



Sustainable Development

Environmental Stewardship Division
Environmental Approvals Branch
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5
T 204 945-8321 F 204 945-5229
www.gov.mb.ca/conservation/eal

CLIENT FILE NO.: 91.20

August 8, 2017

Susan Boyachek
Chief Administrative Officer
Gilbert Plains Municipality
Box 220
Gilbert Plains MB R0L 0X0

Dear Ms. Boyachek:

Enclosed is **Environment Act Licence No. 3225** dated August 8, 2017, issued to **Gilbert Plains Municipality** for the removal of biosolids and sludge solids from the municipal wastewater treatment lagoon located on NW 10-25-22 WPM and SW 15-25-22 WPM and the injection of the biosolids and sludge solids on agricultural land, in accordance with the Proposal filed under The Environment Act.

In addition to the enclosed Licence requirements, please be informed that all other applicable federal, provincial and municipal regulations and by-laws must be complied with. A Notice of Alteration must be filed with the Director for approval prior to any alteration to the Development as licensed.

For further information on the administration and application of the Licence, please feel free to contact Peter Crocker, Environment Officer, at 204-726-6565.

Pursuant to Section 27 of The Environment Act, this licensing decision may be appealed by any person who is affected by the issuance of this Licence to the Minister of Sustainable Development within 30 days of the date of the Licence.

Yours truly,

Tracey Braun, M.Sc.
Director
Environmental Approvals Branch

c: Don Labossiere/Tim Prawdzik/Peter Crocker, Environmental Compliance and Enforcement
Public Registries

NOTE: Confirmation of Receipt of this Licence No. 3225 (*by the Licencee only*) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space below and provide a copy (letter only) to the Department by August 22, 2017.

On behalf of Gilbert Plains Municipality

Date

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

LICENCE

Licence No. / Licence n°

3225

Issue Date / Date de délivrance

August 8, 2017

In accordance with The Environment Act (C.C.S.M. c. E125)
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Sections 11(1) / Conformément au Paragraphe 11(1)

THIS LICENCE IS ISSUED TO: / CETTE LICENCE EST DONNÉE À:

GILBERT PLAINS MUNICIPALITY;
"the Licencee"

for the operation of the Development being the removal of biosolids and sludge solids from Cell 1 and Cell 2 of the Gilbert Plains Municipality wastewater treatment lagoon located on NW 10-25-22 WPM and SW 15-25-22 WPM, the transportation, and the disposal by injection of the biosolids and sludge solids to agricultural land located within NE, NW and SW 02-25-22 WPM in Gilbert Plains Municipality and in accordance with the Proposal filed under The Environment Act on January 13, 2017 and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"**accredited laboratory**" means an analytical facility accredited by the Standards Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Sustainable Development 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;

"**affected area**" means a geographical area, excluding the property of the Development;

"**approved**" means approved by the Director or an assigned Environment Officer in writing;

"**aquifer**" means a water saturated geologic unit that will yield water to wells or springs at a sufficient rate so that the wells or springs can serve as practical sources of water supply;

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

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"day" means any 24-hour period;

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

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

"first order waterway" means a drain or watercourse serving a watershed with a drainage area of up to one square mile;

"flooding" means the flowing of water onto lands, other than waterways, due to the overtopping of a waterway or waterways;

"NIST" means the National Institute of Standards and Technology;

"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, 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;

"plant-available nitrogen" means nitrogen which is readily available to plants by uptake through the roots and is determined by adding 20 percent of the organic nitrogen (as nitrogen), 100 percent of the ammonia (as nitrogen) and 100 percent of the nitrate (as nitrogen);

"reference material" means soil or sludge material which is used as a reference;

"reference value" means the value established by the agency that supplied the reference material;

"second order waterway" means a drain or watercourse servicing a watershed with a drainage area greater than one square mile or having a tributary or tributaries which are first order waterways;

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

"sludge solids" means solids in sludge;

"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;

"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 the development which consists of an impoundment into which wastewater is discharged for treatment and storage; and

"water table" means the upper surface of the zone of saturation of a water bearing geologic unit.

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.

Future Sampling

1. 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;
 - c) conduct specific investigations in response to the data gathered during environmental monitoring programs; or
 - d) 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.
2. 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 or in accordance with equivalent preservation and analytical methodologies approved by the Director;
 - b) carry out all sampling of, and preservation and analyses on, soil, compost, and air samples in accordance with methodologies approved by the Director;

- c) have all analytical determinations undertaken by an accredited laboratory; and
- d) 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.

Reporting Format

3. The Licencee shall submit all information required to be provided to the Director or Environment Officer under this Licence, in written and electronic format, in such form (including number of copies), and of such content as may be required by the Director or Environment Officer, and each submission shall be clearly labelled with the Licence Number and Client File Number associated with this Licence.

Respecting Air Emissions

4. 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.

Equipment Breakdown or Process Upset

5. The Licencee shall, in the case of physical or mechanical equipment breakdown or process upset where such breakdown or process upset results or may result in the release of a pollutant in an amount or concentration, or at a level or rate of release, that causes or may cause a significant adverse effect, immediately report the event by calling the 24-hour environmental accident reporting line at 204-944-4888 (toll-free 1-855-944-4888). The report shall indicate the nature of the event, the time and estimated duration of the event and the reason for the event.
6. The Licencee shall, following the reporting of an event pursuant to Clause 5:
 - a) identify the repairs required to the mechanical equipment;
 - b) undertake all repairs to minimize unauthorized discharges of a pollutant;
 - c) complete the repairs in accordance with any written instructions of the Director; and
 - d) submit a report to the Director about the causes of breakdown and measures taken, within one week of the repairs being done.
7. The Licencee shall, during construction and operation of the Development, report spills of fuels or other contaminants to an Environment Officer in accordance with the requirements of Manitoba Regulation 439/87 respecting Environmental Accident Reporting or any future amendment thereof.

Respecting Land Application of Biosolids and Sludge Solids

8. The Licencee shall, during all biosolids and sludge solids land application activities, comply with the requirements of Manitoba Regulation 62/2008 respecting Nutrient Management or any future amendment thereof.

9. The Licencee shall only apply the biosolids and sludge solids to agricultural land located on NE, NW and SW of 02-25-22 WPM or other adjacent or nearby requested areas in the Gilbert Plains Municipality approved by the Director.
10. The Licencee shall isolate the cell of the wastewater treatment lagoon from which biosolids and sludge solids are to be removed from the rest of the wastewater treatment system while the biosolids and sludge solids are being mixed in or removed from the cell.
11. The Licencee shall transport biosolids and sludge solids in containers in such a manner to prevent loss of biosolids, sludge solids and associated liquids to the satisfaction of an Environment Officer.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Operation

12. The Licencee shall notify the assigned Environment Officer not less than five days prior to the commencement of removal, transportation and land application and incorporation or land injection of biosolids and sludge solids. The notification shall include the intended starting date of the activities and the name of the contractor responsible for the activities.
13. The Licencee shall, during removal, transportation and land application and incorporation or land injection of biosolids and sludge solids, operate, maintain and store all materials and equipment in a manner that prevents any deleterious substances (fuel, oil, grease, hydraulic fluids, coolant, paint, uncured concrete and concrete wash water, etc.) from entering the wastewater treatment lagoon, the discharge route and associated watercourses, and have an emergency spill kit for in-water use available on site during construction.
14. The Licencee shall locate all fuel storage and equipment servicing areas established for the construction and operation of the Development a minimum distance of 100 metres from any waterbody, and shall comply with the requirements of Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products Regulation or any future amendment thereof.
15. The Licencee shall:
 - a) apply the biosolids to the identified agricultural land by:
 - i) incorporating the biosolids into the soil a minimum of 15 centimetres below the soil surface within 48 hours of application: or
 - ii) injecting the biosolids into the soil such that the depth at which the biosolids are introduced into the soil is a minimum of 15 centimetres below the soil surface and there is no surface expression; and
 - b) complete the application and incorporation or injection of the sludge solids such that it is acceptable to an Environment Officer.

16. The Licencee shall apply biosolids and sludge solids such that the amounts of residual nitrate-nitrogen in the 0-24 inch soil depth and Olsen-P phosphorus in the 0-6 inch soil depth do not exceed the limits of the most limiting Nutrient Management Zone, regardless of size, set forth in the Nutrient Management Regulation under The Water Protection Act or any future amendment thereof.
17. The Licencee shall not permit the application of biosolids or sludge solids:
 - a) between November 10th of any year and April 10th of the following year, unless otherwise authorized in writing by the Director;
 - b) to frozen soil;
 - c) less than 75 metres from any occupied residence (other than the residence occupied by the owner of the land on which the sludge solids are to be applied);
 - d) less than 400 metres from a residential area;
 - e) less than 10 metres from any property line of a property with a residence;
 - f) less than 8 metres from a major wetland, bog, marsh or swamp;
 - g) less than 15 metres from a first order waterway;
 - h) less than 30 metres from a second, or higher order waterway;
 - i) less than 50 metres from any groundwater well; or
 - j) on land that is subject to flooding.
18. The Licencee shall not apply biosolids or sludge solids on land:
 - a) with a depth of clay or clay till of less than 1.5 metres between the soil surface and the water table;
 - b) within 100 metres of an identifiable boundary of an aquifer which is exposed to the ground surface;
 - c) where, prior to the application of biosolids or sludge solids, the soil pH is less than 6.0;
 - d) where the surface slope of the land is greater than 5 percent;
 - e) where, prior to the application of biosolids or sludge solids, the level of nitrate-nitrogen exceeds 100 kilograms per hectare in the upper 60 centimetres of the soil; or
 - f) where, prior to the application of biosolids or sludge solids, the concentration of sodium bicarbonate extractable phosphorous, as P, exceeds 60 micrograms per gram in the upper 15 centimetres of the soil.
19. The Licencee shall not allow cattle to pasture on land on which biosolids or sludge solids have been applied, for a period of three years from the date of application of the biosolids or sludge solids.
20. The Licencee shall, on all agricultural land onto which biosolids or sludge solids have been applied, plant one of the following crops at the commencement of the next growing season following such application and for a period of three years from the date of application of sludge solids:
 - a) a cereal crop;
 - b) a forage crop;
 - c) an oil seed crop;
 - d) field peas; or
 - e) lentils.
21. The Licencee shall apply biosolids or sludge solids onto agricultural land such that the cumulative weight per hectare of each heavy metal in the soil, as calculated by adding the amount of each heavy

metal in the sludge solids applied to the background level of the same metal, does not exceed the following levels:*

<u>Metal</u>	<u>Kilogram per Hectare</u>
Arsenic	21.6
Cadmium	2.5
Chromium (total)	115.2
Copper	113.4
Lead	126
Mercury	11.9
Nickel	90
Zinc	360

*Calculated values shall be based on a soil bulk density of 1200 kilograms per cubic metre and a soil depth of 15 centimetres. Analysis for heavy metals must be carried out in accordance with Schedule “B” of this Licence.

22. The Licencee shall, during all biosolids and sludge solids land application activities, prevent the introduction and spread of foreign aquatic and terrestrial biota by cleaning equipment prior to its delivery to the site of the Wastewater Treatment Lagoon.

MONITORING AND REPORTING SPECIFICATIONS

23. The Licencee shall submit to the Director, at least two weeks prior to commencing with the biosolids and sludge solids land application activities, the details of the sludge solids sampling and analysis program used to determine if phosphorus-based or nitrogen-based sludge application limits are most appropriate and for determining field-specific application rates for the lands on which the sludge solids are to be applied.
24. The Licencee shall submit to the Director, not later than on or before the 1st day of December in the year of biosolids and sludge solids applications, the details of the biosolids and sludge solids sampling and analysis programs used to determine the volumes and solids contents of the biosolids and sludge solids removed on a daily basis and the volume and the solids contents of biosolids and sludge solids applied to each field.
25. The Licencee shall submit to the Director, not later than on or before the 1st day of December in the year of biosolids and sludge solids applications, the details of the field monitoring programs on the biosolids and sludge solids disposal operations used to determine:
- a) the sodium bicarbonate extractable phosphorous, as P, in the upper 15 centimetres of the soil;
 - b) the nitrate-nitrogen and total nitrogen in the upper 60 centimetres of the soil;
 - c) the pH of the soil;
 - d) the surface slope of the land;
 - e) the presence of clay and clay till to a depth of 1.5 metres;


- f) the number of hectares in each field that can receive sludge solids in accordance with the Licence; and
 - g) the number of hectares on which sludge solids were applied on a daily basis.
26. The Licencee shall conduct a monitoring and analysis program that is acceptable to the Director, and in accordance with Schedules "A" and "B" of this Licence to determine:
- a) the composition of the biosolids and sludge solids;
 - b) the background levels of selected soil parameters for each parcel of land; and
 - c) the crops grown on land on which biosolids and sludge solids have been applied during the previous 3-year period.
27. The Licencee shall, on or before the 1st day of December of each year that this Licence is in effect, submit to the Director a report, which will include the following:
- a) details of the biosolids and sludge solids land application programs carried out during the previous 12 month period including:
 - i) a description of each parcel of land on which biosolids and sludge solids were distributed;
 - ii) the background levels of soil parameters as listed in Schedule "A" of this Licence, for each parcel of land;
 - iii) the dry weight of sludge solids applied per hectare;
 - iv) the weight of each heavy metal, in milligrams per kilogram of soil, added to each parcel of land for the metals listed in Schedule "A" of this Licence; and
 - v) the cumulative weight, in kilograms per hectare, of each heavy metal for each parcel of land as calculated by adding the amount of each heavy metal applied to the background level of the same metal;
 - b) the amount of nitrogen, phosphorus, and potassium which was added per hectare for each parcel of land;
 - c) the results of analysis of the biosolids and sludge solids and soil required by this Licence;
 - d) a copy of the analytical procedures used and the results of analysis of reference materials in accordance with Schedule "B" of this Licence; and
 - e) the type of crops grown on land on which biosolids and sludge solids were applied during the previous 3-year period.
28. The Licencee shall undertake annual post harvest soil testing of each field for Nitrate N (0 – 24") and phosphorus using the Olsen-P test (0 – 6") for 3 years following biosolids and sludge solids application. Additionally, the Licencee shall supply information from the producer regarding the amounts of nutrients from other sources (fertilizer, manure, etc.) being added to the field. Such soil test, fertilization, and cropping information shall be submitted to the Director on or before the 15th day of March of each year following a year when application of sludge solids occurred for three successive years.

TERMINATION

29. This Licence shall terminate on the 1st day of December 2020.

REVIEW AND REVOCATION

- A. 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.
- B. If the Licencee has not commenced operation of the Development within one year of the date of this Licence, the Licence is revoked.
- 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.



Tracey Braun, M. Sc.
Director
Environment Act

FILE: 91.20

SCHEDULE "A" TO ENVIRONMENT ACT LICENCE NO. 3225

Biosolids and Sludge Solids

1. A representative sample of biosolids and sludge solids shall be collected from each cell of the wastewater treatment lagoon from which biosolids and sludge solids will be removed. A representative sample of biosolids and sludge solids shall be a composite of sludge samples taken from a minimum of 5 locations distributed over the surface of the cell.
2. The sample of biosolids and sludge solids shall be analyzed for the following parameters: *
 - a. conductivity
 - b. pH
 - c. total solids
 - d. volatile solids
 - e. nitrate nitrogen
 - f. total Kjeldahl nitrogen
 - g. ammonia nitrogen
 - h. organic nitrogen
 - i. total phosphorus
 - j. lead
 - k. mercury
 - l. nickel
 - m. potassium
 - n. cadmium
 - o. copper
 - p. zinc
 - q. chromium
 - r. arsenic

*Analysis for heavy metals must be carried out in accordance with Schedule "B" of this Licence.

Soil

1. Composite samples from each field onto which biosolids and sludge solids will be applied shall be taken prior to application of biosolids and sludge solids. Each field of twenty-four hectares or less shall be sampled from a minimum of twelve representative sites or a minimum of one sample site per two hectares for larger fields. Each sample site shall be sampled from 0 to 15 centimetres and from 0 to 60 centimetres. The entire core extracted for each sample shall be collected. All samples from similar depths within a field shall be bulked in one container for thorough mixing prior to analysis yielding two samples per field.
2. Soil samples from 0 centimetres to 15 centimetres shall be analyzed for the following: *
 - a. pH
 - b. potassium
 - c. nickel
 - d. mercury
 - e. zinc
 - f. sodium bicarbonate extractable phosphorus, as P
 - g. cadmium
 - h. chromium
 - i. copper
 - j. lead
 - k. arsenic

*Analysis for heavy metals must be carried out in accordance with Schedule "B" of this Licence.

3. Soil samples from 0 to 60 centimetres shall be analyzed for the following:
 - a. nitrate nitrogen
 - b. total nitrogen

Crops

1. The type of crop grown on lands on which biosolids and sludge solids have been applied during the previous 3-year period shall be listed along with the legal description of the land and the date of application of sludge solids.

SCHEDULE "B" TO ENVIRONMENT ACT LICENCE NO. 3225

The analysis for all metals shall be carried out in accordance with the following requirements:

1. Soil and sludge samples shall be prepared using non-contaminating grinding and sieving procedures such as agate or porcelain mortar and pestle along with nylon sieves. Soil samples shall be ground to at least 100 mesh size prior to digestion or sample pretreatment.
2. Analysis for heavy metals must be carried out following strong acid digestion.
3. The laboratory performing these analyses shall operate an acceptable quality assurance program including the following:
 - a) Samples of reference material shall be analyzed to monitor the accuracy of the sludge and soil analyses and each set of ten or less samples of sludge or soil shall include, a minimum of the following:
 - i) For sludge samples:
 - one NIST domestic sludge sample (SRM 2781);
 - ii) For soil samples:
 - one NIST Estuarine Sediment sample (SRM 1646a); or
 - one NIST San Joaquin Soil sample (SRM 2709); or
 - a replacement reference soil sample, acceptable to the Director, with analyte concentrations that reflect values found in the field samples; and
 - b) Field duplicates of samples shall be analyzed based on a frequency of one in each set of ten or less field samples and that the acceptance criteria for duplicate analysis should be within ± 10 percent.
4. A copy of the analytical procedures and the analytical results for the reference materials, and any other controls used in the analysis, shall be submitted with the field sample results.
5. If the analytical results of the reference materials do not meet the following criteria, the soil and/or sludge samples must be re-analyzed:

- Arsenic	± 35 percent from the reference value
- Cadmium	± 25 percent from the reference value (for values above 1 $\mu\text{g/g}$)
- Cadmium	± 35 percent from the reference value (for values below 1 $\mu\text{g/g}$)
- Chromium	± 25 percent from the reference value
- Copper	± 25 percent from the reference value
- Lead	± 25 percent from the reference value
- Mercury	± 35 percent from the reference value
- Nickel	± 25 percent from the reference value
- Zinc	± 25 percent from the reference value