by irrigation onto agricultural land, in accordance with the Proposal filed under The Environment Act dated May 26, 1993 and revised on July 12, 1993, April 6, 1994, August 17, 1994, September 13, 1994, December 9, 1994, and subject to the following specifications, limits, terms and conditions:

## **DEFINITIONS**

In this Licence,

“**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;

“**ASAE**” means the American Society of Agricultural Engineers;

“**ASTM**” means the American Society for Testing and Materials;

“**coefficient of permeability**” 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;

“**Director**” means an employee so designated pursuant to the Environment Act;

“**effluent**” means treated wastewater flowing or pumped out of the wastewater treatment lagoon or sewage treatment plant;

**“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;

**“hazardous waste”** means a product, substance or organism that meets the criteria set out in the Classification Criteria for Products, Substances and Organisms Regulation, Manitoba Regulation 282/87, and that is intended for treatment or disposal and includes recyclable material;

**“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;

**“influent”** means water, wastewater, or other liquid flowing into a wastewater treatment facility;

**“livestock waste”** means manure from livestock;

**“livestock”** means animals or poultry not kept exclusively as pets, excluding bees;

**“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;

**“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;

**“recyclable material”** means a hazardous waste that is intended for reuse, recovery or recycling but does not include a product, substance or organism

- (a) that is to be applied into or onto land, or
- (b) that is to be disposed of in a thermal destruction process;

**“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;



**“sludge”** means accumulated solid material containing large amounts of entrained water, which has separated from wastewater during processing;

**“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;

**“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 REQUIREMENTS

1. The Licencee shall direct all wastewater generated within the farmsite toward the wastewater treatment lagoon or other approved wastewater treatment facilities.
2. The Licencee shall ensure that the following substances are not discharged to the wastewater collection system or the wastewater treatment lagoon:
  - (a) backwash from the water softening system;
  - (b) hazardous wastes; and
  - (c) livestock waste.
3. 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 or 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. The Licencee shall ensure that the backwash from the water softening system is disposed of in a deep disposal well or in another approved manner.

### **CONSTRUCTION SPECIFICATIONS**

- 7. The Licencee shall construct and maintain a continuous poly-vinyl chloride geosynthetic membrane liner underlying each cell of the wastewater treatment lagoon system such that:
  - (a) the liner shall be installed in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;
  - (b) the liner shall be installed to minimum elevations of 1.8 metres above the base of both the primary and secondary cells respectively;
  - (c) the liner shall have a minimum thickness of 20 mils;
  - (d) the liner shall be free of holes and its coefficient of permeability shall not exceed  $1.0 \times 10^{-9}$  centimetres per second over the entire surface area of both the primary and secondary cells;
  - (e) in accordance with ASTM Standard D-4437, the integrity of all field seams shall be tested by the air lance or ultrasonic pulse echo test methods and a testing report shall be prepared; and
  - (f) the liner shall be covered with sand or other granular cover material to a minimum depth of 0.30 metre measured perpendicular to the surface of the liner.
- 8. The Licencee shall construct and maintain a gas relief system under the liner for both cells of the wastewater treatment lagoon.
- 9. 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 to protect the dykes from wave action.
- 10. The Licencee shall construct a deep disposal well, for backwash from the water softening system, to a minimum depth of 100 metres from the ground surface.

### **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 1st day of October of any year and the 15th day of May of the following year.
12. The Licencee shall ensure that all effluent is disposed of by spray irrigation onto land owned by or under the control of 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 seven days after effluent is applied;
  - (b) after agriculture crops are irrigated, harvesting of the crops does not take place for at least seven 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;
  - (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;
  - (f) the sodium adsorption ratio of the effluent does not exceed 6.0; and
  - (g) the chloride application rate does not exceed 100 kilograms per hectare per year.
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; or
  - (c) within 100 metres of any adjoining property boundary.


#### **MONITORING AND REPORTING SPECIFICATIONS**

14. The Licencee shall:
- (a) sample the disposal well once each year, in the winter;
  - (b) have the samples analyzed for: conductivity, pH, sodium, chloride using methods from the latest edition of Standard Methods for the Examination of Water and Wastewater or using other methods approved by the Director;
  - (c) measure the volume of wastewater discharged into the disposal well each month;

- (d) record the pressure in the disposal well at least once per month; and
  - (e) submit the information required in (b), (c), and (d) of this Licence, to the Director on or before the 1st day of April of each year.
15. The Licencee shall submit a report to the Director on the construction of the disposal well, the hydraulic properties of the well, the quality of the water in the disposal formation and the expected pressure build-up during injection, within 60 days after completion of the disposal well.
16. The Licencee shall, at least 2 weeks before each cell of the wastewater treatment lagoon is placed in operation, submit to the Director all reports and results of the tests carried out pursuant to Clause 7 of this Licence.
17. 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 June 1, 1996, "as constructed drawings" of the wastewater treatment lagoon.

#### **REVIEW AND REVOCATION**

18. 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 herein, the Director may revoke, temporarily or permanently, this Licence.



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**Larry Strachan, P. Eng.**  
**Director**  
**Environment Act**

**FILE: 3622.00**