

**Licence No.: 2587**

**Licence Issued: January 20, 2003**

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

**RURAL MUNICIPALITY OF GIMLI; "the Licencee"**

for the construction and operation of the Development being a wastewater collection system and a wastewater treatment plant, including a truck dumping station, located on the west half of Section 18, Township 19, Range 4 EPM in the Rural Municipality of Gimli and with discharge of treated effluent to an effluent outfall forcemain into Lake Winnipeg in an outfall discharge structure, and sludge storage ponds located on the southwest quarter of Section 26 Township 18 Range 3 EPM in the Rural Municipality of Gimli in accordance with the Proposal filed under The Environment Act on May 8, 2002 and additional information dated October 21, 2002 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;

**"aerobic digestion"** means the degradation of organic matter brought about through the action of microorganisms in the presence of elemental oxygen;

**"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;

**"biosolids"** means accumulated organic solids, resulting from wastewater treatment processes, that have received adequate treatment to permit the material to be recycled;

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

**"effluent"** means treated or untreated wastewater flowing or pumped out of the wastewater treatment facility or any component of the facility;

**"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 5 days at a temperature of 20° C;

**"grab sample"** means a quantity of undiluted effluent collected at any given time;

**"influent"** means water, wastewater, or other liquid flowing into the wastewater treatment facility or any component of the facility;

**"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 the 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, from 5 different persons falling within clauses a), b), or c), who do not live in the same household;

**"overflow detention pond"** means the earthen pond located adjacent to the wastewater treatment plant that is designed for temporary overflow storage of wastewater;

**"Phase I"** means the Development operating with two SBRs and two aerobic digesters, which are designed to treat a maximum hydraulic loading of 8400 cubic metres and a maximum organic loading of 2520 kilograms of five-day biochemical oxygen demand over any 24 hour period;

**"Phase II"** means the Development operating with three SBRs and three aerobic digesters, which are designed to treat a maximum hydraulic loading of 12 900 cubic metres and a maximum organic loading of 3870 kilograms of five day biochemical oxygen demand over any 24 hour period;

**"precipitation runoff"** means rain, snow melt water, or ice melt water;

**"SBR"** means sequencing batch reactor;

**"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;

**"sludge storage ponds"** means the earthen ponds located on the southwest quarter of Section 26 Township 18 Range 3 EPM in the Rural Municipality of Gimli that are designed for storage of sludge treated by aerobic digestion;

**"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;

**"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;

**"truck dumping station"** means a facility used to receive, store and meter wastewater, including septage, which has been hauled to the wastewater treatment plant with a truck;

**"WAS"** means waste activated sludge removed from the SBR basins;

**"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 or any subsequent amendment thereof or a Licence pursuant to The Environment Act;

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

**"wastewater treatment plant"** means the component of this development which consists of the central facility of the wastewater treatment facilities which contain all treatment processes exclusive of the wastewater collection systems.

### **GENERAL REQUIREMENTS**

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 Rural Municipality of Gimli toward the wastewater treatment plant or other approved wastewater treatment facilities.
2. In addition to any of the following specifications, limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
  - a. sample, monitor, analyze 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, ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, and for such duration and at such frequencies as may be specified;
  - b. determine the environmental impact associated with the release of any pollutant 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 the Standard Methods for the Examination of Water and Wastewater, or in accordance with equivalent analytical methodologies approved by the Director;
  - b. ensure that all analytical determinations are undertaken by an accredited laboratory or a laboratory approved by the Director; 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.
4. 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.
5. The Licencee shall transport wastewater and septage in enclosed containers in such a manner to prevent loss of wastewater and septage to the satisfaction of an Environment Officer.
6. The Licencee shall, in case of physical or mechanical breakdown of the wastewater collection and/or the wastewater treatment plant:
  - a. notify the Director immediately;
  - b. identify the repairs required to the wastewater collection and/or the wastewater treatment plant; and
  - c. complete the repairs in accordance with any written instructions of the Director.

7. The Licencee shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate an odour nuisance.
8. The Licencee shall install and maintain a fence around the overflow detention ponds to limit access.
9. The Licencee shall install and maintain a fence around the sludge storage ponds to limit access.
10. The Licencee shall install, operate, and maintain an effluent discharge pipeline from the wastewater treatment plant terminating a minimum of 400 metres offshore into Lake Winnipeg, and shall take the necessary steps to prevent freezing of the effluent in the pipeline.
11. The Licencee shall actively participate in any future watershed based management study, plan or nutrient program, approved by the Director, for Lake Winnipeg and associated waterways and watersheds.

### **SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS**

12. The Licencee shall, prior to beginning construction and installation of the Lake Winnipeg Effluent Discharge Structure, consult with Manitoba Conservation Fisheries staff and Department of Fisheries and Oceans staff regarding the following:
  - a. timing of construction and installation of the structure, including in-water work;
  - b. details of the construction and installation of the structure, including type of equipment to be used, size of concrete structure and type of installation;
  - c. sediment and erosion control plans to be carried out during construction and installation of the structure; and
  - d. ongoing maintenance, inspection and cleaning requirements of the structure.
13. The Licencee shall limit the wastewater load on the wastewater treatment plant as follows:
  - a. during Phase I operation:
    - i. the hydraulic loading not to exceed 8400 cubic metres over any 24 hour period; and
    - ii. the organic loading not to exceed 2520 kilograms of five-day biochemical oxygen demand over any 24 hour period; and
  - b. during Phase II operation:
    - i. the hydraulic loading not to exceed 12 900 cubic metres over any 24 hour period; and
    - ii. the organic loading not to exceed 3870 kilograms of five-day biochemical oxygen demand over any 24 hour period.
14. The Licencee shall install and maintain adequate instrumentation 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. a UV sensor to monitor lamp intensity;
  - b. an appropriate alarm;
  - 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.
15. The Licencee shall:
  - a. construct and make available for use by an Environment Officer, a secured and heated effluent

monitoring station on all discharge pipelines or channels and shall provide direct access to the effluent pipelines or channels;

- b. make the monitoring stations accessible to an Environment Officer at all times;
  - c. install and maintain a flow measuring device at the monitoring station or at a location acceptable to the Director which is capable of measuring the volume of influent with an accuracy of  $\pm 2$  percent;
  - d. have the flow measuring device re-calibrated biannually or on the request of an Environment Officer; and
  - e. equip each monitoring station with a flow-proportional sampling device equipped to function with the flow measuring device and have the sampling device available on request for use by an Environment Officer.
16. The Licencee shall not discharge effluent from the wastewater treatment plant:
- a. where the organic content of the effluent, as indicated by the five day biochemical oxygen demand, is in excess of 20 milligrams per litre;
  - b. where the total suspended solids content of the effluent is in excess of 20 milligrams per litre;
  - c. where the fecal coliform content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the weekly geometric mean for the months of June, July, August and September and by the monthly geometric mean for all other months;
  - d. where the total coliform content of the effluent, as indicated by the MPN index, is in excess of 1500 per 100 millilitres of sample, as determined by the weekly geometric mean for the months of June, July, August and September and by the monthly geometric mean for all other months;
  - e. where the total phosphorous content of the effluent is in excess of 1.0 milligrams per litre; or
  - f. where the total ammonia is in excess of the concentration specified in Schedule 1 attached to this Licence, as determined by the pH of the effluent.
17. The Licencee shall, when not in use for temporary overflow storage of wastewater, maintain the liquid depth in the overflow detention pond at an elevation of not less than 0.3 metres above the floor elevation of the pond and not greater than 0.5 metres above the floor elevation of the pond.
18. The Licencee shall, prior to the construction of the dykes for the sludge storage 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 cut-off will be constructed.
19. The Licencee shall construct and maintain the sludge storage ponds with a continuous liner, including cut-offs, under all interior surfaces of the cells in accordance with the following specifications:
- a. the liner shall be made 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 at all locations; and
  - d. the liner shall be constructed to an elevation of 2.5 metres above the floor elevation of both the primary and secondary cells.
20. 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.
21. The Licencee shall take and test samples, in accordance with Schedule 2 attached to this Licence, from the liner of the sludge storage 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.
22. The Licencee shall, within 60 days of the date on which the samples were taken, submit to the Director the

results of the tests carried out pursuant to Clause 21 of this Licence.

23. The Licencee shall operate and maintain the sludge storage ponds in such a manner that the depth of liquid in any cell does not exceed 1.5 metres.
24. The Licencee shall, prior to discharging to the sludge storage ponds, treat the sludge solids by aerobic digestion for a period of 25 days at a minimum temperature of 10° C, or by an equivalent digestion process acceptable to the Director.
25. The Licencee shall not discharge wastewater, including septage, into the sludge storage ponds.
26. The Licencee shall provide and maintain a grass cover on the dykes of the sludge storage 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.
27. The Licencee shall annually remove by mechanical methods all reeds, rushes and trees located above the low water mark in every cell of the sludge storage ponds.
28. The Licencee shall implement an ongoing program to remove burrowing animals from the site of the sludge storage ponds.
29. The Licencee shall remove the supernatant from the sludge storage ponds and return the supernatant to the wastewater treatment plant or other approved wastewater treatment facility for treatment.
30. The Licencee shall dispose of sludge solids in accordance with the requirements of Environment Act Licence 2473 R or any future amendment thereof issued to the Rural Municipality of Gimli.

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

31. The Licencee shall maintain a record of all wastewater hauled to the wastewater treatment plant, including the number of loads on a daily and weekly basis, the volume of each load, the name of the hauler, and the source of the contents of each load according to the type of waste and the name and location of each property serviced. The Licencee shall submit an annual report of all the waste hauling information to the Director on or before the 1st of March of each year.
32. The Licencee shall:
  - a. take one flow proportional sample of effluent from the wastewater treatment plant over a 24 hour period during each week;
  - b. have the flow proportional sample analyzed for five day biochemical oxygen demand, ammonia, total phosphorous and total suspended solids; and
  - c. report the results to the Director within 30 days of the end of the month during which the samples were taken.
33. The Licencee shall:
  - a. during the months of June, July, August and September of each year:
    - i. each week, take 3 grab samples of the effluent from the wastewater treatment plant with a minimum separation time of 48 hours between taking each sample;
    - ii. have each of the samples collected pursuant to sub-section a)i) of this Clause analyzed for pH, temperature, fecal coliform content and total coliform content; and
    - iii. determine and record the weekly geometric mean for each of the fecal coliform and total coliform counts based on all the data collected during each week;

- b. during all other months of each year:
    - i. take 3 grab samples of the effluent from the wastewater treatment plant with a minimum separation time of 2 hours between taking each sample, during the day on which the flow proportional sample collected pursuant to Clause 32 of this Licence is collected;
    - ii. have each of the samples collected pursuant to sub-section b)i) of this Clause analyzed for pH, temperature, fecal coliform content and total coliform content; and
    - iii. determine and record the monthly geometric mean for each of the fecal coliform and total coliform counts based on all the data collected during each month; and
  - c. report the results to the Director within 30 days of the end of the month during which the samples were taken.
34. The Licencee shall, for a one year period commencing with the operation of the Development:
- a. take one flow proportional sample of effluent from the wastewater treatment plant over a 24 hour period during each month and with a minimum separation time of 27 days between samples;
  - b. have the samples analyzed for acute lethality in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Acute Lethality Test Using Rainbow Trout", Report No. EPS 1/RM/13 dated July 1990, or any future amendment thereof; and
  - c. report the results to the Director within 30 days of the end of the month during which the samples were taken.
35. The Licencee shall, in the event the overflow detention pond is used for temporary overflow storage of wastewater:
- a. prepare a detailed report of the event which includes:
    - i. the reason the overflow detention pond was used;
    - ii. what, if any, equipment failure resulted in the use of the overflow detention pond;
    - iii. the amount of wastewater stored in the overflow detention pond; and
    - iv. the duration the overflow detention pond was in use;
  - b. submit the report to the Director within 30 days of the event; and
  - c. at the request of the Director and in accordance with any written instructions, undertake an assessment to determine the adequacy of the hydraulic capacity of the wastewater treatment plant.
36. The Licencee shall, prior to the operation of the Development:
- a. in consultation with the Interlake Regional Medical Officer of Health, develop an emergency response and public notification system to be implemented in case of actual or suspected disinfection malfunction;
  - b. submit the plan developed pursuant to sub-section a) of this Clause to the Director for approval; and
  - c. implement the plan as approved by the Director.
37. The Licencee shall:
- a. submit a plan, on or before December 31, 2003 for a phased sewer repair program to the Director for approval; and
  - b. implement the phased sewer repair program in accordance with the approval of the Director.
38. The Licence shall:
- a. within three years of the date of this Licence or earlier upon the written request of the Director, submit a plan to the Director for approval for an odour control system; and

- b. implement the odour control system plan in accordance with the approval of the Director.

39. The Licencee shall:

- a. prepare "as constructed drawings" for the Development, including the wastewater treatment facility, the overflow detention ponds, the sludge storage ponds and the effluent discharge pipeline complete with final elevations and shall label the drawings "As Constructed Drawings"; and
- b. provide to the Director, within two months after placing the Development into operation, "as constructed drawings" of the Development.

### **DECOMMISSIONING**

40. The Licencee shall, after placing the Development into operation, prevent additional wastewater or septage from being discharged into the wastewater treatment lagoon located on the southwest quarter of Section 9, Township 19, Range 4 EPM.

41. The Licencee shall:

- a. within one year of the date of this Licence, submit to the Director for approval a plan to decommission the existing wastewater treatment lagoon; and
- b. carry out the decommissioning plan approved by the Director within such time as may be prescribed by the Director.

42. The Licencee shall, after placing the Development into operation, prevent additional wastewater or septage from being discharged into the old wastewater treatment plant located on the west half of Section 18, Township 19, Range 4 EPM.

43. The Licencee shall, after placing the Development into operation, decommission the old wastewater treatment plant in accordance with the decommissioning terms stated in the Proposal filed on May 8, 2002 and the following conditions:

- a. empty all tanks of any sewage or other liquid wastes by hauling to the truck dump station;
- b. dispose of sludge solids in the sludge storage ponds; and
- c. transport sewage and sludge solids in containers in such a manner to prevent loss of sewage and sludge solids to the satisfaction of an Environment Officer.

### **REVIEW AND REVOCATION**

- A. This Licence replaces Licence No. 1467 and Licence No. 1409, which are hereby rescinded effective the date the Development is placed into operation.
- B. This Licence replaces Licence No. 2140 S2 RR, which is hereby rescinded effective the date the Development is placed into operation.
- 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, this 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.



"original signed by"

**Larry Strachan, P. Eng.**

**Director**

**Environment Act**

**Client File No.: 4814.00**

**Schedule 1 To Environment Act Licence No. 2587**

**Maximum Total Ammonia - Acute Toxicity Limits**

Effluent pH	Total Ammonia (mg/L)
6.50	48.83
6.60	46.84
6.70	44.57
6.80	42.00
6.90	39.16
7.00	36.09
7.10	32.86
7.20	29.54
7.30	26.21
7.40	22.97
7.50	19.89
7.60	17.03
7.70	14.44
7.80	12.14
7.90	10.13
8.00	8.41
8.10	6.95
8.20	5.73
8.30	4.71
8.40	3.88
8.50	3.20
8.60	2.65
8.70	2.20
8.80	1.84
8.90	1.56
9.00	1.32

## **Schedule 2 to Environment Act Licence No. 2587**

### Soil Sampling:

1. The Licencee shall provide a drilling rig, acceptable to the designated Environment Officer, to extract samples from the liner that is not placed or found at the surface of the lagoon structure. This includes all wastewater treatment lagoons constructed with clay cut-offs at the interior base of the dyke or with a clay cut-off in the centre of the dyke. The drill rig shall have the capacity to drill to the maximum depth of the clay cut-off plus an additional depth of 2 metres. The drill rig shall be equipped with both standard and hollow stem augers. The minimum diameter of the hole shall be 5 inches.
2. For lagoon liners placed or found at the surface of the lagoon 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. 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 where 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 or weathered soils.
5. The Licencee shall provide, to the designated Environment Officer and to the laboratory technician, a report on the collection of soil samples that includes but is not limited to the following: a plot plan indicating all drill holes, onsite visual observations, 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 that 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 where the sample was taken, which ever is greater.
  - c. A 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 that 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. A complete laboratory report, as outlined in ASTM D 2435, shall be supplied for each soil sample collected in the field.