

# Environment Act Licence

Manitoba  
Environment



Licence No. 1890

Issue Date APRIL 22, 1994

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

THIS LICENCE IS ISSUED TO:

**KEYSTONE HOLDING CO. LTD.; "the Licencee"**

for the construction and operation of the Development being a wastewater collection system and a wastewater treatment lagoon located on the southeast quarter Section 7, Township 13, Range 1 WPM and with discharge of treated effluent by spray irrigation onto land owned by the Licencee and subject to the following specifications, limits, terms and conditions:

## DEFINITIONS

In this Licence,

"**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;

"**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;

"**cut-off**" means a vertical-side trench filled with compacted clay or a wall constructed from compacted clay;

"**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;

**“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;

**“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;

**“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;

**“sludge solids”** means solids in sludge;

**“spray irrigation”** means the application of effluent to crops by spraying it from orifices in piping under pressure;

**“total coliform”** means a group of aerobic and facultative anaerobic, Gram-negative, non-spore-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 occasionally found elsewhere and include the sub-group of fecal coliform bacteria;

**“wastewater treatment lagoon”** means an impoundment into which wastewater is discharged for storage and treatment by natural oxidation;

**“sewage”** means household and commercial wastewater that contains human waste.

## GENERAL REQUIREMENTS

1. The Licencee shall direct all sewage generated within the farmsite toward the wastewater treatment lagoon or other approved sewage treatment facilities.
2. 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 does not exceed 1.5 metres.
3. 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.
4. The Licencee shall install and maintain a fence around the wastewater treatment lagoon to limit access.

## CONSTRUCTION SPECIFICATIONS

5. The Licencee shall, prior to the construction of the dykes for the expansion to the 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 liner will be constructed.
  
6. The Licencee shall construct the wastewater treatment lagoon with a continuous clay liner under all interior surfaces of the structure in accordance with the following specifications:
  - (a) the liner shall be constructed of clay;
  - (b) the liner shall be at least one metre in thickness;
  - (c) the liner shall have a hydraulic conductivity of  $1 \times 10^{-7}$  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 respective primary or secondary cells.

## DISCHARGE LIMITS, TERMS AND CONDITIONS

7. 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.
  
8. 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.
9. 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 adjoining property boundary.

### **MONITORING AND REPORTING SPECIFICATIONS**

- 10. 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.
- 11. The Licencee shall subject undisturbed soil samples from the liner to hydraulic conductivity tests; with the number and location of samples to be specified by the designated Environment Officer up to a maximum of 20 samples.
- 12. The Licencee shall provide a drill rig which is acceptable to the designated Environment Officer to extract soil samples from the liner and the cut-off.

13. The Licencee shall ensure that all drill holes are sealed with bentonite pellets after the field drilling and sampling have been completed.
14. The Licencee shall, not less than two weeks before the wastewater treatment lagoon is placed in operation, submit to the Director the results of the tests carried out pursuant to Clause 11 of this Licence.
15. The Licencee shall, on or before 1st day of June, 1995, provide to the Director "as constructed" drawings of the wastewater treatment lagoon and all appurtenances.

### REVOCATION

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

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