

# Environment Act Licence

## Loi sur l'environnement Licence

Manitoba  
Conservation  
Conservation  
Manitoba



Licence No./Licence n° 2407 S2 R

Issue Date/Date de délivrance October 21, 2003

Revised: **May 3, 2004**

**IN ACCORDANCE WITH THE MANITOBA ENVIRONMENT ACT (C.C.S.M. c. E125)  
THIS LICENCE IS ISSUED PURSUANT TO SECTION 11(1) AND 14(2) TO:**

**THE CITY OF FLIN FLON; "the Licencee"**

for the construction and operation of the Development being a wastewater collection system and Sequencing Batch Reactor or modified Sequencing Batch Reactor sewage treatment plant located on Parcel A, Plan No. 202, PALTO in the northeast quarter of Section 36, Township 66, Range 30WPM in the Province of Saskatchewan, in accordance with the Proposal filed under Section 14 of The Environment Act on December 9, 2002 and the additional information dated February 11, 2003, June 6, 2003, August 11, 2003, August 12, 2003, September 16, 2003, September 17, 2003, September 23, 2003 and September 29, 2003, and the approved alterations relating to the January 26, 2004 Notice of Alteration 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;

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

**"as constructed drawings"** means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

**"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 over a 24-hour period, 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 overflow detention pond;

**"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"** (BOD<sub>5</sub>) means that part of oxygen usually associated with biochemical oxidation of organic material within 5 days at 20°C;

**"five-day carbonaceous biochemical oxygen demand"** (CBOD<sub>5</sub>) means that part of the oxygen demand usually associated with biochemical oxidation of carbonaceous organic matter within 5 days at a temperature of 20°C, excluding BOD associated with nitrogenous organic matter;

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

**"influent"** means water, wastewater, or other liquid flowing into the sewage treatment plant;

**"headworks"** means the initial structures and devices of the sewage treatment plant;

**"MPN index"** means the most probable number of coliform organisms in a given volume of wastewater as determined by statistical estimation;

**"MSBR"** means modified sequencing batch reactor;

**"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;

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

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

**"sewage treatment plant"** means the component of this development which consists of the central facility, of the wastewater treatment facilities, which contains all treatment processes exclusive of the wastewater collection system;

**"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;

**"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 are occasionally found elsewhere and include the sub-group of fecal coliform bacteria;

**"UV disinfection"** means a disinfection process for treating wastewater using ultraviolet radiation;

**"UV dose"** means the unit of intensity of ultra violet light that is required to kill bacteria and viruses present in the sewage effluent;

**"WAS"** means waste activated sludge removed from the SBR or MSBR basin(s);

**"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 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 collection system"** means the sewer and pumping system used for the collection and conveyance of domestic, commercial and industrial wastewater.

### 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. 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, handling, treatment and disposal systems, for such pollutants, ambient quality, aquatic toxicity, seepage characteristics and discharge rates and for such duration and 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, bioassay data, flow rate measurements and such other information as may from time to time be requested.
  
2. The Licencee shall, unless otherwise specified in this Licence:
  - a) carry out all preservations and analyses of liquid samples in accordance with the methods prescribed in the Standard Methods for the Examination of Water and Wastewater, or in accordance with equivalent preservation and analytical methodologies approved by the Director;
  - b) have analytical determinations undertaken by an accredited laboratory; and

- c) report the results to the Director, in writing, within 60 days of the samples being taken.
3. 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.
4. The Licencee shall operate the wastewater collection system and the sewage treatment plant in such a manner that:
  - a) all the wastewater generated within the City of Flin Flon is directed towards the Flin Flon Sewage Treatment Plant or other approved wastewater treatment system; and
  - b) only wastewater as defined in this Licence is discharged into the sewage treatment plant.
5. The Licencee shall remove an adequate amount of liquid from the WAS and other sludge and treated solid materials generated as waste by the sewage treatment plant and dispose of it at a waste disposal ground.
6. 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.
7. The Licencee shall install, operate, and maintain an effluent discharge pipeline from the sewage treatment plant into Ross Creek, and shall take the necessary steps to prevent freezing of the effluent in the pipeline.
8. The Licencee shall install 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) appropriate alarm and shutdown systems;
  - 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.
9. The Licencee shall install and maintain a security fence around all components of the sewage treatment plant and sludge dewatering facility, that are not enclosed within secured buildings.

**SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS**

10. The Licencee shall limit the wastewater load on the sewage treatment plant as follows:
  - a) hydraulic loading not to exceed 9400 m<sup>3</sup> for any 24-hour period; and
  - b) organic loading not to exceed 1410 kilograms of five-day biochemical oxygen demand (BOD<sub>5</sub>) for any 24-hour period.
11. The Licencee shall subject all sludge to aerobic digestion, or an equivalent digestion process acceptable to the Director, where:
  - a) the digester contents have a minimum of 2 milligrams per litre dissolved oxygen during aeration;
  - b) the digester contents are maintained at a minimum temperature of 10°C; and
  - c) the digester provides a minimum solids retention time of 40 days.
12. The Licencee shall utilize UV lamps that have a rated output of at least 254 nanometres (nm) capable of delivering a germicidal dose in excess of 30,000 microwatt seconds/sq cm.
13. The Licencee shall operate and maintain the UV units to give a germicidal dose of 80% or more of the design germicidal dose, at the end of the lamp life.
14. The Licencee shall not discharge sewage effluent from the sewage treatment plant, where:
  - a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>), is in excess of 25 milligrams per litre;
  - b) the fecal coliform content of the sewage effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample at the final discharge point as determined by the monthly geometric mean of 1 grab sample collected at equal time intervals on each of a minimum of 3 consecutive days per week;
  - c) the total coliform content of the sewage effluent, as indicated by the MPN index, is in excess of 1500 per 100 millilitres of sample at the final discharge point as determined by the monthly geometric mean of 1 grab sample collected at equal time intervals on each of a minimum of 3 consecutive days per week;
  - d) the suspended matter content of the sewage effluent, as indicated by the non-filterable residue is in excess of 30 milligrams per litre;
  - e) the total phosphorus content of the effluent is in excess of 1.0 milligram per litre, as determined by the thirty-day rolling average; or
  - f) the concentration of total ammonia is in excess of the loadings indicated in Schedule 1 attached to this licence.

### MONITORING AND REPORTING SPECIFICATIONS

15. The Licencee shall monitor, and make the records of such monitoring available to the Director as may be requested, the sewage treatment process for the following parameters:
  - a) total flow rate(s) into the plant;
  - b) flow rate(s) from the truck haul receiving station;
  - c) water level in the influent channel entering the headworks screen;
  - d) pH, dissolved oxygen, temperature, and tank liquid levels of the digestion processes;
  - e) water level in the equalization basin;
  - f) flow rate(s) into and through the UV disinfection system;
  - g) hydrocarbons at the truck haul receiving station; and
  - h) other process parameters approved or required by the Director.
  
16. The Licencee shall provide a heated and secured effluent monitoring station acceptable to the Director and equipped with:
  - a) a direct access way for an effluent sampling line to a location near the discharge from the UV disinfection chamber; and
  - b) an electrical power source of 15 amperes at 110 volts.
  
17. The Licencee shall arrange for the taking of samples of influent at the headworks inlet chamber and of treated sewage effluent at the effluent monitoring station.
  
18. The Licencee shall:
  - a) take one composite sample of effluent from the sewage treatment plant during the discharge period once each month;
  - b) have the composite effluent sample analyzed at an accredited laboratory for five day carbonaceous biochemical oxygen demand, field temperatures, field pH, ammonia, total phosphorus and total suspended solids, using methods from the Standard Methods for the Examination of Water and Wastewater, or using other methods approved by the Director;
  - c) have the grab samples analyzed at an accredited laboratory for fecal coliform content and total coliform content using methods from the Standard Methods for the Examination of Water and Wastewater, or using other methods approved by the Director; and
  - d) report the results to the Director within 60 days of the samples being taken.

19. The Licencee shall, in case of physical or mechanical breakdown of the wastewater collection and/or treatment system, including the UV disinfection system:
  - a) notify the Director immediately;
  - b) identify the repairs required to the waste collection and/or treatment system; and
  - c) complete the repairs in accordance with the written instructions of the Director.
  
20. The Licencee shall submit to the Director for approval, not later than March 31, 2004, a detailed sampling and monitoring program for determining the quality of the effluent and water from Ross Creek for a period of 3 years following the commissioning of the sewage treatment plant. The program shall contain the frequency and location of sampling of the water quality of Ross Creek with respect to the following parameters:
  - a) ammonia;
  - b) pH;
  - c) temperature; and
  - d) other parameters, specified by the Director, resulting from sewage treatment system upset or malfunction.
  
21. The Licencee shall, not less than 60 days after the results of the sample analysis are received, submit to the Director the results of the monitoring program for each year of the monitoring program carried out pursuant to Clause 20 of this Licence.
  
22. The Licencee shall actively participate in any future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for Ross Creek and associated waterways and watersheds.
  
23. The Licencee shall:
  - a) prepare "as constructed drawings" for the Development, including the sewage treatment facility and the effluent discharge pipeline complete with final elevations, and shall label the drawings "As Constructed"; and
  - b) provide to the Director, on or before December 30, 2005, two sets of "As Constructed Drawings" of the Development.

**DECOMMISSIONING OF RETIRED SEWAGE TREATMENT PLANT  
COMPONENTS**

24. The Licencee shall, within one year following successful commissioning of the SBR or MSBR sewage treatment plant, decommission the retired sewage treatment plant components, namely, the existing sludge drying beds, anaerobic digester and primary clarifier, as follows:
  - a) remove and dispose of or abandon and cap all existing connection piping of the components of the retired sewage treatment plant that will no longer be used;



- b) remove and dewater, and dispose of at a waste disposal ground, or by other means approved by the Director, the contents of the anaerobic digester, the primary clarifier, the sludge drying beds and all ancillary components being decommissioned;
  - c) remove, and dispose of at a waste disposal ground, or by other means approved by the Director, the mechanical and electrical equipment related to the anaerobic digester and primary clarifier being decommissioned;
  - d) demolish, and dispose of at a waste disposal ground, or by other means approved by the Director, the building shell of the old control building;
  - e) demolish, transfer into the bottom of and crush, at least the top 900 mm of the concrete tanks of the primary clarifier and anaerobic digester; and
  - f) backfill, compact and level all sites previously occupied by decommissioned components of the sewage treatment plant.
25. The Licencee shall submit to the Director for approval, not later than March 31, 2004, a detailed plan for decommissioning the existing outfall pipe and associated ancillary components of the retired sewage treatment plant.

#### REVIEW AND REVOCATION

- A. Licence No. 2407 S2 is rescinded and Licence No. 2407 S1 is rescinded upon approved commissioning of the upgraded sewage treatment plant.
- 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.



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

**Schedule 1**  
**To Environment Act Licence No. 2407 S2 R**

<b>Month</b>	<b>Maximum Allowable Total Ammonia in Wastewater Effluent (kg/d)</b>
January	60.0
February	58.2
March	57.5
April	58.2
May	57.8
June	31.4
July	23.7
August	23.2
September	27.6
October	42.0
November	56.0
December	57.1